Kit Components

07/17/2010	Kit Components
Product code Description	
N9307103	Contract Laboratory Program Modification Set
Components:	
N9303843	STD, Tuning Solution 1
N9303816	STD, Instrument Calibration Standard 1
N9301721	Instrument Calibration Standard 2
N9303819	STD, Contract Required Detection Limit
N9303821	STD, Instrument Check STD 1
N9300253	MERCURY A/S STANDARD
N9303822	STD, Instrument Check Std 3
N9303823	STD, Instrument Check Std 4
N9303824	STD, Instrument Check Std 5
N9303827	STD, Interferents A
N9303829	STD, Analytes B
N9303839	STD, Spike Sample Standard 1 (water)
N9303840	STD, Spike Sample Standard 2 (soil)
N9303835	STD, Memory Test 1
N9303836	STD, Memory Test 2



Printing date 07/17/2018 Review date 07/17/2018

1 Identification

- · Product identifier
- · Trade name: STD, Tuning Solution 1
- · Article number N9303843
- · Application of the substance / the mixture Laboratory chemicals
- Details of the supplier of the safety data sheet
- · Manufacturer/Supplier:

PerkinElmer, Inc.

710 Bridgeport Avenue

Shelton, Connecticut 06484 USA

CustomerCareUS@perkinelmer.com

203-925-4600

· Emergency telephone number:

CHEMTREC (within US) 800-424-9300

CHEMTREC (from outside US) +1 703-527-3887 (call collect)

CHEMTREC (within AU) +(61)-290372994

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

- · Label elements
- · GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms GHS07
- · Signal word Warning
- · Hazard statements

H315 Causes skin irritation.

H319 Causes serious eye irritation.

· Precautionary statements

P264 Wash thoroughly after handling.

P280 Wear protective gloves / eye protection / face protection.

P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label).

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present

and easy to do. Continue rinsing.

P332+P313 If skin irritation occurs: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P337+P313 If eye irritation persists: Get medical advice/attention.

- · Classification system:
- · NFPA ratings (scale 0 4)



Health = 2 Fire = 0Reactivity = 0

(Contd. on page 2)



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Trade name: STD, Tuning Solution 1

· HMIS-ratings (scale 0 - 4)

(Contd. of page 1)



Health = 2Fire = 0

REACTIVITY 0 Reactivity = 0

· Other hazards

The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · vPvB: Not applicable.

	characterization: Mixtures 1: Mixture of the substances listed below with nonhazardou	us additions.	
Hazardous	components:		
7647-01-0	Hydrochloric Acid	Skin Corr. 1B, H314 STOT SE 3, H335	5.0%
7697-37-2	Nitric Acid	© Ox. Liq. 2, H272 Skin Corr. 1A, H314	2.0%
Additional	Components		
7440-48-4	cobalt Resp. Sens. 1, H334; Carc. 2, H351 Skin Sens. 1, H317		0.001%
7440-41-7	beryllium Acute Tox. 3, H301; Acute Tox. 2, H330 Carc. 1B, H350; STOT RE 1, H372 Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, F		0.001%
7440-74-6	Indium		0.001%
7439-92-1	lead Acute Tox. 3, H301 Carc. 2, H351; Repr. 1A, H360-H362 Acute Tox. 4, H332		0.001%
7439-93-2	lithium Water-react. 1, H260 Skin Corr. 1B, H314		0.001%
7439-95-4	magnesium (b) Pyr. Sol. 1, H250; Water-react. 1, H260		0.001%
7440-45-1	cerium Mater-react. 2, H261		0.001%
7440-16-6			0.001%
7440-28-0	thallium Acute Tox. 2, H300; Acute Tox. 2, H330 STOT RE 2, H373		0.001%

USA •

(Contd. on page 3)



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Trade name: STD, Tuning Solution 1

		ntd. of page 2)
7440-61-1	uranium	0.001%
	Acute Tox. 2, H300; Acute Tox. 2, H330 STOT RE 2, H373	
7440-39-3		0.001%
	🔖 Water-react. 2, H261	
7440-65-5	yttrium	0.001%
7732-18-5	Water	92.988%

4 First-aid measures

- Description of first aid measures
- · After inhalation: In case of unconsciousness place patient stably in side position for transportation.
- · After skin contact: Immediately wash with water and soap and rinse thoroughly.
- · After eye contact:

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

- · After swallowing: If symptoms persist consult doctor.
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- · Environmental precautions:

Inform respective authorities in case of seepage into water course or sewage system.

Dilute with plenty of water.

· Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

· Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

	010011101	ienon ernera jor enemicais	
· P A	AC-1:		
76	547-01-0	Hydrochloric Acid	1.8 ppm
76	597-37-2	Nitric Acid	0.16 ppm
74	440-48-4	cobalt	0.18 mg/m^3
			(Contd. on page 4)

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Trade name: STD, Tuning Solution 1

7440-41-7 beryllium	(Contd. of page 0.0023 mg/m
7440-74-6 Indium	0.3 mg/m^3
7439-92-1 lead	0.15 mg/m^3
7439-93-2 lithium	3.3 mg/m^3
7439-95-4 magnesium	18 mg/m ³
7440-45-1 cerium	30 mg/m ³
7440-16-6 rhodium	$3 mg/m^3$
7440-28-0 thallium	0.06 mg/m^3
7440-61-1 uranium	0.6 mg/m^3
7440-39-3 barium	$\frac{0.0 \text{ mg/m}}{1.5 \text{ mg/m}^3}$
7440-65-5 yttrium	$\frac{1.5 \text{ mg/m}}{3 \text{ mg/m}^3}$
I ^r	3 mg/m ²
PAC-2:	
7647-01-0 Hydrochloric Acid	22 ppm
7697-37-2 Nitric Acid	24 ppm
7440-48-4 cobalt	$2 mg/m^3$
7440-41-7 beryllium	0.025 mg/m
7440-74-6 Indium	3.3 mg/m^3
7439-92-1 lead	120 mg/m³
7439-93-2 lithium	36 mg/m ³
7439-95-4 magnesium	200 mg/m³
7440-45-1 cerium	330 mg/m³
7440-16-6 rhodium	33 mg/m ³
7440-28-0 thallium	3.3 mg/m^3
7440-61-1 uranium	5 mg/m^3
7440-39-3 barium	180 mg/m³
7440-65-5 yttrium	33 mg/m³
PAC-3:	
7647-01-0 Hydrochloric Acid	100 ppm
7697-37-2 Nitric Acid	92 ppm
7440-48-4 cobalt	20 mg/m^3
7440-41-7 beryllium	0.1 mg/m^3
7440-74-6 Indium	20 mg/m^3
7439-92-1 lead	700 mg/m^3
7439-93-2 lithium	220 mg/m^3
7439-95-4 magnesium	1,200 mg/m
7440-45-1 cerium	2,000 mg/m
7440-16-6 rhodium	200 mg/m³
7440-28-0 thallium	20 mg/m^3
7440-61-1 uranium	30 mg/m^3
7440-39-3 barium	1,100 mg/m
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Trade name: STD, Tuning Solution 1

	ontd. of page 4)
7440-65-5 yttrium 200)0 mg/m³

7 Handling and storage

- · Handling:
- · Precautions for safe handling No special precautions are necessary if used correctly.
- · Information about protection against explosions and fires: The product is not flammable.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see item 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:

7647-01-0 Hydrochloric Acid

- PEL Ceiling limit value: 7 mg/m³, 5 ppm
- REL Ceiling limit value: 7 mg/m³, 5 ppm
- TLV Ceiling limit value: 2.98 mg/m³, 2 ppm

7697-37-2 Nitric Acid

- PEL Long-term value: 5 mg/m³, 2 ppm
- REL Short-term value: 10 mg/m³, 4 ppm
 - Long-term value: 5 mg/m³, 2 ppm
- TLV Short-term value: 10 mg/m³, 4 ppm
- Long-term value: 5.2 mg/m³, 2 ppm
- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

- · Breathing equipment: Not required.
- Protection of hands:



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(Contd. of page 5)

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection:



Tightly sealed goggles or safety glasses

Information on basic physical and c	hemical properties	
General Information		
Appearance: Form:	Limid	
Form: Color:	Liquid Transparent	
Odor:	Odorless	
Odor threshold:	Not determined.	
pH-value:	Not determined.	
Change in condition		
Melting point/Melting range:	0 °C (32 °F)	
Boiling point/Boiling range:	100 °C (212 °F)	
Flash point:	Not applicable.	
Flammability (solid, gaseous):	Not applicable.	
Decomposition temperature:	Not determined.	
Auto igniting:	Product is not selfigniting.	
Danger of explosion:	Product does not present an explosion hazard.	
Explosion limits:		
Lower:	Not determined.	
Upper:	Not determined.	
Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)	
Density at 20 °C (68 °F):	1 g/cm³ (8.345 lbs/gal)	
Relative density	Not determined.	
Vapor density	Not determined.	
Evaporation rate	Not determined.	

(Contd. on page 7)



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Trade name: STD, Tuning Solution 1

(Contd. of page 6) · Solubility in / Miscibility with Water: Fully miscible. · Partition coefficient (n-octanol/water): Not determined. · Viscosity: Dynamic: Not determined. Kinematic: Not determined. · Solvent content: 93.0 % Water: **VOC** content: 0.00 % · Other information No further relevant information available.

10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · **Possibility of hazardous reactions** No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:
- Primary irritant effect:
- · on the skin: Irritant to skin and mucous membranes.
- · on the eye: Irritating effect.
- · Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

	ernational Agency for Research on Cancer) Hydrochloric Acid	3
7440-48-4		21
7440-41-7	beryllium	1
7439-92-1	lead	2.
NTP (Nati	onal Toxicology Program)	
7440-48-4	cobalt	1
7440-41-7	beryllium	İ
7439-92-1	lead	
		(Contd. on page



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Trade name: STD, Tuning Solution 1

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OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- · **PBT**: Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Dispose of container and materials in accordance with local, regional and national regulations.

- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transpo.	rt information

· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name	
·DOT	Corrosive liquid, acidic, inorganic, n.o.s. (Hydrochloric acid, Nitric Acid)
$\cdot ADR$	3264 Corrosive liquid, acidic, inorganic, n.o.s. (Hydrochloric acid, Nitric Acid)
· IMDG, IATA	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (HYDROCHLORIC ACID, Nitric Acid)

(Contd. on page 9)



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Trade name: STD, Tuning Solution 1

(Contd. of page 8) · Transport hazard class(es) $\cdot DOT$ · Class 8 Corrosive substances ·Label $\cdot ADR$ · Class 8 (C1) Corrosive substances ·Label · IMDG, IATA · Class 8 Corrosive substances ·Label · Packing group · DOT, ADR, IMDG, IATA III· Environmental hazards: · Marine pollutant: Warning: Corrosive substances · Special precautions for user Danger code (Kemler): · EMS Number: F-A,S-B· Segregation groups Acids· Stowage Category · Stowage Code SW2 Clear of living quarters. · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable. · Transport/Additional information: $\cdot DOT$ · Quantity limitations On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L $\cdot ADR$ · Excepted quantities (EQ) Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml (Contd. on page 10)

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Trade name: STD, Tuning Solution 1

(Contd. of page 9)

· Limited quantities (LQ)
· Excepted quantities (EQ)
5L
Code: E1

Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml

· UN "Model Regulation": UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.

(HYDROCHLORIC ACID, NITRIC ACID), 8, III

15 Regul	atory i	nforma	ition
8		J	

· Safety, health and environmental regulations/legislation specific for the substance or mixture			
7732-18-5	Water		92.988%
7647-01-0	Hydrochloric Acid	Skin Corr. 1B, H314 STOT SE 3, H335	5.0%
7697-37-2	Nitric Acid	Ox. Liq. 2, H272Skin Corr. 1A, H314	2.0%

·Sara

· IMDG

· Section 355 (extremely	hazardous substances):
777777777777777777777777777777777777777	1

7647-01-0 Hydrochloric Acid 7697-37-2 Nitric Acid

Section 313 (Specific toxic chemical listings):

7647-01-0 Hydrochloric Acid

7697-37-2 Nitric Acid

7440-48-4 cobalt

7440-41-7 beryllium

7439-92-1 lead

7440-28-0 thallium

7440-39-3 barium

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

O	
	Hydrochloric Acid
	Nitric Acid
7440-48-4	
7440-41-7	· ·
7440-74-6	
7439-92-1	
7439-93-2	
	magnesium
7440-45-1	
7440-16-6	rhodium

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Trade name: STD, Tuning Solution 1

(Contd. of page 10) 7440-28-0 thallium 7440-61-1 uranium 7440-39-3 barium 7440-65-5 yttrium 7732-18-5 Water · Proposition 65 · Chemicals known to cause cancer: 7440-48-4 cobalt 7440-41-7 beryllium 7439-92-1 lead · Chemicals known to cause reproductive toxicity for females: 7439-92-1 lead · Chemicals known to cause reproductive toxicity for males: 7439-92-1 lead · Chemicals known to cause developmental toxicity: 7439-92-1 lead · Cancerogenity categories · EPA (Environmental Protection Agency) 7440-41-7 beryllium B1, K/L(inh), CBD(oral) 7439-92-1 lead R27440-39-3 barium D, CBD(inh), NL(oral) TLV (Threshold Limit Value established by ACGIH) 7647-01-0 Hydrochloric Acid A47440-48-4 cobalt A37440-41-7 beryllium A17439-92-1 lead A37440-16-6 rhodium A47440-61-1 uranium $\overline{A1}$ 7440-39-3 barium A4· NIOSH-Ca (National Institute for Occupational Safety and Health) 7440-41-7 beryllium 7440-61-1 uranium

· National regulations:

· Information about limitation of use:

Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

· Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.

(Contd. on page 12)



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Trade name: STD, Tuning Solution 1

(Contd. of page 11)

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Disclaimer

The information provided in this Material Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. PerkinElmer shall not be held liable for any damage resulting from handling or from contact with the product.

· Department issuing SDS: Environmental, Health and Safety

· Contact:

Within the USA: 1-(800)-762-4000 Outside the USA: 1-(203)-712-8488

· Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Ox. Liq. 2: Oxidizing liquids - Category 2

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Skin Corr. 1B: Skin corrosion/irritation - Category 1B

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

* * Data compared to the previous version altered.

USA



Review date 07/17/2018 Printing date 07/17/2018

1 Identification

- · Product identifier
- · Trade name: STD, Instrument Calibration Standard 1
- · Article number N9303816
- · Application of the substance / the mixture Laboratory chemicals
- Details of the supplier of the safety data sheet
- · Manufacturer/Supplier:

PerkinElmer, Inc.

710 Bridgeport Avenue

Shelton, Connecticut 06484 USA

CustomerCareUS@perkinelmer.com

203-925-4600

· Emergency telephone number:

CHEMTREC (within US) 800-424-9300

CHEMTREC (from outside US) +1 703-527-3887 (call collect)

CHEMTREC (within AU) +(61)-290372994

2 Hazard(s) identification

· Classification of the substance or mixture



Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

- · Label elements
- · GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms GHS05
- · Signal word Danger
- · Hazard-determining components of labeling:

Nitric Acid

· Hazard statements

H314 Causes severe skin burns and eye damage.

· Precautionary statements

P260 Do not breathe dusts or mists. P264 Wash thoroughly after handling.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/

shower.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present

and easy to do. Continue rinsing.

P310 Immediately call a poison center/doctor. P321 Specific treatment (see on this label). P363 Wash contaminated clothing before reuse.

P405 Store locked up.

(Contd. on page 2)



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Trade name: STD, Instrument Calibration Standard 1

(Contd. of page 1)

P501

Dispose of contents/container in accordance with local/regional/national/international regulations.

- · Classification system:
- · NFPA ratings (scale 0 4)



Health = 3Fire = 0

Reactivity = 0

· HMIS-ratings (scale 0 - 4)



3 Health = 3

Fire = 0

· Other hazards

The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

- · Chemical characterization: Substances
- · CAS No. Description

7732-18-5 Water

- · Identification number(s)
- · EC number: 231-791-2
- · Chemical characterization: Mixtures
- · **Description:** Mixture of the substances listed below with nonhazardous additions.

7697-37-2	Nitric Acid	Ox. Liq. 2, H272 Skin Corr. 1A, H314	5.09
Additional	Components		
7440-02-0	nickel Carc. 2, H351; STOT RE 1, H372 Skin Sens. 1, H317		.02%
7440-39-3	barium Water-react. 2, H261	0.	0029
7440-41-7	beryllium Acute Tox. 3, H301; Acute Tox. 2, H330 Carc. 1B, H350; STOT RE 1, H372 Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317; STOT		002%
7440-43-9	cadmium (non-pyrophoric)		002%



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Trade name: STD, Instrument Calibration Standard 1

		(Contd. of pa
7440-47-3	chromium	0.002
7440-48-4	cobalt Resp. Sens. 1, H334; Carc. 2, H351 Skin Sens. 1, H317	0.002
7440-50-8	copper	0.002
7439-92-1	lead Acute Tox. 3, H301 Carc. 2, H351; Repr. 1A, H360-H362 Acute Tox. 4, H332	0.002
7439-96-5	manganese	0.002
	molybdenum trioxide Carc. 2, H351 Eye Irrit. 2A, H319; STOT SE 3, H335	0.002
7440-38-2	Arsenic Acute Tox. 3, H301; Acute Tox. 3, H331 Carc. 1A, H350	0.002
7440-36-0	antimony	0.002
7782-49-2	selenium → Acute Tox. 3, H301; Acute Tox. 3, H331 → STOT RE 2, H373	0.002
7440-22-4	silver	0.002
7440-28-0	thallium Acute Tox. 2, H300; Acute Tox. 2, H330 STOT RE 2, H373	0.002
7440-29-1	thorium & Carc. 1A, H350	0.002
7440-61-1	<i>uranium Acute Tox. 2, H300; Acute Tox. 2, H330 STOT RE 2, H373</i>	0.002
7440-62-2	vanadium	0.002
7440-66-6	zinc	0.002
7429-90-5	aluminium	0.002
147-71-7	(-)-tartaric acid ♦ Skin Irrit. 2, H315	0.001
7732-18-5	*	94.94

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- · After inhalation: In case of unconsciousness place patient stably in side position for transportation.
- · After skin contact: Immediately wash with water and soap and rinse thoroughly.
- · After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.

(Contd. on page 4)



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- · After swallowing: Drink copious amounts of water and provide fresh air. Immediately call a doctor.
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

· Environmental precautions:

Inform respective authorities in case of seepage into water course or sewage system.

Dilute with plenty of water.

· Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

· Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

7 697-37-2 1	Nitric Acid	0.16 ppm
7440-02-0 r	nickel	4.5 mg/m^3
7440-39-3 l	parium	1.5 mg/m^3
7440-41-7 l	peryllium	$0.0023 \ mg/m^3$
7440-43-9 c	cadmium (non-pyrophoric)	0.10 mg/m^3
7440-47-3 c	rhromium	1.5 mg/m³
7440-48-4 c	cobalt	0.18 mg/m^3
7440-50-8 d	copper	$3 mg/m^3$
7439-92-1 l	ead	0.15 mg/m^3
7439-96-5 1	nanganese	$3 mg/m^3$
1313-27-5 1	nolybdenum trioxide	2.3 mg/m ³
7440-38-2	Arsenic	1.5 mg/m^3
7440-36-0 d	ıntimony	1.5 mg/m^3

-USA



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	(Ct-l -f
7782-49-2 selenium	(Contd. of page 0.6 mg/m^3
7440-22-4 silver	0.3 mg/m^3
7440-28-0 thallium	0.06 mg/m^3
7440-29-1 thorium	30 mg/m^3
7440-61-1 uranium	0.6 mg/m^3
7440-62-2 vanadium	3 mg/m^3
7440-66-6 zinc	6 mg/m ³
· PAC-2;	1 70 1
7697-37-2 Nitric Acid	24 ppm
7440-02-0 nickel	50 mg/m^3
7440-39-3 barium	180 mg/m^3
7440-41-7 beryllium	0.025 mg/m
7440-43-9 cadmium (non-pyrophoric)	0.76 mg/m^3
7440-47-3 chromium	$\frac{0.70 \text{ mg/m}^3}{17 \text{ mg/m}^3}$
7440-48-4 cobalt	$\frac{17 \text{ mg/m}^3}{2 \text{ mg/m}^3}$
7440-50-8 copper	$\frac{2 \text{ mg/m}}{33 \text{ mg/m}^3}$
7439-92-1 lead	$\frac{33 \text{ mg/m}}{120 \text{ mg/m}^3}$
7439-96-5 manganese	5 mg/m ³
1313-27-5 molybdenum trioxide	$\frac{3 mg/m^3}{43 mg/m^3}$
7440-38-2 Arsenic	$\frac{43 \text{ mg/m}}{17 \text{ mg/m}^3}$
7440-36-0 antimony	17 mg/m 13 mg/m ³
7782-49-2 selenium	6.6 mg/m^3
7/82-49-2 selentum 7440-22-4 silver	
	170 mg/m^3
7440-28-0 thallium	3.3 mg/m^3
7440-29-1 thorium	330 mg/m^3
7440-61-1 uranium	5 mg/m^3
7440-62-2 vanadium	5.8 mg/m³
7440-66-6 zinc	21 mg/m³
· PAC-3:	
7697-37-2 Nitric Acid	92 ppm
7440-02-0 nickel	99 mg/m^3
7440-39-3 barium	1,100 mg/m
7440-41-7 beryllium	0.1 mg/m^3
7440-43-9 cadmium (non-pyrophoric)	4.7 mg/m^3
7440-47-3 chromium	99 mg/m³
7440-48-4 cobalt	20 mg/m³
7440-50-8 copper	200 mg/m³
7439-92-1 lead	700 mg/m³
7439-96-5 manganese	1,800 mg/m
1313-27-5 molybdenum trioxide	260 mg/m³



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		(Contd. of page 5)
7440-38-2	Arsenic	100 mg/m^3
7440-36-0	antimony	80 mg/m³
7782-49-2	selenium	40 mg/m³
7440-22-4	silver	990 mg/m³
7440-28-0	thallium	20 mg/m³
7440-29-1	thorium	$2,000 \text{ mg/m}^3$
7440-61-1	uranium	30 mg/m^3
7440-62-2	vanadium	35 mg/m ³
7440-66-6	zinc	120 mg/m³

7 Handling and storage

- · Handling:
- · Precautions for safe handling No special precautions are necessary if used correctly.
- · Information about protection against explosions and fires: The product is not flammable.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions:

Store in a cool place.

Keep receptacle tightly sealed.

· Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see item 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:

7697-37-2 Nitric Acid

PEL Long-term value: 5 mg/m³, 2 ppm

REL Short-term value: 10 mg/m³, 4 ppm
Long-term value: 5 mg/m³, 2 ppm

TLV Short-term value: 10 mg/m³, 4 ppm
Long-term value: 5.2 mg/m³, 2 ppm

- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes.

(Contd. on page 7)



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(Contd. of page 6)

- Avoid contact with the eyes and skin.
- · Breathing equipment: Not required.
- · Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Penetration time of glove material

9 Physical and chemical properties

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection:



Tightly sealed goggles or safety glasses

Information on basic physical and	chemical properties	
General Information Appearance:		
Form:	Liquid	
Color:	Transparent	
Odor:	Odorless	
Odor threshold:	Not determined.	
pH-value:	Not determined.	
Change in condition		
Melting point/Melting range:	0 °C (32 °F)	
Boiling point/Boiling range:	100 °C (212 °F)	
Flash point:	Not applicable.	
Flammability (solid, gaseous):	Not applicable.	
Decomposition temperature:	Not determined.	
Auto igniting:	Product is not selfigniting.	
Danger of explosion:	Product does not present an explosion hazard.	
Explosion limits:		
Lower:	Not determined.	
Upper:	Not determined.	

(Contd. on page 8)



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		(Contd. of page
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)	
Density at 20 °C (68 °F):	1 g/cm³ (8.345 lbs/gal)	
Relative density	Not determined.	
· Vapor density	Not determined.	
Evaporation rate	Not determined.	
· Solubility in / Miscibility with		
Water:	Fully miscible.	
· Partition coefficient (n-octanol/wate	e r): Not determined.	
· Viscosity:		
Dynamic:	Not determined.	
Kinematic:	Not determined.	
· Solvent content:		
Water:	94.9 %	
VOC content:	0.00 %	
Solids content:	0.1 %	
· Other information	No further relevant information available.	

10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:
- Primary irritant effect:
- · on the skin: Caustic effect on skin and mucous membranes.
- on the eye:

Strong caustic effect.

Strong irritant with the danger of severe eye injury.

- · Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Corrosive

Irritani

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

(Contd. on page 9)



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(Contd. of page 8) · Carcinogenic categories · IARC (International Agency for Research on Cancer) 7440-02-0 nickel 2B 7440-41-7 beryllium 7440-43-9 cadmium (non-pyrophoric) 3 7440-47-3 chromium 7440-48-4 cobalt 2B 7439-92-1 lead 2B 7440-38-2 Arsenic 7782-49-2 selenium 3 7440-29-1 thorium 1 · NTP (National Toxicology Program) 7440-02-0 nickel R 7440-41-7 beryllium K 7440-43-9 cadmium (non-pyrophoric) K 7440-48-4 cobalt R 7439-92-1 lead R K 7440-38-2 Arsenic OSHA-Ca (Occupational Safety & Health Administration) 7440-43-9 cadmium (non-pyrophoric) 7440-38-2 Arsenic

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system. Must not reach bodies of water or drainage ditch undiluted or unneutralized.

- · Results of PBT and vPvB assessment
- · **PBT**: Not applicable.
- · vPvB: Not applicable.
- $\cdot \textit{Other adverse effects} \ \textit{No further relevant information available}.$

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(Contd. of page 9)

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Dispose of container and materials in accordance with local, regional and national regulations.

- · Uncleaned packagings:
- Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

Transport information	
· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name · DOT · ADR · IMDG, IATA	Corrosive liquid, acidic, inorganic, n.o.s. (nitric acid) 3264 Corrosive liquid, acidic, inorganic, n.o.s. (nitric acid) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric ac
· Transport hazard class(es)	
ORROSVE	
· Class · Label	8 Corrosive substances 8
ADR	
· Class · Label	8 (C1) Corrosive substances 8
· IMDG, IATA	
· Class · Label	8 Corrosive substances 8
· Packing group · DOT, ADR, IMDG, IATA	III



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 ${\it Trade\ name: STD, Instrument\ Calibration\ Standard\ 1}$

	(Contd. of page
Environmental hazards:	
Marine pollutant:	No
Special precautions for user	Warning: Corrosive substances
Danger code (Kemler):	80
EMS Number:	F- A , S - B
Segregation groups	Acids
Stowage Category	A
Stowage Code	SW2 Clear of living quarters.
Transport in bulk according to Annex	II of
MARPOL73/78 and the IBC Code	Not applicable.
Transport/Additional information:	
DOT	
Quantity limitations	On passenger aircraft/rail: 5 L
	On cargo aircraft only: 60 L
ADR	
Excepted quantities (EQ)	Code: E1
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
IMDG	
Limited quantities (LQ)	5L
Excepted quantities (EQ)	Code: E1
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
UN ''Model Regulation'':	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O. (NITRIC ACID), 8, III

· Safety, hed	ılth and environmental regulati	ons/legislation specific for the substance or mixture	
7732-18-5	Water		94.941%
7697-37-2	Nitric Acid	© Ox. Liq. 2, H272 Skin Corr. 1A, H314	5.0%
7440-02-0	nickel	© Carc. 2, H351; STOT RE 1, H372 Skin Sens. 1, H317	0.02%
· Sara			
· Section 35	5 (extremely hazardous substan	aces):	
7697-37-2	Nitric Acid		
· Section 31	3 (Specific toxic chemical listin	gs):	
7697-37-2	Nitric Acid		
7440-02-0	nickel		
7440-39-3	barium		



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	(Contd. of pa
7440-41-7	
7440-43-9	cadmium (non-pyrophoric)
7440-47-3	chromium
7440-48-4	cobalt
7440-50-8	copper
7439-92-1	lead
7439-96-5	manganese
1313-27-5	molybdenum trioxide
7440-38-2	Arsenic
7440-36-0	antimony
7782-49-2	selenium
7440-22-4	silver
7440-28-0	thallium
7440-62-2	vanadium
7440-66-6	zinc
7429-90-5	aluminium
All ingredie	cic Substances Control Act): ents are listed.
	Nitric Acid
7440-02-0	
7440-39-3	
7440-41-7	
	cadmium (non-pyrophoric)
7440-47-3	
7440-48-4	
7440-50-8	
7439-92-1	
	manganese
	molybdenum trioxide
7440-38-2	
7440-36-0	antimony
7782-49-2	
7440-22-4	
7440-28-0	
7440-29-1	
7440-61-1	
7440-62-2	vanadium
7440-66-6	
7429-90-5	aluminium
147_71_7	(-)-tartaric acid

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		(Contd. of page
7732-18-5	Water	(2.2. sur. 2. FuQ2
· Proposition	1 65	
· Chemicals	known to cause cancer:	
7440-02-0	nickel	
7440-41-7	beryllium	
7440-43-9	cadmium (non-pyrophoric)	
7440-48-4	cobalt	
7439-92-1	lead	
7440-38-2	Arsenic	
· Chemicals	known to cause reproductive toxicity for females:	
7439-92-1	lead	
· Chemicals	known to cause reproductive toxicity for males:	
7440-43-9	cadmium (non-pyrophoric)	
7439-92-1	lead	
· Chemicals	known to cause developmental toxicity:	
7440-43-9	cadmium (non-pyrophoric)	
7439-92-1	lead	
· Canceroge	nity categories	
	ronmental Protection Agency)	
7440-39-3		D, CBD(inh), NL(oral)
7440-41-7	beryllium	B1, K/L(inh), CBD(ord
	cadmium (non-pyrophoric)	BI
7440-47-3		D
7440-50-8	copper	D
7439-92-1		B2
7439-96-5	manganese	D
7440-38-2	=	A
7782-49-2	selenium	D
7440-22-4	silver	D
7440-66-6	zinc	D, I, II
· TLV (Thre	shold Limit Value established by ACGIH)	,
7440-02-0	<u> </u>	
7440-39-3	barium	
7440-41-7	beryllium	A
7440-43-9	cadmium (non-pyrophoric)	A
7440-47-3	chromium	A
7440-48-4	cobalt	A
7439-92-1		A
7440-38-2	Arsenic	A
		(Contd. on page



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	(Contd. of page 13)
7440-61-1	uranium A1
7429-90-5	aluminium A4
	a (National Institute for Occupational Safety and Health)
7440-02-0	nickel
7440-41-7	
7440-43-9	cadmium (non-pyrophoric)
7440-38-2	Arsenic
7440-61-1	uranium

- · National regulations:
- · Information about limitation of use:

Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

- · Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.
- · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Disclaimer

The information provided in this Material Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. PerkinElmer shall not be held liable for any damage resulting from handling or from contact with the product.

- · Department issuing SDS: Environmental, Health and Safety
- · Contact:

Within the USA: 1-(800)-762-4000 Outside the USA: 1-(203)-712-8488

· Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

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PEL: Permissible Exposure Limit REL: Recommended Exposure Limit Ox. Liq. 2: Oxidizing liquids – Category

Ox. Liq. 2: Oxidizing liquids – Category 2
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Eye Dam. 1: Serious eye damage/eye irritation – Category 1

* Data compared to the previous version altered.

USA :



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1 Identification

- · Product identifier
- · Trade name: Instrument Calibration Standard 2
- · Article number N9301721
- · Application of the substance / the mixture Laboratory chemicals
- Details of the supplier of the safety data sheet
- · Manufacturer/Supplier:

PerkinElmer, Inc.

710 Bridgeport Avenue

Shelton, Connecticut 06484 USA

CustomerCareUS@perkinelmer.com

203-925-4600

· Emergency telephone number:

CHEMTREC (within US) 800-424-9300

CHEMTREC (from outside US) +1 703-527-3887 (call collect)

CHEMTREC (within AU) +(61)-290372994

2 Hazard(s) identification

· Classification of the substance or mixture



Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.



Acute Tox. 4 H302 Harmful if swallowed.

Acute Tox. 4 H312 Harmful in contact with skin.

- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms GHS05, GHS07
- · Signal word Danger
- · Hazard-determining components of labeling:

Nitric Acid

Hydrofluoric acid

· Hazard statements

H302+H312 Harmful if swallowed or in contact with skin. H314 Causes severe skin burns and eye damage.

· Precautionary statements

P260 Do not breathe dusts or mists. P264 Wash thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301+P312 If swallowed: Call a poison center/doctor if you feel unwell.

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(Contd. of page 1)

P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present

and easy to do. Continue rinsing.

P310 Immediately call a poison center/doctor. P321 Specific treatment (see on this label).

P362+P364 Take off contaminated clothing and wash it before reuse.

P363 Wash contaminated clothing before reuse.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international

regulations.

· Classification system:

· NFPA ratings (scale 0 - 4)



Health = 3 Fire = 0Reactivity = 0

· HMIS-ratings (scale 0 - 4)



3 *Health* = 3 0 *Fire* = 0

REACTIVITY $\boxed{0}$ Reactivity = 0

Other hazards

The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

- · Chemical characterization: Mixtures
- · Description: Mixture of the substances listed below with nonhazardous additions.

· Hazardous components:	
7697-37-2 Nitric Acid	© Ox. Liq. 2, H272 Skin Corr. 1A, H314
· Additional Components	
7664-39-3 Hydrofluoric acid	0.3%
Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330 Skin Corr. 1A, H314	
133-37-9 (+-)-tartaric acid	0.2%
7440-41-7 beryllium	0.001%
Acute Tox. 3, H301; Acute Tox. 2, H330 Carc. 1B, H350; STOT RE 1, H372 Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317; STO	OT SE 3, H335
·	(C+1 2)

(Contd. on page 3)



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Trade name: Instrument Calibration Standard 2

7 / / 0 / 0 0		(Contd. of page
7440-43-9	cadmium (non-pyrophoric) Acute Tox. 2, H330	0.0019
	ॐ Muta. 2, H341; Carc. 1B, H350; Repr. 2, H361; STOT RE 1, H372	
7440-70-2	calcium Water-react. 2, H261	0.0019
7440-47-3	chromium	0.0019
7440-48-4	cobalt	0.0019
	Resp. Sens. 1, H334; Carc. 2, H351 Skin Sens. 1, H317	
7440-50-8	copper	0.0019
7439-89-6	iron	0.0019
7439-92-1	lead	0.0019
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Acute Tox. 3, H301 Carc. 2, H351; Repr. 1A, H360-H362 Acute Tox. 4, H332	
7439-95-4	magnesium	0.0019
	� Pyr. Sol. 1, H250; Water-react. 1, H260	
1317-35-7	trimanganese tetraoxide	0.0019
1313-27-5	molybdenum trioxide	0.0019
	© Carc. 2, H351 Description of the European Control o	
7440-02-0	nickel Carc. 2, H351; STOT RE 1, H372 Skin Sens. 1, H317	0.0019
7440-36-0	antimony	0.0019
7440-09-7	·	0.0019
7110 07 7	Water-react. 1, H260 Skin Corr. 1B, H314	
7782-49-2	selenium	0.0019
	Acute Tox. 3, H301; Acute Tox. 3, H331 STOT RE 2, H373	
7440-22-4	silver	0.0019
7440-23-5	sodium	0.0019
	Water-react. 1, H260 Skin Corr. 1B, H314	
10042-76-9	strontium nitrate	0.0019
	◎ Ox. Sol. 2, H272	
7440-28-0	· ·	0.0019
	Acute Tox. 2, H300; Acute Tox. 2, H330 STOT RE 2, H373	
7440-31-5	tin	0.0019
7440-32-6	titanium	0.0019
	🅸 Self-heat. 1, H251; Water-react. 1, H260	
7440-62-2	vanadium	0.0019

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Trade name: Instrument Calibration Standard 2

		(Contd. of page 3)
7429-90-5	aluminium	0.001%
7440-66-6		0.001%
	🔷 Water-react. 2, H261	
7440-38-2	Arsenic	0.001%
7440-39-3	barium Water-react. 2, H261	0.001%
7732-18-5	Water	94.474%

4 First-aid measures

- · Description of first aid measures
- General information:

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

- · After inhalation: In case of unconsciousness place patient stably in side position for transportation.
- · After skin contact:

Immediately wash with water and soap and rinse thoroughly.

Rub in Ca-gluconate solution or Ca-gluconate gel immediately.

- · After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
- · After swallowing:

Immediately call a doctor.

Drink copious amounts of water and provide fresh air. Immediately call a doctor.

- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed

No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · **Protective equipment:** No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

· Environmental precautions:

Inform respective authorities in case of seepage into water course or sewage system.

Dilute with plenty of water.

Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

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(Contd. of page 4)

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

· Reference to other sections

See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

7697-37-2	Nitric Acid	0.16 ppm
7440-41-7	beryllium	0.0023 mg/m
7440-43-9	cadmium (non-pyrophoric)	0.10 mg/m^3
7440-47-3	chromium	1.5 mg/m^3
7440-48-4	cobalt	0.18 mg/m^3
7440-50-8	copper	$3 mg/m^3$
7439-89-6	iron	3.2 mg/m^3
7439-92-1	lead	0.15 mg/m^3
7439-95-4	magnesium	18 mg/m³
1317-35-7	trimanganese tetraoxide	4.2 mg/m^3
	molybdenum trioxide	2.3 mg/m^3
7440-02-0	nickel	4.5 mg/m^3
7440-36-0	antimony	1.5 mg/m^3
7440-09-7	potassium	2.3 mg/m^3
7782-49-2	selenium	0.6 mg/m^3
7440-22-4	silver	0.3 mg/m^3
7440-23-5	sodium	13 mg/m³
10042-76-9	strontium nitrate	5.7 mg/m^3
7440-28-0	thallium	0.06 mg/m^3
7440-31-5	tin	6 mg/m ³
7440-32-6	titanium	30 mg/m^3
7440-62-2	vanadium	$3 mg/m^3$
7440-66-6	zinc	6 mg/m³
7440-38-2	Arsenic	1.5 mg/m^3
7440-39-3	barium	1.5 mg/m^3
PAC-2:		1
7697-37-2	Nitric Acid	24 ppm
7440-41-7	beryllium	0.025 mg/m
7440-43-9	cadmium (non-pyrophoric)	0.76 mg/m^3
7440-47-3	chromium	17 mg/m^3
7440-48-4	cobalt	$2 mg/m^3$
7440-50-8	copper	33 mg/m^3



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7439-89-6	iron	(Contd. of page 35 mg/m^3
7439-92-1	lead	120 mg/m^3
7439-95-4	magnesium	200 mg/m^3
1317-35-7	trimanganese tetraoxide	6.9 mg/m^3
	molybdenum trioxide	43 mg/m^3
7440-02-0	nickel	50 mg/m^3
7440-36-0	antimony	13 mg/m^3
7440-09-7	potassium	25 mg/m³
7782-49-2	selenium	6.6 mg/m^3
7440-22-4	silver	170 mg/m^3
7440-23-5	sodium	140 mg/m^3
10042-76-9	strontium nitrate	62 mg/m³
7440-28-0	thallium	3.3 mg/m^3
7440-31-5	tin	67 mg/m³
7440-32-6	titanium	330 mg/m^3
7440-62-2	vanadium	5.8 mg/m^3
7440-66-6	zinc	21 mg/m^3
7440-38-2	Arsenic	17 mg/m^3
7440-39-3	barium	180 mg/m^3
<i>PAC-3:</i>		
	Nitric Acid	92 ppm
7440-41-7		0.1 mg/m^3
	cadmium (non-pyrophoric)	4.7 mg/m³
	chromium	99 mg/m³
7440-48-4		20 mg/m^3
7440-50-8		200 mg/m^3
7439-89-6		150 mg/m^3
7439-92-1		700 mg/m^3
	magnesium	1,200 mg/m
	trimanganese tetraoxide	41 mg/m ³
	molybdenum trioxide	260 mg/m^3
7440-02-0		99 mg/m³
7440-36-0		80 mg/m ³
	potassium	150 mg/m^3
7782-49-2	<u> </u>	40 mg/m^3
7440-22-4		990 mg/m³
7440-23-5		870 mg/m ³
	strontium nitrate	370 mg/m^3
7440-28-0		20 mg/m ³
	tin	$\frac{20 \text{ mg/m}^3}{400 \text{ mg/m}^3}$



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Trade name: Instrument Calibration Standard 2

		(Contd. of page 6)
7440-32-6		$2,000 \text{ mg/m}^3$
7440-62-2		35 mg/m³
7440-66-6		120 mg/m³
7440-38-2		100 mg/m³
7440-39-3	barium	$1,100 \text{ mg/m}^3$

7 Handling and storage

- · Handling:
- Precautions for safe handling No special precautions are necessary if used correctly.
- · Information about protection against explosions and fires: No special measures required.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see item 7.
- · Control parameters

· Components with limit values that require monitoring at the workplace:

7697-37-2 Nitric Acid

PEL Long-term value: 5 mg/m³, 2 ppm

REL Short-term value: 10 mg/m³, 4 ppm

Long-term value: 5 mg/m³, 2 ppm

TLV Short-term value: 10 mg/m³, 4 ppm

Long-term value: 5.2 mg/m³, 2 ppm

- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

· Breathing equipment: Not required.

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Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection:



Tightly sealed goggles or safety glasses

Information on basic physical and chemical properties General Information				
Appearance:				
Form:	Liquid			
Color:	Transparent			
Odor:	Characteristic			
Odor threshold:	Not determined.			
pH-value at 20 °C (68 °F):	<4			
Change in condition				
Melting point/Melting range:	Undetermined.			
Boiling point/Boiling range:	100 °C (212 °F)			
Flash point:	Not applicable.			
Flammability (solid, gaseous):	Not applicable.			
Decomposition temperature:	Not determined.			
Auto igniting:	Product is not selfigniting.			
Danger of explosion:	Product does not present an explosion hazard.			
Explosion limits:				
Lower:	Not determined.			
Upper:	Not determined.			
Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)			

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(Contd. of page 8)

• Density at 20 °C (68 °F): 1 g/cm³ (8.345 lbs/gal) · Relative density Not determined. · Vapor density Not determined. · Evaporation rate Not determined.

· Solubility in / Miscibility with

Fully miscible. Water:

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity:

Dynamic: Not determined. Kinematic: Not determined.

· Solvent content:

Water: 94 5 % **VOC** content: 0.00 %

· Other information No further relevant information available.

10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · *Incompatible materials:* No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:
- · Primary irritant effect:
- · on the skin: Caustic effect on skin and mucous membranes.
- on the eye:

Strong caustic effect.

Strong irritant with the danger of severe eye injury.

- · Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Harmful

Corrosive

Irritant

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

(Contd. on page 10)



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(Contd. of page 9) · Carcinogenic categories · IARC (International Agency for Research on Cancer) 7440-41-7 beryllium 7440-43-9 cadmium (non-pyrophoric) 7440-47-3 chromium 3 7440-48-4 cobalt 2B 7439-92-1 lead 2B 7440-02-0 nickel 2B 7782-49-2 selenium 3 7440-38-2 Arsenic 1 · NTP (National Toxicology Program) 7440-41-7 beryllium K 7440-43-9 cadmium (non-pyrophoric) K R 7440-48-4 cobalt 7439-92-1 lead R 7440-02-0 nickel R 7440-38-2 Arsenic K · OSHA-Ca (Occupational Safety & Health Administration) 7440-43-9 cadmium (non-pyrophoric) 7440-38-2 Arsenic

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system. Must not reach bodies of water or drainage ditch undiluted or unneutralized.

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

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13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Dispose of container and materials in accordance with local, regional and national regulations.

- · Uncleaned packagings:
- Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

4 4 500			
14 Trans	nort	into	rmation
17 II ullo	νυιι	uu_1u_2	munon

· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name	
$\cdot DOT$	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid, hydrofluoric acid)
· ADR	3264 Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid, hydrofluoric acid)
· IMDG	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Nitric Acid, hydrofluoric acid), MARINE POLLUTANT
· IATA	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Nitric Acid, hydrofluoric acid)

- · Transport hazard class(es)
- $\cdot DOT$





· Class

8 Corrosive substances

·Label

 $\cdot ADR$



· Class · Label 8 (C1) Corrosive substances

8

 \cdot IMDG





· Class 8 Corrosive substances

(Contd. on page 12)



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Trade name: Instrument Calibration Standard 2

	(Contd. of page 1
Label	8
IATA	
Class	8 Corrosive substances
Label	8
Packing group DOT, ADR, IMDG, IATA	III
Environmental hazards:	
Marine pollutant:	No
	Symbol (fish and tree)
Special precautions for user	Warning: Corrosive substances
Danger code (Kemler):	80
EMS Number:	F- A , S - B
Segregation groups	Acids
Stowage Category	A GWO GIV. GIV.
Stowage Code	SW2 Clear of living quarters.
Transport in bulk according to Annex MARPOL73/78 and the IBC Code	II of Not applicable.
Transport/Additional information:	
DOT	
Quantity limitations	On passenger aircraft/rail: 5 L
E	On cargo aircraft only: 60 L
Remarks:	Special marking with the symbol (fish and tree).
ADR	
Excepted quantities (EQ)	Code: E1
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
<i>IMDG</i>	
Limited quantities (LQ)	5L
Excepted quantities (EQ)	Code: E1
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
	(NITRIC ACID, HYDROFLUORIC ACID), 8, III

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Safety, hea	Ith and environmental regulations/legislation specific for the substance or mixture	
7732-18-5	Water	94.4749
7697-37-2	Nitric Acid	5.0%
	🕸 Ox. Liq. 2, H272	
-	Skin Corr. 1A, H314	0.207
7664-39-3	Hydrofluoric acid	0.3%
	Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330 Skin Corr. 1A, H314	
Sara		
	5 (extremely hazardous substances):	
7697-37-2	Nitric Acid	
Section 31.	3 (Specific toxic chemical listings):	
7697-37-2	Nitric Acid	
7440-41-7	beryllium	
7440-43-9	cadmium (non-pyrophoric)	
7440-47-3	3 chromium	
7440-48-4	t cobalt	
7440-50-8	8 copper	
7439-92-1	l lead	
1317-35-7	trimanganese tetraoxide	
1313-27-5	molybdenum trioxide	
7440-02-0	nickel	
7440-36-0	antimony	
7782-49-2	? selenium	
7440-22-4	silver	
10042-76-9	strontium nitrate	
7440-28-0	thallium	
7440-62-2	vanadium	
7429-90-5	aluminium	
7440-66-6	5 zinc	
7440-38-2	? Arsenic	
7440-39-3	B barium	
	cic Substances Control Act): ents are listed.	
_	Nitric Acid	
133-37-9	O (+-)-tartaric acid	
	beryllium	
	cadmium (non-pyrophoric)	
	calcium	



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7.4.10 15	(Contd. of pag
	3 chromium
7440-48-	
7440-50-	
7439-89-	
7439-92-	
	4 magnesium
	7 trimanganese tetraoxide
	5 molybdenum trioxide
7440-02-	
	0 antimony
7440-09-	7 potassium
7782-49-	2 selenium
7440-22-	
	5 sodium
10042-76-	9 strontium nitrate
7440-28-	0 thallium
7440-31-	5 tin
7440-32-	6 titanium
7440-62-	2 vanadium
7429-90-	5 aluminium
7440-66-	5 zinc
7440-38-	2 Arsenic
7440-39-	3 barium
7732-18-	5 Water
· Propositio	n 65
· Chemicals	known to cause cancer:
7440-41-7	beryllium
7440-43-9	cadmium (non-pyrophoric)
7440-48-4	cobalt
7439-92-1	lead
7440-02-0	nickel
7440-38-2	Arsenic
· Chemicals	known to cause reproductive toxicity for females:
7439-92-1	lead
· Chemicals	known to cause reproductive toxicity for males:
7440-43-9	cadmium (non-pyrophoric)
7439-92-1	lead
· Chemicals	known to cause developmental toxicity:
	cadmium (non-pyrophoric)



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(Contd. of page 14) 7439-92-1 lead · Cancerogenity categories · EPA (Environmental Protection Agency) 7440-41-7 beryllium B1, K/L(inh), CBD(oral)7440-43-9 cadmium (non-pyrophoric) B17440-47-3 chromium \overline{D} 7440-50-8 copper D 7439-92-1 lead В2 1317-35-7 trimanganese tetraoxide D7782-49-2 selenium D 7440-22-4 silver D 7440-66-6 zinc D, I, II 7440-38-2 Arsenic 7440-39-3 barium D, CBD(inh), NL(oral) TLV (Threshold Limit Value established by ACGIH) 7440-41-7 beryllium A17440-43-9 cadmium (non-pyrophoric) A27440-47-3 chromium A47440-48-4 cobalt $\overline{A3}$ 7439-92-1 lead A37440-02-0 nickel A5 7429-90-5 aluminium A47440-38-2 Arsenic A17440-39-3 barium A4· NIOSH-Ca (National Institute for Occupational Safety and Health) 7440-41-7 beryllium 7440-43-9 cadmium (non-pyrophoric) 7440-02-0 nickel 7440-38-2 Arsenic

- · National regulations:
- Information about limitation of use:

Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

- · Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.
- · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Disclaimer

The information provided in this Material Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made

(Contd. on page 16)



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concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. PerkinElmer shall not be held liable for any damage resulting from handling or from contact with the product.

· Department issuing SDS: Environmental, Health and Safety

· Contact:

Within the USA: 1-(800)-762-4000 Outside the USA: 1-(203)-712-8488

· Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Ox. Liq. 2: Oxidizing liquids – Category 2

Acute Tox. 4: Acute toxicity – Category 4

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

* * Data compared to the previous version altered.

USA



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1 Identification

- · Product identifier
- · Trade name: STD, Contract Required Detection Limit
- · Article number N9303819
- · Application of the substance / the mixture Laboratory chemicals
- · Details of the supplier of the safety data sheet
- · Manufacturer/Supplier:

PerkinElmer, Inc.

710 Bridgeport Avenue

Shelton, Connecticut 06484 USA

CustomerCareUS@perkinelmer.com

203-925-4600

· Emergency telephone number:

CHEMTREC (within US) 800-424-9300

CHEMTREC (from outside US) +1 703-527-3887 (call collect)

CHEMTREC (within AU) +(61)-290372994

2 Hazard(s) identification

· Classification of the substance or mixture



Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

- · Label elements
- · GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms GHS05
- · Signal word Danger
- Hazard-determining components of labeling:

Nitric Acid

· Hazard statements

H314 Causes severe skin burns and eye damage.

· Precautionary statements

P260 Do not breathe dusts or mists. P264 Wash thoroughly after handling.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/

shower.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present

and easy to do. Continue rinsing.

P310 Immediately call a poison center/doctor.
 P321 Specific treatment (see on this label).
 P363 Wash contaminated clothing before reuse.

P405 Store locked up.

(Contd. on page 2)



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Trade name: STD, Contract Required Detection Limit

(Contd. of page 1)

P501

Dispose of contents/container in accordance with local/regional/national/international regulations.

- · Classification system:
- · NFPA ratings (scale 0 4)



Health = 3 Fire = 0Reactivity = 0

· HMIS-ratings (scale 0 - 4)



3 Health = 30 Fire = 0

Fire = 0

REACTIVITY 0 Reactivity = 0

· Other hazards

The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

- · Chemical characterization: Substances
- · CAS No. Description

7732-18-5 water

- · Identification number(s)
- **EC** number: 231-791-2
- · Chemical characterization: Mixtures
- Description: Mixture of the substances listed below with nonhazardous additions.

Hazardous	components:	
7697-37-2	Nitric Acid Ox. Liq. 2, H272 Skin Corr. 1A, H.	314 5.0%
Additional	Components	
7440-70-2	calcium	0.05%
7439-95-4	magnesium Pyr. Sol. 1, H250; Water-react. 1, H260	0.05%
7440-09-7	potassium Water-react. 1, H260 Skin Corr. 1B, H314	0.05%
7440-23-5	sodium Water-react. 1, H260 Skin Corr. 1B, H314	0.05%
7440-62-2	vanadium	0.005%
	(Con	td. on page

HSA .



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		(Contd. of page
7440-39-3		0.0029
	🔖 Water-react. 2, H261	
7429-90-5	aluminium	0.0029
7439-89-6	iron	0.0019
147-71-7	(-)-tartaric acid	0.0019
	♦ Skin Irrit. 2, H315	
7440-36-0	antimony	0.0006
7440-48-4	cobalt	0.0005
	 Resp. Sens. 1, H334; Carc. 2, H351 Skin Sens. 1, H317 	
7440-02-0	nickel	0.0004
	© Carc. 2, H351; STOT RE 1, H372 Skin Sens. 1, H317	
7440-50-8	copper	0.0003
1317-35-7	trimanganese tetraoxide	0.0002
7440-66-6	zinc	0.0002
	(a) Water-react. 2, H261	
7782-49-2		0.0001
	Acute Tox. 3, H301; Acute Tox. 3, H331 STOT RE 2, H373	
7440-22-4	silver	0.0001
7440-43-9	cadmium (non-pyrophoric)	0.0001
	Acute Tox. 2, H330 Muta. 2, H341; Carc. 1B, H350; Repr. 2, H361; STOT RE 1, H372	
7439-92-1	lead	0.0001
	♠ Acute Tox. 3, H301	
	🗞 Carc. 2, H351; Repr. 1A, H360-H362	
	♦ Acute Tox. 4, H332	
7440-28-0		0.0001
	Acute Tox. 2, H300; Acute Tox. 2, H330 STOT RE 2, H373	
7440-38-2	Arsenic	0.0001
	Acute Tox. 3, H301; Acute Tox. 3, H331	
7440-41-7	beryllium	0.0001
	Acute Tox. 3, H301; Acute Tox. 2, H330 Carc. 1B, H350; STOT RE 1, H372	
	₹ Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317; STOT SE 3, H335	
7440-47-3	chromium	0.0001
7732-18-5	Water	94.786



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Trade name: STD, Contract Required Detection Limit

(Contd. of page 3)

4 First-aid measures

- · Description of first aid measures
- General information: Immediately remove any clothing soiled by the product.
- · After inhalation: In case of unconsciousness place patient stably in side position for transportation.
- · After skin contact: Immediately wash with water and soap and rinse thoroughly.
- · After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
- · After swallowing: Drink copious amounts of water and provide fresh air. Immediately call a doctor.
- Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed

No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · **Protective equipment:** No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation

Wear protective equipment. Keep unprotected persons away.

· Environmental precautions:

Inform respective authorities in case of seepage into water course or sewage system.

Dilute with plenty of water.

· Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

PAC-1:		
7697-37-2	Nitric Acid	0.16 ppm
7439-95-4	magnesium	18 mg/m³
7440-09-7	potassium	2.3 mg/m^3
7440-23-5	sodium	13 mg/m³
7440-62-2	vanadium	3 mg/m ³
7440-39-3	barium	1.5 mg/m^3
		(Contd. on pag

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7439-89-6 in	on	(Contd. of page 3.2 mg/m^3
7440-36-0 a		$\frac{3.2 \text{ mg/m}^3}{1.5 \text{ mg/m}^3}$
7440-48-4 c	•	0.18 mg/m^3
7440-02-0 n		4.5 mg/m^3
7440-50-8 c		$\frac{3 \text{ mg/m}^3}{3 \text{ mg/m}^3}$
	imanganese tetraoxide	4.2 mg/m^3
7440-66-6 zi		$\frac{4.2 \text{ mg/m}}{6 \text{ mg/m}^3}$
7782-49-2 se		0.6 mg/m^{3}
7440-22-4 st		0.0 mg/m^3 0.3 mg/m^3
		0.3 mg/m^3 0.10 mg/m^3
7439-92-1 le	admium (non-pyrophoric)	
		0.15 mg/m^3
7440-28-0 th		0.06 mg/m^3
7440-38-2 A		1.5 mg/m^3
7440-41-7 b	· ·	0.0023 mg/
7440-47-3 c	romium	1.5 mg/m^3
· PAC-2:		
7697-37-2 Λ	itric Acid	24 ppm
7439-95-4 m	agnesium	200 mg/m
7440-09-7 p	otassium	25 mg/m^3
7440-23-5 se	dium	140 mg/m
7440-62-2 v	ınadium	5.8 mg/m^3
7440-39-3 b	ırium	180 mg/m
7439-89-6 in	on	35 mg/m^3
7440-36-0 a	ntimony	13 mg/m³
7440-48-4 c	balt	$2 mg/m^3$
7440-02-0 n	ckel	50 mg/m^3
7440-50-8 c	ppper	33 mg/m^3
	imanganese tetraoxide	6.9 mg/m^3
7440-66-6 zi		21 mg/m^3
7782-49-2 se	lenium	6.6 mg/m^3
7440-22-4 st	lver	170 mg/m
	admium (non-pyrophoric)	0.76 mg/m
7439-92-1 le	·	120 mg/m
7440-28-0 th		3.3 mg/m^3
7440-38-2 A		17 mg/m^3
7440-41-7 b		0.025 mg/s
7440-47-3 c	•	17 mg/m ³
· PAC-3:		0
7697-37-2 Λ	itric Acid	92 ppm
7439-95-4 m		1,200 mg/s



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7440-09-7	notassium	(Contd. of page 5 150 mg/m^3
7440-23-5	<u> </u>	870 mg/m ³
7440-62-2	vanadium	35 mg/m ³
7440-39-3	barium	$1,100 \text{ mg/m}^3$
7439-89-6	iron	150 mg/m³
7440-36-0	antimony	80 mg/m³
7440-48-4	cobalt	20 mg/m³
7440-02-0	nickel	99 mg/m³
7440-50-8	copper	200 mg/m³
1317-35-7	trimanganese tetraoxide	41 mg/m³
7440-66-6	zinc	120 mg/m³
7782-49-2	selenium	40 mg/m³
7440-22-4	silver	990 mg/m³
7440-43-9	cadmium (non-pyrophoric)	4.7 mg/m³
7439-92-1	lead	700 mg/m³
7440-28-0	thallium	20 mg/m³
7440-38-2	Arsenic	100 mg/m³
7440-41-7	beryllium	0.1 mg/m^3
7440-47-3	chromium	99 mg/m³

7 Handling and storage

- · Handling:
- · Precautions for safe handling No special precautions are necessary if used correctly.
- Information about protection against explosions and fires: The product is not flammable.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see item 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:

7697-37-2 Nitric Acid

PEL Long-term value: 5 mg/m³, 2 ppm

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REL Short-term value: 10 mg/m³, 4 ppm Long-term value: 5 mg/m³, 2 ppm TLV Short-term value: 10 mg/m³, 4 ppm Long-term value: 5.2 mg/m³, 2 ppm

- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

- · Breathing equipment: Not required.
- Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection:



Tightly sealed goggles or safety glasses

9 Physical and chemical properties

- · Information on basic physical and chemical properties
- General Information
- · Appearance:

Form: Liquid
Color: Transparent
Odor: Odorless
Odor threshold: Not determined.

· pH-value: Not determined.

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		(Contd. of page
Change in condition		
Melting point/Melting range:	0 °C (32 °F)	
Boiling point/Boiling range:	100 °C (212 °F)	
Flash point:	Not applicable.	
Flammability (solid, gaseous):	Not applicable.	
Decomposition temperature:	Not determined.	
Auto igniting:	Product is not selfigniting.	
Danger of explosion:	Product does not present an explosion hazard.	
Explosion limits:		
Lower:	Not determined.	
Upper:	Not determined.	
Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)	
Density at 20 °C (68 °F):	1 g/cm³ (8.345 lbs/gal)	
Relative density	Not determined.	
Vapor density	Not determined.	
Evaporation rate	Not determined.	
Solubility in / Miscibility with		
Water:	Fully miscible.	
Partition coefficient (n-octanol/wate	e r): Not determined.	
Viscosity:		
Dynamic:	Not determined.	
Kinematic:	Not determined.	
Solvent content:		
Water:	94.8 %	
VOC content:	0.00 %	
Solids content:	0.2 %	
Other information	No further relevant information available.	

10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

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Trade name: STD, Contract Required Detection Limit

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11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:
- · Primary irritant effect:
- · on the skin: Caustic effect on skin and mucous membranes.
- · on the eye:

Strong caustic effect.

Strong irritant with the danger of severe eye injury.

- · Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Corrosive

Irritant

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

· Carcinogenic categories

· IARC (Inte	ernational Agency for Research on Cancer)	
7440-48-4	cobalt	2B
7440-02-0	nickel	2B
7782-49-2	selenium	3
7440-43-9	cadmium (non-pyrophoric)	1
7439-92-1	lead	2B
7440-38-2	Arsenic	1
7440-41-7	beryllium	1
7440-47-3	chromium	3
· NTP (Nati	onal Toxicology Program)	
7440-48-4	cobalt	R
7440-02-0	nickel	R
7440-43-9	cadmium (non-pyrophoric)	K
7439-92-1	lead	R
7440-38-2	Arsenic	K
7440-41-7	beryllium	K
· OSHA-Ca	(Occupational Safety & Health Administration)	
7440-43-9	cadmium (non-pyrophoric)	
7440-38-2	Arsenic	

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.

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- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system. Must not reach bodies of water or drainage ditch undiluted or unneutralized.

- · Results of PBT and vPvB assessment
- · **PBT**: Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Dispose of container and materials in accordance with local, regional and national regulations.

- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.
- Recommended cleansing agent: Water, if necessary with cleansing agents.

ransport		

· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name · DOT · ADR · IMDG, IATA	Corrosive liquid, acidic, inorganic, n.o.s. (nitric acid) 3264 Corrosive liquid, acidic, inorganic, n.o.s. (nitric acid) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid)

- · Transport hazard class(es)
- $\cdot DOT$



· Class 8 Corrosive substances

· Label

 $\cdot ADR$



Class 8 (C1) Corrosive substances

(Contd. on page 11)



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	(Contd. of page
Label	8
IMDG, IATA	
Class	8 Corrosive substances
Label	8
Packing group DOT, ADR, IMDG, IATA	III
Environmental hazards: Marine pollutant:	No
Special precautions for user	Warning: Corrosive substances
Danger code (Kemler):	80
EMS Number:	F- A , S - B
Segregation groups	Acids
Stowage Category	A CIVID CITY OF THE CITY OF TH
Stowage Code	SW2 Clear of living quarters.
Transport in bulk according to Annex MARPOL73/78 and the IBC Code	II of Not applicable.
Transport/Additional information:	
DOT	
Quantity limitations	On passenger aircraft/rail: 5 L
2	On cargo aircraft only: 60 L
ADR	
Excepted quantities (EQ)	Code: E1
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
IMDG	
Limited quantities (LQ)	5L
Excepted quantities (EQ)	Code: El
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.
-	(NITRIC ACID), 8, III

· Safety, health and environmental regulations/legislation specific for the substance or mixture			
7732-18-5	Water		94.786%
7697-37-2	Nitric Acid	Ox. Liq. 2, H272 Skin Corr. 1A, H314	5.0%



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7/20 05 /	m gan agium	(Contd. of	page . 05%
Sara	magnesium	⋄ <i>Pyr. Sol. 1, H250; Water-react. 1, H260</i> 0.	.03%
	5 (outnomedy bazandous sybstances).		
	5 (extremely hazardous substances): Nitric Acid		
	3 (Specific toxic chemical listings):		
	Nitric Acid		
	vanadium		
7440-39-3	1		
	aluminium		
7440-36-0	<u> </u>		
7440-48-4			
7440-02-0			
7440-50-8			
	trimanganese tetraoxide		
7440-66-6			
7782-49-2			
7440-22-4			
	cadmium (non-pyrophoric)		
7439-92-1	lead		
7440-28-0			
7440-38-2	Arsenic		
7440-41-7	beryllium		
7440-47-3	chromium		
	xic Substances Control Act):		
_	ents are listed.		
	Nitric Acid		
7440-70-2	1		
	magnesium		
	potassium		
7440-23-5			
7110-62-2	vanadium		
7440-39-3	1		
7440-39-3 7429-90-5	aluminium		
7440-39-3 7429-90-5 7439-89-6	aluminium iron		
7440-39-3 7429-90-5 7439-89-6 147-71-7	aluminium iron (-)-tartaric acid		
7440-39-3 7429-90-5 7439-89-6 147-71-7 7440-36-0	aluminium iron (-)-tartaric acid antimony		
7440-39-3 7429-90-5 7439-89-6 147-71-7 7440-36-0 7440-48-4	aluminium iron (-)-tartaric acid antimony cobalt		
7440-39-3 7429-90-5 7439-89-6 147-71-7 7440-36-0 7440-48-4 7440-02-0	aluminium iron (-)-tartaric acid antimony cobalt nickel		
7440-39-3 7429-90-5 7439-89-6 147-71-7 7440-36-0 7440-48-4 7440-02-0 7440-50-8	aluminium iron (-)-tartaric acid antimony cobalt nickel		



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		(Contd. of page
7440-66-6		
7782-49-2	selenium	
7440-22-4	silver	
7440-43-9	cadmium (non-pyrophoric)	
7439-92-1	lead	
7440-28-0	thallium	
7440-38-2	Arsenic	
7440-41-7	beryllium	
7440-47-3	chromium	
7732-18-5	Water	
· Proposition	1 65	
· Chemicals	known to cause cancer:	
7440-48-4	cobalt	
7440-02-0	nickel	
7440-43-9	cadmium (non-pyrophoric)	
7439-92-1	lead	
7440-38-2	Arsenic	
7440-41-7	beryllium	
· Chemicals	known to cause reproductive toxicity for females:	
7439-92-1		
· Chemicals	known to cause reproductive toxicity for males:	
7440-43-9	cadmium (non-pyrophoric)	
7439-92-1	lead	
· Chemicals	known to cause developmental toxicity:	
7440-43-9	cadmium (non-pyrophoric)	
7439-92-1		
C		
	nity categories ronmental Protection Agency)	
7440-39-3		D, CBD(inh), NL(oral)
7440-59-8		D D
	trimanganese tetraoxide	D D
7440-66-6	=	D, I, II
		D, I, II
7782-49-2		
7440-22-4		D
	cadmium (non-pyrophoric)	B1
7439-92-1		B2
7440-38-2		A
7440-41-7	<u> </u>	B1, K/L(inh), CBD(ord
7440-47-3	chromium	D



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		(Contd. of page 1
TLV (Thr	eshold Limit Value established by ACGIH)	
7440-39-3	barium	A4
7429-90-5	aluminium	A4
7440-48-4	cobalt	A3
7440-02-0	nickel	A5
7440-43-9	cadmium (non-pyrophoric)	A
7439-92-1	lead	A_{*}
7440-38-2	Arsenic	A
7440-41-7	beryllium	A
7440-47-3	chromium	A
NIOSH-C	a (National Institute for Occupational Safety and Health)	
7440-02-0	nickel	
7440-43-9	cadmium (non-pyrophoric)	
7440-38-2	Arsenic	
7440-41-7	beryllium	

- · National regulations:
- · Information about limitation of use:

Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

- · Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.
- · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Disclaimer

The information provided in this Material Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. PerkinElmer shall not be held

liable for any damage resulting from handling or from contact with the product.

- · Department issuing SDS: Environmental, Health and Safety
- · Contact:

Within the USA: 1-(800)-762-4000 Outside the USA: 1-(203)-712-8488

· Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

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EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA) VOC: Volatile Organic Compounds (USA, EU)

VOC: Volatile Organic Compounds (USA, EU) PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value PEL: Permissible Exposure Limit REL: Recommended Exposure Limit Ox. Liq. 2: Oxidizing liquids – Category 2

Skin Corr. 1A: Skin corrosion/irritation – Category 1A Skin Corr. 1B: Skin corrosion/irritation – Category 1B Eye Dam. 1: Serious eye damage/eye irritation – Category 1

* * Data compared to the previous version altered.

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1 Identification

- · Product identifier
- · Trade name: STD, Instrument Check STD 1
- · Article number N9303821
- · Application of the substance / the mixture Laboratory chemicals
- Details of the supplier of the safety data sheet
- · Manufacturer/Supplier:

PerkinElmer, Inc.

710 Bridgeport Avenue

Shelton, Connecticut 06484 USA

CustomerCareUS@perkinelmer.com

203-925-4600

· Emergency telephone number:

CHEMTREC (within US) 800-424-9300

CHEMTREC (from outside US) +1 703-527-3887 (call collect)

CHEMTREC (within AU) +(61)-290372994

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

- · Label elements
- · GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms GHS07
- · Signal word Warning
- · Hazard statements

H315 Causes skin irritation.

H319 Causes serious eye irritation.

· Precautionary statements

P264 Wash thoroughly after handling.

P280 Wear protective gloves / eye protection / face protection.

P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label).

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present

and easy to do. Continue rinsing.

P332+P313 If skin irritation occurs: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P337+P313 If eye irritation persists: Get medical advice/attention.

- · Classification system:
- · NFPA ratings (scale 0 4)



Health = 2 Fire = 0Reactivity = 0

(Contd. on page 2)

(Contd. of page 1)



acc. to OSHA HCS

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Trade name: STD, Instrument Check STD 1

· HMIS-ratings (scale 0 - 4)

HEALTH 2 Health = 2FIRE 0 Fire = 0REACTIVITY 0 Reactivity = 0

· Other hazards

The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.

- · Results of PBT and vPvB assessment
- · **PBT**: Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

- · Chemical characterization: Substances
- · CAS No. Description

7732-18-5 water

- · Identification number(s)
- EC number: 231-791-2
- · Chemical characterization: Mixtures
- Description: Mixture of the substances listed below with nonhazardous additions.

7697-37-2	Nitric Acid Ox. Liq. 2, H Skin Corr. 12	272 4, H314
Additional	Components	
7664-39-3	Hydrofluoric acid Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330 Skin Corr. 1A, H314	0.1%
7440-39-3	barium Water-react. 2, H261	0.001%
7440-41-7	beryllium Acute Tox. 3, H301; Acute Tox. 2, H330 Carc. 1B, H350; STOT RE 1, H372 Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317; STOT SE 3, H335	0.001%
7440-43-9	cadmium (non-pyrophoric) ❖ Acute Tox. 2, H330 ❖ Muta. 2, H341; Carc. 1B, H350; Repr. 2, H361; STOT RE 1, H372	0.001%
7440-47-3	chromium	0.001%
7440-48-4	cobalt ♦ Resp. Sens. 1, H334; Carc. 2, H351 ↑ Skin Sens. 1, H317	0.001%
7440-50-8	copper	0.001%
7440-38-2	Arsenic → Acute Tox. 3, H301; Acute Tox. 3, H331 → Carc. 1A, H350	0.001%

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Trade name: STD, Instrument Check STD 1

		(Contd. of page
7439-92-1	lead	0.001
	♦ Acute Tox. 3, H301	
	🕉 Carc. 2, H351; Repr. 1A, H360-H362	
	♦ Acute Tox. 4, H332	
1317-35-7	trimanganese tetraoxide	0.001
7440-02-0	nickel	0.001
	© Carc. 2, H351; STOT RE 1, H372 Skin Sens. 1, H317	
7440-36-0	antimony	0.001
7782-49-2	selenium	0.001
	Acute Tox. 3, H301; Acute Tox. 3, H331 STOT RE 2, H373	
7440-22-4	silver	0.001
147-71-7	(-)-tartaric acid	0.001
	③ Skin Irrit. 2, H315	
7440-28-0	thallium	0.001
	Acute Tox. 2, H300; Acute Tox. 2, H330 STOT RE 2, H373	
7440-62-2	vanadium	0.001
7440-66-6	zinc	0.001
	♦ Water-react. 2, H261	
7429-90-5	aluminium	0.001
7732-18-5	Water	97.882

4 First-aid measures

- · Description of first aid measures
- After inhalation: In case of unconsciousness place patient stably in side position for transportation.
- · After skin contact:

Immediately wash with water and soap and rinse thoroughly.

Rub in Ca-gluconate solution or Ca-gluconate gel immediately.

· After eye contact:

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

- · After swallowing: If symptoms persist consult doctor.
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- $\cdot \textit{Indication of any immediate medical attention and special treatment needed}$

No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.

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Trade name: STD, Instrument Check STD 1

(Contd. of page 3)

- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- · Environmental precautions:

Inform respective authorities in case of seepage into water course or sewage system.

Dilute with plenty of water.

- · Methods and material for containment and cleaning up:
- Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- · Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

7697-37-2	Nitric Acid	0.16 ppm
7440-39-3	barium	1.5 mg/m^3
7440-41-7	beryllium	0.0023 mg/m
7440-43-9	cadmium (non-pyrophoric)	0.10 mg/m^3
7440-47-3	chromium	1.5 mg/m^3
7440-48-4	cobalt	0.18 mg/m^3
7440-50-8	copper	$3 mg/m^3$
7440-38-2	Arsenic	$1.5 mg/m^3$
7439-92-1	lead	0.15 mg/m^3
1317-35-7	trimanganese tetraoxide	$4.2 mg/m^3$
7440-02-0	nickel	$4.5 mg/m^3$
7440-36-0	antimony	1.5 mg/m^3
7782-49-2	selenium	0.6 mg/m^3
7440-22-4	silver	0.3 mg/m^3
7440-28-0	thallium	0.06 mg/m^3
7440-62-2	vanadium	3 mg/m^3
7440-66-6	zinc	6 mg/m ³
PAC-2:		
7697-37-2	Nitric Acid	24 ppm
7440-39-3	barium	180 mg/m^3
7440-41-7	beryllium	0.025 mg/m
7440-43-9	cadmium (non-pyrophoric)	$0.76 mg/m^3$
7440-47-3	chromium	17 mg/m³
7440-48-4	cobalt	$2 mg/m^3$
7440-50-8	copper	33 mg/m^3

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7440-38-2		17 mg/m^3
7439-92-1	lead	120 mg/m^3
1317-35-7	trimanganese tetraoxide	6.9 mg/m^3
7440-02-0		50 mg/m^3
7440-36-0	antimony	13 mg/m³
7782-49-2	selenium	6.6 mg/m^3
7440-22-4	silver	170 mg/m^3
7440-28-0	thallium	3.3 mg/m^3
7440-62-2	vanadium	5.8 mg/m^3
7440-66-6	zinc	21 mg/m³
<i>PAC-3:</i>		
7697-37-2	Nitric Acid	92 ppm
7440-39-3	barium	1,100 mg/m
7440-41-7	beryllium	0.1 mg/m^3
7440-43-9	cadmium (non-pyrophoric)	4.7 mg/m^3
7440-47-3	chromium	99 mg/m³
7440-48-4	cobalt	20 mg/m³
7440-50-8	copper	200 mg/m^3
7440-38-2	Arsenic	100 mg/m^3
7439-92-1	lead	700 mg/m^3
1317-35-7	trimanganese tetraoxide	41 mg/m³
7440-02-0	nickel	99 mg/m³
7440-36-0	antimony	80 mg/m³
7782-49-2	selenium	40 mg/m³
7440-22-4	silver	990 mg/m³
7440-28-0	thallium	20 mg/m^3
7440-62-2	vanadium	35 mg/m^3
7440-66-6	 zinc	120 mg/m^3

7 Handling and storage

- · Handling:
- · Precautions for safe handling No special precautions are necessary if used correctly.
- · Information about protection against explosions and fires: The product is not flammable.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: No special requirements.
- Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.

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(Contd. of page 5)

· Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see item 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:

7697-37-2 Nitric Acid

PEL Long-term value: 5 mg/m³, 2 ppm REL Short-term value: 10 mg/m³, 4 ppm

Long-term value: 5 mg/m³, 2 ppm

TLV Short-term value: 10 mg/m³, 4 ppm
Long-term value: 5.2 mg/m³, 2 ppm

- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

- · Breathing equipment: Not required.
- · Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection:



Tightly sealed goggles or safety glasses

IISA :



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(Contd. of page 6)

Information on basic physical and c	hemical properties
General Information	
Appearance:	71
Form:	Liquid
Color:	Transparent
· Odor: · Odor threshold:	Odorless Not determined.
pH-value:	Not determined.
Change in condition	0.05 (22.05)
Melting point/Melting range:	0 °C (32 °F)
Boiling point/Boiling range:	100 °C (212 °F)
Flash point:	Not applicable.
Flammability (solid, gaseous):	Not applicable.
Decomposition temperature:	Not determined.
Auto igniting:	Product is not selfigniting.
Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)
Density at 20 °C (68 °F):	1 g/cm³ (8.345 lbs/gal)
Relative density	Not determined.
Vapor density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with	
Water:	Fully miscible.
Partition coefficient (n-octanol/water	e r): Not determined.
Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
Solvent content:	
Water:	97.9 %
VOC content:	0.00 %
Other information	No further relevant information available.

10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- · Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

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(Contd. of page 7)

- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:
- · Primary irritant effect:
- · on the skin: Irritant to skin and mucous membranes.
- on the eye: Irritating effect.
- · Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)	
7440-41-7 beryllium	1
7440-43-9 cadmium (non-pyrophoric)	1
7440-47-3 chromium	3
7440-48-4 cobalt	2B
7440-38-2 Arsenic	1
7439-92-1 lead	2B
7440-02-0 nickel	2B
7782-49-2 selenium	3
· NTP (National Toxicology Program)	
7440-41-7 beryllium	K
7440-43-9 cadmium (non-pyrophoric)	K
7440-48-4 cobalt	R
7440-38-2 Arsenic	K
7439-92-1 lead	R
7440-02-0 nickel	R
· OSHA-Ca (Occupational Safety & Health Administration)	
7440-43-9 cadmium (non-pyrophoric)	
7440-38-2 Arsenic	

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.

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- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- Additional ecological information:
- · General notes:

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Dispose of container and materials in accordance with local, regional and national regulations.

- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

7 1	ATT.		. •
1/1	Trancha	rt intori	mation
LT	Transpo		nunon

· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name	
·DOT	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid, Hydrogen fluoride)
·ADR	3264 Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid, Hydrogen fluoride)
· IMDG, IATA	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Nitric Acid, HYDROGEN FLUORIDE)

- · Transport hazard class(es)
- $\cdot DOT$



Class 8 Corrosive substances

Label

(Contd. on page 10)



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Trade name: STD, Instrument Check STD 1

(Contd. of page 9) $\cdot ADR$ · Class 8 (C1) Corrosive substances ·Label · IMDG, IATA · Class 8 Corrosive substances ·Label · Packing group · DOT, ADR, IMDG, IATA III· Environmental hazards: · Marine pollutant: No · Special precautions for user Warning: Corrosive substances Danger code (Kemler): 80 F-A,S-B· EMS Number: · Segregation groups Acids · Stowage Category A· Stowage Code SW2 Clear of living quarters. · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable. · Transport/Additional information: · Quantity limitations On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L $\cdot ADR$ Code: E1 · Excepted quantities (EQ) Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml · IMDG · Limited quantities (LQ) 5LCode: E1 · Excepted quantities (EQ) Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml

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· UN "Model Regulation":

7440-41-7 beryllium

UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID, HYDROGEN FLUORIDE), 8, III

Safety hea	lth and environmental regulations/legislation specific for the substance or mixture	
7732-18-5		97.8829
	Nitric Acid Ox. Liq. 2, H272 Skin Corr. 1A, H314	2.0%
7664-39-3	Hydrofluoric acid Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330 Skin Corr. 1A, H314	0.1%
Sara		
	5 (extremely hazardous substances):	
7697-37-2	Nitric Acid	
Section 31.	3 (Specific toxic chemical listings):	
7697-37-2	Nitric Acid	
7440-39-3	barium	
7440-41-7	beryllium	
7440-43-9	cadmium (non-pyrophoric)	
7440-47-3	chromium	
7440-48-4	cobalt	
7440-50-8	copper	
7440-38-2	Arsenic	
7439-92-1	lead	
1317-35-7	trimanganese tetraoxide	
7440-02-0	nickel	
7440-36-0	·	
7782-49-2	selenium	
7440-22-4		
7440-28-0		
7440-62-2		
7440-66-6		
7429-90-5		
All ingredi	cic Substances Control Act): ents are listed.	
	Nitric Acid	
7440-39-3	barium	

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		(Contd. of page
	cadmium (non-pyrophoric)	
7440-47-3		
7440-48-4		
7440-50-8	**	
7440-38-2		
7439-92-1	lead	
1317-35-7	trimanganese tetraoxide	
7440-02-0		
7440-36-0	antimony	
7782-49-2	selenium	
7440-22-4	silver	
147-71-7	(-)-tartaric acid	
7440-28-0	thallium	
7440-62-2	vanadium	
7440-66-6	zinc	
7429-90-5	aluminium	
7732-18-5	Water	
Proposition	ı 65	
Chemicals	known to cause cancer:	
7440-41-7	beryllium	
7440-43-9	cadmium (non-pyrophoric)	
7440-48-4	cobalt	
7440-38-2	Arsenic	
7439-92-1	lead	
7440-02-0	nickel	
Chemicals	known to cause reproductive toxicity for females:	
7439-92-1		
Chemicals	known to cause reproductive toxicity for males:	
	cadmium (non-pyrophoric)	
7439-92-1		
	known to cause developmental toxicity:	
	cadmium (non-pyrophoric)	
7439-92-1	1 /	
	nity categories	
	ronmental Protection Agency)	
7440-39-3		D, CBD(inh), NL(oral)
7440-41-7		B1, K/L(inh), CBD(ora
	cadmium (non-pyrophoric)	B1
	chromium	D



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			ntd. of page
7440-50-8		D	
7440-38-2	Arsenic	A	
7439-92-1	lead	B2	
1317-35-7	trimanganese tetraoxide	D	
7782-49-2	selenium	D	
7440-22-4	silver	D	
7440-66-6	zinc	D, I, II	
TLV (Thre	shold Limit Value established by ACGIH)	·	
7440-39-3	barium		A
7440-41-7	beryllium		£
7440-43-9	cadmium (non-pyrophoric)		£
7440-47-3	chromium		ſ
7440-48-4	cobalt		£
7440-38-2	Arsenic		ſ
7439-92-1	lead		A
7440-02-0	nickel		£
7429-90-5	aluminium		Ž.
NIOSH-Co	n (National Institute for Occupational Safety and Health)		
7440-41-7	beryllium		
7440-43-9	cadmium (non-pyrophoric)		
7440-38-2	Arsenic		
7440-02-0	nickel		

- · National regulations:
- · Information about limitation of use:

Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

- · Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.
- · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Disclaimer

The information provided in this Material Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. PerkinElmer shall not be held liable for any damage resulting from handling or from contact with the product.

· Department issuing SDS: Environmental, Health and Safety

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Trade name: STD, Instrument Check STD 1

(Contd. of page 13)

· Contact:

Within the USA: 1-(800)-762-4000 Outside the USA: 1-(203)-712-8488

· Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Ox. Liq. 2: Oxidizing liquids – Category 2

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

* * Data compared to the previous version altered.

USA ·



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1 Identification

- · Product identifier
- · Trade name: MERCURY A/S STANDARD
- · Article number N9300253
- · Application of the substance / the mixture Laboratory chemicals
- Details of the supplier of the safety data sheet
- · Manufacturer/Supplier:

PerkinElmer, Inc.

710 Bridgeport Avenue

Shelton, Connecticut 06484 USA

CustomerCareUS@perkinelmer.com

203-925-4600

· Emergency telephone number:

CHEMTREC (within US) 800-424-9300

CHEMTREC (from outside US) +1 703-527-3887 (call collect)

CHEMTREC (within AU) +(61)-290372994

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

- · Label elements
- · GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms GHS05
- · Signal word Danger
- · Hazard-determining components of labeling:

Nitric Acid

· Hazard statements

H314 Causes severe skin burns and eye damage.

· Precautionary statements

P260 Do not breathe dusts or mists. P264 Wash thoroughly after handling.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/

shower.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present

and easy to do. Continue rinsing.

P310 Immediately call a poison center/doctor.
 P321 Specific treatment (see on this label).
 P363 Wash contaminated clothing before reuse.

P405 Store locked up.

(Contd. on page 2)



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Trade name: MERCURY A/S STANDARD

(Contd. of page 1)

P501

Dispose of contents/container in accordance with local/regional/national/international regulations.

- · Classification system:
- · NFPA ratings (scale 0 4)



Health = 3Fire = 0

Reactivity = 0

· HMIS-ratings (scale 0 - 4)



3 Health = 3

Fire = 0

· Other hazards

The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.

- · Results of PBT and vPvB assessment
- · **PBT**: Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

- · Chemical characterization: Substances
- · CAS No. Description

7732-18-5 Water

- · Identification number(s)
- · EC number: 231-791-2
- · Chemical characterization: Mixtures
- **Description:** Mixture of the substances listed below with nonhazardous additions.

· Hazardous	components:		
7697-37-2	Nitric Acid	Ox. Liq. 2, H272 Skin Corr. 1A, H314	
· Additional	· Additional Components		
7439-97-6	mercury	Acute Tox. 2, H330 0.001% Repr. 1B, H360; STOT RE 1, H372	
7732-18-5	Water	94.999%	

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- · After inhalation: In case of unconsciousness place patient stably in side position for transportation.
- · After skin contact: Immediately wash with water and soap and rinse thoroughly.
- · After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
- · After swallowing: Drink copious amounts of water and provide fresh air. Immediately call a doctor.
- · Most important symptoms and effects, both acute and delayed No further relevant information available.

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Trade name: MERCURY A/S STANDARD

(Contd. of page 2)

· Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

· Environmental precautions:

Inform respective authorities in case of seepage into water course or sewage system.

Dilute with plenty of water.

· Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

· Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

· PAC-1:		
7697-37-2	Nitric Acid	0.16 ppm
7439-97-6	mercury	0.15 mg/m^3
· PAC-2:		
7697-37-2	Nitric Acid	24 ppm
7439-97-6	mercury	1.7 mg/m^3
· PAC-3:		
7697-37-2	Nitric Acid	92 ppm
7439-97-6	mercury	8.9 mg/m^3

7 Handling and storage

- · Handling:
- Precautions for safe handling No special precautions are necessary if used correctly.
- · Information about protection against explosions and fires: No special measures required.

(Contd. on page 4)



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Trade name: MERCURY A/S STANDARD

(Contd. of page 3)

- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see item 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:

7697-37-2 Nitric Acid

- PEL Long-term value: 5 mg/m³, 2 ppm

 REL Short-term value: 10 mg/m³, 4 ppm
 Long-term value: 5 mg/m³, 2 ppm

 TLV Short-term value: 10 mg/m³, 4 ppm
 Long-term value: 5.2 mg/m³, 2 ppm
- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

- · Breathing equipment: Not required.
- · Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

(Contd. on page 5)



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Trade name: MERCURY A/S STANDARD

(Contd. of page 4)

· Eye protection:



Tightly sealed goggles or safety glasses

Information on basic physical and c	chemical properties	
General Information	- •	
Appearance:	T	
Form:	Liquid	
Color:	Transparent Odorless	
Odor: Odor threshold:	Not determined.	
pH-value:	Not determined.	
<u>- </u>	Not determined.	
Change in condition	0.00(23.05)	
Melting point/Melting range: Boiling point/Boiling range:	0 °C (32 °F) 100 °C (212 °F)	
Flash point:	Not applicable.	
Flammability (solid, gaseous):	Not applicable.	
Decomposition temperature:	Not determined.	
Auto igniting:	Product is not selfigniting.	
Danger of explosion:	Product does not present an explosion hazard.	
Explosion limits:		
Lower:	Not determined.	
Upper:	Not determined.	
Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)	
Density at 20 °C (68 °F):	1 g/cm³ (8.345 lbs/gal)	
Relative density	Not determined.	
Vapor density	Not determined.	
Evaporation rate	Not determined.	
Solubility in / Miscibility with		
Water:	Fully miscible.	
Partition coefficient (n-octanol/wate	e r): Not determined.	
Viscosity:		
Dynamic:	Not determined.	
Kinematic:	Not determined.	
Solvent content:		
Water:	95.0 %	
VOC content:	0.00 %	

(Contd. on page 6)



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(Contd. of page 5)

· Other information

No further relevant information available.

10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- Information on toxicological effects
- · Acute toxicity:
- Primary irritant effect:
- · on the skin: Caustic effect on skin and mucous membranes.
- on the eye:

Strong caustic effect.

Strong irritant with the danger of severe eye injury.

- · Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Corrosive

Irritant

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

7439-97-6 mercury

3

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- $\cdot \textit{Bioaccumulative potential} \ \textit{No further relevant information available}.$
- · Mobility in soil No further relevant information available.

(Contd. on page 7)



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Trade name: MERCURY A/S STANDARD

(Contd. of page 6)

- · Additional ecological information:
- · General notes:

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system. Must not reach bodies of water or drainage ditch undiluted or unneutralized.

- · Results of PBT and vPvB assessment
- · **PBT**: Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Dispose of container and materials in accordance with local, regional and national regulations.

- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

14 T	ranspor	t inf	^r ormat	tion
		•		

TTBT	37 1	
1 / N/_	.Numho	•

· DOT, ADR, IMDG, IATA

UN3264

· UN proper shipping name

 $\cdot DOT$

Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)

· ADR 3264 Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)

· IMDG, IATA CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Nitric Acid)

- · Transport hazard class(es)
- $\cdot DOT$



· Class · Label 8 Corrosive substances

8

 $\cdot ADR$



Class

8 (C1) Corrosive substances

(Contd. on page 8)



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Trade name: MERCURY A/S STANDARD

	(Contd. of pag
Label	8
IMDG, IATA	
Class	8 Corrosive substances
Label	8
Packing group	
DOT, ADR, IMDG, IATA	III
Environmental hazards:	
Marine pollutant:	No
Special precautions for user	Warning: Corrosive substances
Danger code (Kemler):	80
EMS Number:	F-A,S-B
Segregation groups	Acids A
Stowage Category Stowage Code	A SW2 Clear of living quarters.
	v 61
Transport in bulk according to Annex MARPOL73/78 and the IBC Code	Not applicable.
Transport/Additional information:	
DOT	
Quantity limitations	On passenger aircraft/rail: 5 L
	On cargo aircraft only: 60 L
ADR	
Excepted quantities (EQ)	Code: El
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
IMDG	
Limited quantities (LQ)	5L
Excepted quantities (EQ)	Code: E1
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
UN ''Model Regulation'':	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O. (NITRIC ACID), 8, III

15 Regulato	15 Regulatory information		
· Safety, hea	lth and environmental regulations/legislation spec	ific for the substance or mixture	
7732-18-5	Water		94.999%
			(Contd. on page 9)



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7697-37-2	Nitric Acid	� Ox. Liq. 2, H272	5.0
7077 37 2	111111111111111111111111111111111111111	Skin Corr. 1A, H314	2.0
7439-97-6	mercury	Acute Tox. 2, H330 • Repr. 1B, H360; STOT RE 1, H372	0.00
Sara			
Section 35.	5 (extremely hazardous substances	s):	
7697-37-2	Nitric Acid		
	3 (Specific toxic chemical listings)	:	
7697-37-2	Nitric Acid		
7439-97-6	mercury		
	cic Substances Control Act):		
	ents are listed.		
7697-37-2	Nitric Acid		
7439-97-6	mercury		
7732-18-5	Water		
Proposition	ı 65		
Chemicals	known to cause cancer:		
None of the	e ingredients is listed.		
Chemicals	known to cause reproductive toxic	city for females:	
None of the	e ingredients is listed.		
	known to cause reproductive toxic	city for males:	
None of the	e ingredients is listed.		
	known to cause developmental tox	xicity:	
7439-97-6	mercury		
Canceroge	nity categories		
EPA (Envi	ronmental Protection Agency)		
7439-97-6	mercury		
TLV (Thre	shold Limit Value established by A	ACGIH)	
7439-97-6	mercury		
NIOSH-Co	(National Institute for Occupatio	onal Safety and Health)	

- · National regulations:
- · Information about limitation of use:

Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

- · Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.
- · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Disclaimer

The information provided in this Material Safety Data Sheet is based on our present knowledge,

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Trade name: MERCURY A/S STANDARD

(Contd. of page 9)

and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. PerkinElmer shall not be held liable for any damage resulting from handling or from contact with the product.

· Department issuing SDS: Environmental, Health and Safety

· Contact:

Within the USA: 1-(800)-762-4000 Outside the USA: 1-(203)-712-8488

Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Ox. Liq. 2: Oxidizing liquids – Category 2

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

* * Data compared to the previous version altered.

USA •



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1 Identification

- · Product identifier
- · Trade name: STD, Instrument Check Std 3
- · Article number N9303822
- · Application of the substance / the mixture Laboratory chemicals
- Details of the supplier of the safety data sheet
- · Manufacturer/Supplier:

PerkinElmer, Inc.

710 Bridgeport Avenue

Shelton, Connecticut 06484 USA

CustomerCareUS@perkinelmer.com

203-925-4600

· Emergency telephone number:

CHEMTREC (within US) 800-424-9300

CHEMTREC (from outside US) +1 703-527-3887 (call collect)

CHEMTREC (within AU) +(61)-290372994

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

- · Label elements
- · GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms GHS07
- · Signal word Warning
- · Hazard statements

H315 Causes skin irritation.

H319 Causes serious eye irritation.

· Precautionary statements

P264 Wash thoroughly after handling.

P280 Wear protective gloves / eye protection / face protection.

P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label).

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present

and easy to do. Continue rinsing.

P332+P313 If skin irritation occurs: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P337+P313 If eye irritation persists: Get medical advice/attention.

- · Classification system:
- · NFPA ratings (scale 0 4)



Health = 2 Fire = 0 Reactivity = 0

(Contd. on page 2)



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Trade name: STD, Instrument Check Std 3

· HMIS-ratings (scale 0 - 4)

(Contd. of page 1)

HEALTH FIRE REACTIVITY 0 Reactivity = 0

Health = 2Fire = 0

· Other hazards

The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.

- · Results of PBT and vPvB assessment
- · **PBT**: Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

- · Chemical characterization: Substances
- · CAS No. Description

7732-18-5 Water

- · Identification number(s)
- · EC number: 231-791-2
- · Chemical characterization: Mixtures
- · **Description:** Mixture of the substances listed below with nonhazardous additions.

· Hazardous	components:		
7697-37-2	Nitric Acid	Ox. Liq. 2, H272 Skin Corr. 1A, H31	2.0%
· Additional	Components		
7439-95-4	magnesium	♦ Pyr. Sol. 1, H250; Water-react. 1, H260	0.02%
7439-89-6	iron		0.02%
7440-09-7	potassium	Water-react. 1, H260 Skin Corr. 1B, H314	0.02%
7440-23-5	sodium	Water-react. 1, H260 Skin Corr. 1B, H314	0.02%
7440-70-2	calcium	♦ Water-react. 2, H261	0.02%
7732-18-5	Water		97.9%

4 First-aid measures

- · Description of first aid measures
- After inhalation: In case of unconsciousness place patient stably in side position for transportation.
- · After skin contact: Immediately wash with water and soap and rinse thoroughly.
- · After eye contact:

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

- · After swallowing: If symptoms persist consult doctor.
- · Most important symptoms and effects, both acute and delayed No further relevant information available.

(Contd. on page 3)



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(Contd. of page 2)

· Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- · Environmental precautions:

Inform respective authorities in case of seepage into water course or sewage system.

Dilute with plenty of water.

Do not allow to enter sewers/surface or ground water.

- · Methods and material for containment and cleaning up:
- Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- · Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

Protective Action Criteria for Chemicals

<i>PAC-1:</i>		
	Nitric Acid	0.16 ppm
7439-95-4	magnesium	18 mg/m
7439-89-6	iron	3.2 mg/m
7440-09-7	potassium	2.3 mg/n
7440-23-5	sodium	13 mg/m
PAC-2:		
7697-37-2	Nitric Acid	24 ppm
7439-95-4	magnesium	200 mg/n
7439-89-6	iron	35 mg/m ³
7440-09-7	potassium	25 mg/m ²
7440-23-5	sodium	140 mg/n
PAC-3:		
7697-37-2	Nitric Acid	92 ppm
7439-95-4	magnesium	1,200 mg/n
7439-89-6	iron	150 mg/m^3
7440-09-7	potassium	150 mg/m^3

-USA



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Trade name: STD, Instrument Check Std 3

	(Contd. of page 3)
7440-23-5 sodium	870 mg/m^3

7 Handling and storage

- · Handling:
- Precautions for safe handling No special precautions are necessary if used correctly.
- · Information about protection against explosions and fires: The product is not flammable.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see item 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:

7697-37-2 Nitric Acid

PEL Long-term value: 5 mg/m³, 2 ppm

REL Short-term value: 10 mg/m³, 4 ppm

Long-term value: 5 mg/m³, 2 ppm

TLV Short-term value: 10 mg/m³, 4 ppm

Long-term value: 5.2 mg/m³, 2 ppm

- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

- · Breathing equipment: Not required.
- Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

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(Contd. of page 4)

· Penetration time of glove material

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection:

Kinematic:



Tightly sealed goggles or safety glasses

Physical and chemical proper	ties
· Information on basic physical and o	chemical properties
· General Information	, p. oper
· Appearance:	
Form:	Liquid
Color:	Transparent
· Odor:	Odorless
· Odor threshold:	Not determined.
· pH-value:	Not determined.
· Change in condition	
Melting point/Melting range:	0 °C (32 °F)
Boiling point/Boiling range:	100 °C (212 °F)
· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Not applicable.
· Decomposition temperature:	Not determined.
· Auto igniting:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)
Density at 20 °C (68 °F):	1 g/cm³ (8.345 lbs/gal)
Relative density	Not determined.
· Vapor density	Not determined.
Evaporation rate	Not determined.
· Solubility in / Miscibility with	
Water:	Fully miscible.
· Partition coefficient (n-octanol/wate	er): Not determined.
· Viscosity:	
Dynamic:	Not determined.
	37 1

Not determined.

(Contd. on page 6)



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Trade name: STD, Instrument Check Std 3

(Contd. of page 5)

	(Conta. of page 3)
· Solvent content: Water:	97 9 %
VOC content:	0.00 %
Solids content: · Other information	0.1% No further relevant information available.

10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- $\cdot \textbf{Incompatible materials:} \ \textit{No further relevant information available}.$
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:
- · Primary irritant effect:
- · on the skin: Irritant to skin and mucous membranes.
- · on the eye: Irritating effect.
- · Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

- · Carcinogenic categories
- · IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

- · Toxicity
- Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.

(Contd. on page 7)



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Trade name: STD, Instrument Check Std 3

(Contd. of page 6)

- · Additional ecological information:
- · General notes: Generally not hazardous for water
- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Dispose of container and materials in accordance with local, regional and national regulations.

- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

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14	Iranc	nort	m	ormati	ON
		ייוטע	7176	ormati	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,

· UN-Number	
· DOT. ADR. IMDG. IATA	UN3264

· UN proper shipping name

Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
ADR
3264 Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)

· IMDG, IATA CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Nitric Acid)

- · Transport hazard class(es)
- $\cdot DOT$



· Class 8 Corrosive substances

· Label 8

 $\cdot ADR$



Class 8 (C1) Corrosive substances

· Label

(Contd. on page 8)



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Trade name: STD, Instrument Check Std 3

(Contd. of page 7) · IMDG, IATA 8 Corrosive substances · Class ·Label · Packing group · DOT, ADR, IMDG, IATA III· Environmental hazards: · Marine pollutant: No · Special precautions for user Warning: Corrosive substances Danger code (Kemler): 80 · EMS Number: F-A.S-B· Segregation groups Acids · Stowage Category · Stowage Code SW2 Clear of living quarters. · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable. · Transport/Additional information: $\cdot DOT$ · Quantity limitations On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L $\cdot ADR$ · Excepted quantities (EQ) Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml \cdot IMDG · Limited quantities (LQ) 5L· Excepted quantities (EQ) Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. · UN ''Model Regulation'': (NITRIC ACID), 8, III

Safety, hea	lth and environmental regulations/legislation specific for the substo	ince or mixture	
7732-18-5	Water		97.9%
7697-37-2	Nitric Acid	Ox. Liq. 2, H272Skin Corr. 1A, H314	2.0%
7439-89-6	iron		0.02%

-USA



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Trade name: STD, Instrument Check Std 3

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· Sara

· Section 355 (extremely hazardous substances):

7697-37-2 Nitric Acid

Section 313 (Specific toxic chemical listings):

7697-37-2 Nitric Acid

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

7697-37-2 Nitric Acid 7439-95-4 magnesium 7439-89-6 iron

7440-09-7 potassium

7440-23-5 sodium 7440-70-2 calcium

7732-18-5 *Water*• *Proposition 65*

· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Cancerogenity categories

· EPA (Environmental Protection Agency)

None of the ingredients is listed.

· TLV (Threshold Limit Value established by ACGIH)

None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

- · National regulations:
- · Information about limitation of use:

Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

- · Water hazard class: Generally not hazardous for water.
- · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Disclaimer

The information provided in this Material Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made

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Trade name: STD, Instrument Check Std 3

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concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. PerkinElmer shall not be held liable for any damage resulting from handling or from contact with the product.

· Department issuing SDS: Environmental, Health and Safety

· Contact:

Within the USA: 1-(800)-762-4000 Outside the USA: 1-(203)-712-8488

· Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Ox. Liq. 2: Oxidizing liquids - Category 2

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

* * Data compared to the previous version altered.

USA



Printing date 07/17/2018 Review date 07/17/2018

1 Identification

- · Product identifier
- · Trade name: STD, Instrument Check Std 4
- · Article number N9303823
- · Application of the substance / the mixture Laboratory chemicals
- Details of the supplier of the safety data sheet
- · Manufacturer/Supplier:

PerkinElmer, Inc.

710 Bridgeport Avenue

Shelton, Connecticut 06484 USA

CustomerCareUS@perkinelmer.com

203-925-4600

· Emergency telephone number:

CHEMTREC (within US) 800-424-9300

CHEMTREC (from outside US) +1 703-527-3887 (call collect)

CHEMTREC (within AU) +(61)-290372994

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

- · Label elements
- · GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms GHS07
- · Signal word Warning
- · Hazard statements

H315 Causes skin irritation.

H319 Causes serious eye irritation.

· Precautionary statements

P264 Wash thoroughly after handling.

P280 Wear protective gloves / eye protection / face protection.

P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label).

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present

and easy to do. Continue rinsing.

P332+P313 If skin irritation occurs: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P337+P313 If eye irritation persists: Get medical advice/attention.

- · Classification system:
- · NFPA ratings (scale 0 4)



Health = 2 Fire = 0Reactivity = 0

(Contd. on page 2)



Review date 07/17/2018 *Printing date 07/17/2018*

Trade name: STD, Instrument Check Std 4

· HMIS-ratings (scale 0 - 4)

(Contd. of page 1)

HEALTH FIRE

Health = 2Fire = 0

REACTIVITY $\boxed{0}$ Reactivity = 0

· Other hazards

The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.

- · Results of PBT and vPvB assessment
- · **PBT**: Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

- · Chemical characterization: Substances
- · CAS No. Description

7732-18-5 Water

- · Identification number(s)
- · EC number: 231-791-2
- · Chemical characterization: Mixtures
- · Description: Mixture of the substances listed below with nonhazardous additions.

· Hazardous	components:		
7697-37-2	Nitric Acid	Ox. Liq. 2, H272 Skin Corr. 1A, F.	2 H314 2.0%
· Additional	Components		
7440-29-1	thorium	� Carc. 1A, H350	0.001%
7440-61-1	uranium	Acute Tox. 2, H300; Acute Tox. 2, H330 STOT RE 2, H373	0.001%
1313-27-5	molybdenum trioxide	© Carc. 2, H351 © Eye Irrit. 2A, H319; STOT SE 3, H335	0.001%
7732-18-5	Water		97.997%

4 First-aid measures

- · Description of first aid measures
- · After inhalation: In case of unconsciousness place patient stably in side position for transportation.
- · After skin contact: Immediately wash with water and soap and rinse thoroughly.
- · After eye contact:

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

- · After swallowing: If symptoms persist consult doctor.
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed No further relevant information available.

(Contd. on page 3)



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Trade name: STD, Instrument Check Std 4

(Contd. of page 2)

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · **Protective equipment:** No special measures required.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- · Environmental precautions:

Inform respective authorities in case of seepage into water course or sewage system.

Dilute with plenty of water.

Do not allow to enter sewers/surface or ground water.

- · Methods and material for containment and cleaning up:
- Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- · Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

PAC-1:		
7697-37-2 Nitric A	cid	0.16 ppm
7440-29-1 thoriun		30 mg/m^3
7440-61-1 uraniu	1	0.6 mg/m
1313-27-5 molyba	enum trioxide	2.3 mg/m
PAC-2:		
7697-37-2 Nitric A	cid	24 ppm
7440-29-1 thorium		330 mg/m
7440-61-1 uraniu	ı	$5 mg/m^3$
1313-27-5 molyba	enum trioxide	43 mg/m³
PAC-3:		
7697-37-2 Nitric A	cid	92 ppm
7440-29-1 thoriun		2,000 mg/m
7440-61-1 uraniu	1	30 mg/m³
1313-27-5 molyba	enum trioxide	260 mg/m³

7 Handling and storage

- · Handling:
- Precautions for safe handling No special precautions are necessary if used correctly.
- · Information about protection against explosions and fires: The product is not flammable.

(Contd. on page 4)



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Trade name: STD, Instrument Check Std 4

(Contd. of page 3)

- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see item 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:

7697-37-2 Nitric Acid

PEL Long-term value: 5 mg/m³, 2 ppm

REL Short-term value: 10 mg/m³, 4 ppm
Long-term value: 5 mg/m³, 2 ppm

TLV Short-term value: 10 mg/m³, 4 ppm
Long-term value: 5.2 mg/m³, 2 ppm

- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

- · Breathing equipment: Not required.
- · Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

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Trade name: STD, Instrument Check Std 4

· Eye protection:

(Contd. of page 4)



Tightly sealed goggles or safety glasses

Information on basic physical and o	chemical properties	
General Information	nement properties	
Appearance:		
Form:	Liquid	
Color:	Transparent	
Odor:	Odorless	
Odor threshold:	Not determined.	
pH-value:	Not determined.	
Change in condition		
Melting point/Melting range:	0 °C (32 °F)	
Boiling point/Boiling range:	100 °C (212 °F)	
Flash point:	Not applicable.	
Flammability (solid, gaseous):	Not applicable.	
Decomposition temperature:	Not determined.	
Auto igniting:	Product is not selfigniting.	
Danger of explosion:	Product does not present an explosion hazard.	
Explosion limits:		
Lower:	Not determined.	
Upper:	Not determined.	
Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)	
Density at 20 °C (68 °F):	1 g/cm³ (8.345 lbs/gal)	
Relative density	Not determined.	
Vapor density	Not determined.	
Evaporation rate	Not determined.	
Solubility in / Miscibility with		
Water:	Fully miscible.	
Partition coefficient (n-octanol/wate	e r): Not determined.	
Viscosity:		
Dynamic:	Not determined.	
Kinematic:	Not determined.	
Solvent content:		
Water:	98.0 %	
VOC content:	0.00 %	

(Contd. on page 6)



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Trade name: STD, Instrument Check Std 4

(Contd. of page 5)

· Other information

No further relevant information available.

10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- Information on toxicological effects
- · Acute toxicity:
- · Primary irritant effect:
- · on the skin: Irritant to skin and mucous membranes.
- · on the eye: Irritating effect.
- · Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

7440-29-1 thorium

|I|

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes: Generally not hazardous for water
- · Results of PBT and vPvB assessment
- · **PBT**: Not applicable.
- · vPvB: Not applicable.

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Trade name: STD, Instrument Check Std 4

· Other adverse effects No further relevant information available.

(Contd. of page 6)

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Dispose of container and materials in accordance with local, regional and national regulations.

- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

	•	7	•	7	•	7					
٠	U.	/	Λ	T-,	Λ	lι	u	n	h	e	r

· DOT, ADR, IMDG, IATA

UN3264

· UN proper shipping name

 $\cdot DOT$

· ADR

· ADK · IMDG, IATA Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)

3264 Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)

CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Nitric Acid)

- · Transport hazard class(es)
- $\cdot DOT$



· Class · Label 8 Corrosive substances

R

 $\cdot ADR$



· Class

8 (C1) Corrosive substances

· Label

Q

· IMDG, IATA



· Class · Label 8 Corrosive substances

8

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Trade name: STD, Instrument Check Std 4

	(Contd. of page
· Packing group	
· DOT, ADR, IMDG, IATA	III
· Environmental hazards:	
· Marine pollutant:	No
· Special precautions for user	Warning: Corrosive substances
Danger code (Kemler):	80
· EMS Number:	F- A , S - B
· Segregation groups	Acids
· Stowage Category	A
· Stowage Code	SW2 Clear of living quarters.
Transport in bulk according to Annex I	II of
MARPOL73/78 and the IBC Code	Not applicable.
Transport/Additional information:	
•	
· DOT	0
· Quantity limitations	On passenger aircraft/rail: 5 L
	On cargo aircraft only: 60 L
· ADR	
Excepted quantities (EQ)	Code: E1
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
· IMDG	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1
1 1	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
· UN ''Model Regulation'':	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.
<u> </u>	(NITRIC ACID), 8, III

Safety, hea	ulth and environmental regulation	ons/legislation specific for the substance or mixture	
7732-18-5	Water		97.997%
7697-37-2	Nitric Acid	© Ox. Liq. 2, H272 Skin Corr. 1A, H314	2.0%
7440-61-1	uranium	Acute Tox. 2, H300; Acute Tox. 2, H330 STOT RE 2, H373	0.001%
Sara Section 35	5 (extremely hazardous substan	cos)·	
	Nitric Acid		
Section 31.	3 (Specific toxic chemical listing	gs):	
7697-37-2	Nitric Acid		
1313-27-5	molybdenum trioxide		



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Trade name: STD, Instrument Check Std 4

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· TSCA (Toxic Substances Control Act):

All ingredients are listed.

7697-37-2	Nitric Acid
7440-29-1	thorium
7440-61-1	uranium
1313-27-5	molybdenum trioxide
7732-18-5	Water

· Proposition 65

· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Cancerogenity categories

· EPA (Environmental Protection Agency)

None of the ingredients is listed.

· TLV (Threshold Limit Value established by ACGIH)

7440-61-1 uranium

A1

· NIOSH-Ca (National Institute for Occupational Safety and Health)

7440-61-1 uranium

· National regulations:

· Information about limitation of use:

Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

- · Water hazard class: Generally not hazardous for water.
- · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Disclaimer

The information provided in this Material Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. PerkinElmer shall not be held liable for any damage resulting from handling or from contact with the product.

· Department issuing SDS: Environmental, Health and Safety

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Trade name: STD, Instrument Check Std 4

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· Contact:

Within the USA: 1-(800)-762-4000 Outside the USA: 1-(203)-712-8488

· Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Ox. Liq. 2: Oxidizing liquids – Category 2

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

* * Data compared to the previous version altered.

USA ·



Printing date 07/17/2018 Review date 07/17/2018

1 Identification

- · Product identifier
- · Trade name: STD, Instrument Check Std 5
- · Article number N9303824
- · Application of the substance / the mixture Laboratory chemicals
- Details of the supplier of the safety data sheet
- · Manufacturer/Supplier:

PerkinElmer, Inc.

710 Bridgeport Avenue

Shelton, Connecticut 06484 USA

CustomerCareUS@perkinelmer.com

203-925-4600

· Emergency telephone number:

CHEMTREC (within US) 800-424-9300

CHEMTREC (from outside US) +1 703-527-3887 (call collect)

CHEMTREC (within AU) +(61)-290372994

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

- · Label elements
- · GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms GHS07
- · Signal word Warning
- · Hazard statements

H315 Causes skin irritation.

H319 Causes serious eye irritation.

· Precautionary statements

P264 Wash thoroughly after handling.

P280 Wear protective gloves / eye protection / face protection.

P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label).

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present

and easy to do. Continue rinsing.

P332+P313 If skin irritation occurs: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P337+P313 If eye irritation persists: Get medical advice/attention.

- · Classification system:
- NFPA ratings (scale 0 4)



Health = 2 Fire = 0Reactivity = 0

(Contd. on page 2)



Printing date 07/17/2018 Review date 07/17/2018

Trade name: STD, Instrument Check Std 5

· HMIS-ratings (scale 0 - 4)

(Contd. of page 1)



Health = 2Fire = 0

· Other hazards

The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.

- · Results of PBT and vPvB assessment
- · **PBT**: Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

- · Chemical characterization: Substances
- · CAS No. Description

7732-18-5 Water

- · Identification number(s)
- · EC number: 231-791-2
- · Chemical characterization: Mixtures
- · Description: Mixture of the substances listed below with nonhazardous additions.

· Hazardous d	components:	
7697-37-2	Nitric Acid Ox. Liq. 2, H272 Skin Corr. 1A, H3	314 2.0%
· Additional (Components	
7664-39-3	Hydrofluoric acid Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330 Skin Corr. 1A, H314	0.2%
10042-76-9	strontium nitrate Ox. Sol. 2, H272	0.001%
	molybdenum trioxide Carc. 2, H351 Eye Irrit. 2A, H319; STOT SE 3, H335	0.001%
7440-31-5	*	0.001%
7440-32-6	titanium Self-heat. 1, H251; Water-react. 1, H260	0.001%
7732-18-5	Water	97.796%

4 First-aid measures

- · Description of first aid measures
- After inhalation: In case of unconsciousness place patient stably in side position for transportation.
- · After skin contact:

Immediately wash with water and soap and rinse thoroughly.

Rub in Ca-gluconate solution or Ca-gluconate gel immediately.

(Contd. on page 3)



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Trade name: STD, Instrument Check Std 5

(Contd. of page 2)

- · After eye contact:
- Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- · After swallowing: If symptoms persist consult doctor.
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed

No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- · Environmental precautions:

Inform respective authorities in case of seepage into water course or sewage system.

Dilute with plenty of water.

- Methods and material for containment and cleaning up:
- Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- · Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

<i>PAC-1:</i>		
7697-37-2	Nitric Acid	0.16 ppm
10042-76-9	strontium nitrate	5.7 mg/m ⁻
1313-27-5	molybdenum trioxide	2.3 mg/m
7440-31-5	tin	6 mg/m ³
7440-32-6	titanium	30 mg/m³
<i>PAC-2:</i>		
7697-37-2	Nitric Acid	24 ppm
10042-76-9	strontium nitrate	62 mg/m³
1313-27-5	molybdenum trioxide	43 mg/m^3
7440-31-5	tin	67 mg/m³
7440-32-6	titanium	330 mg/m
PAC-3:		
7697-37-2	Nitric Acid	92 ppm
10042-76-9	strontium nitrate	370 mg/m^3
1313-27-5	molybdenum trioxide	260 mg/m^3
		(Contd. on page

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Trade name: STD, Instrument Check Std 5

	(Contd. of page 3)
7440-31-5 tin	400 mg/m^3
7440-32-6 titanium	$2,000 \text{ mg/m}^3$

7 Handling and storage

- · Handling:
- Precautions for safe handling No special precautions are necessary if used correctly.
- · Information about protection against explosions and fires: The product is not flammable.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see item 7.
- · Control parameters

· Components with limit values that require monitoring at the workplace:

7697-37-2 Nitric Acid

PEL Long-term value: 5 mg/m³, 2 ppm
REL Short-term value: 10 mg/m³, 4 ppm
Long-term value: 5 mg/m³, 2 ppm
TLV Short-term value: 10 mg/m³, 4 ppm
Long-term value: 5.2 mg/m³, 2 ppm

- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

- · Breathing equipment: Not required.
- · Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

(Contd. on page 5)



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Trade name: STD, Instrument Check Std 5

(Contd. of page 4)

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection:



Tightly sealed goggles or safety glasses

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Trade name: STD, Instrument Check Std 5

(Contd. of page 5)

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity:

Dynamic: Not determined. **Kinematic:** Not determined.

· Solvent content:

 Water:
 97.8 %

 VOC content:
 0.00 %

• Other information No further relevant information available.

10 Stability and reactivity

- · Reactivity No further relevant information available.
- Chemical stability
- · Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:
- · Primary irritant effect:
- on the skin: Irritant to skin and mucous membranes.
- · on the eye: Irritating effect.
- · Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.

(Contd. on page 7)



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Trade name: STD, Instrument Check Std 5

(Contd. of page 6)

- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- · **PBT**: Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Dispose of container and materials in accordance with local, regional and national regulations.

- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name	
$\cdot DOT$	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
$\cdot ADR$	3264 Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)
· IMDG	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Nitric Acid),
	MARINE POLLUTANT
· IATA	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Nitric Acid)

- · Transport hazard class(es)
- $\cdot DOT$



ClassLabel8 Corrosive substances8

 $\cdot ADR$



Class 8 (C1) Corrosive substances

(Contd. on page 8)



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Trade name: STD, Instrument Check Std 5

	(Contd. of p
Label	8
IMDG	
¥22	
Class	8 Corrosive substances
Label	8
IATA	
() () () () () () () () () ()	
Class	8 Corrosive substances
Label	8
Packing group DOT, ADR, IMDG, IATA	III
Environmental hazards:	
Marine pollutant:	No
	Symbol (fish and tree)
Special precautions for user	Warning: Corrosive substances
Danger code (Kemler): EMS Number:	80 F-A,S-B
EMS Number: Segregation groups	r-A,S-B Acids
Stowage Category	Actus A
Stowage Code	SW2 Clear of living quarters.
Transport in bulk according to Annex	II of
MARPOL73/78 and the IBC Code	Not applicable.
Transport/Additional information:	
DOT	
Quantity limitations	On passenger aircraft/rail: 5 L
	On cargo aircraft only: 60 L
Remarks:	Special marking with the symbol (fish and tree).
ADR	
Excepted quantities (EQ)	Code: E1
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
IMDG	57
Limited quantities (LQ)	5L
Excepted quantities (EQ)	Code: E1
	Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
	maximum nei quantity per outer packaging: 1000 mi



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Trade name: STD, Instrument Check Std 5

(Contd. of page 8)

· UN "Model Regulation":

UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

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· Safety, health and environmental regulations/legislation specific for the substance or mixture		
7732-18-5	Water	97.796%
	Nitric Acid	2.0%
	Ox. Liq. 2, H272 Skin Corr. 1A, H314	
7664-39-3	Hydrofluoric acid	0.2%
	Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330 Skin Corr. 1A, H314	

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· Section 355 (extremely hazardous substances):

7697-37-2 Nitric Acid

· Section 313 (Specific toxic chemical listings):

7697-37-2 Nitric Acid

10042-76-9 strontium nitrate

1313-27-5 molybdenum trioxide

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

7697-37-2	Nitric Acid
10042-76-9	strontium nitrate
1313-27-5	molybdenum trioxide
7440-31-5	tin
7440-32-6	titanium
7732-18-5	Water

· Proposition 65

· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Cancerogenity categories

· EPA (Environmental Protection Agency)

None of the ingredients is listed.

(Contd. on page 10)



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(Contd. of page 9)

· TLV (Threshold Limit Value established by ACGIH)

None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

- · National regulations:
- · Information about limitation of use:

Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

- · Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.
- · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Disclaimer

The information provided in this Material Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. PerkinElmer shall not be held liable for any damage resulting from handling or from contact with the product.

- · Department issuing SDS: Environmental, Health and Safety
- · Contact:

Within the USA: 1-(800)-762-4000 Outside the USA: 1-(203)-712-8488

· Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Ox. Liq. 2: Oxidizing liquids - Category 2

Skin Corr. 1A: Skin corrosion/irritation - Category 1A

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation - Category 2A

* Data compared to the previous version altered.



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1 Identification

- · Product identifier
- · Trade name: STD, Interferents A
- · Article number N9303827
- · Application of the substance / the mixture Laboratory chemicals
- Details of the supplier of the safety data sheet
- · Manufacturer/Supplier:

PerkinElmer, Inc.

710 Bridgeport Avenue

Shelton, Connecticut 06484 USA

CustomerCareUS@perkinelmer.com

203-925-4600

· Emergency telephone number:

CHEMTREC (within US) 800-424-9300

CHEMTREC (from outside US) +1 703-527-3887 (call collect)

CHEMTREC (within AU) +(61)-290372994

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

- · Label elements
- · GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms GHS05
- · Signal word Danger
- · Hazard-determining components of labeling:

Nitric Acid

· Hazard statements

H314 Causes severe skin burns and eye damage.

· Precautionary statements

P260 Do not breathe dusts or mists. P264 Wash thoroughly after handling.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/

shower.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present

and easy to do. Continue rinsing.

P310 Immediately call a poison center/doctor.
 P321 Specific treatment (see on this label).
 P363 Wash contaminated clothing before reuse.

P405 Store locked up.

(Contd. on page 2)



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Trade name: STD, Interferents A

(Contd. of page 1)

P501

Dispose of contents/container in accordance with local/regional/national/international regulations.

- · Classification system:
- · NFPA ratings (scale 0 4)



Health = 3Fire = 0

Reactivity = 0

· HMIS-ratings (scale 0 - 4)



3 Health = 3

Fire = 0

· Other hazards

The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

- · Chemical characterization: Substances
- · CAS No. Description

7732-18-5 Water

- · Identification number(s)
- · EC number: 231-791-2
- · Chemical characterization: Mixtures
- · **Description:** Mixture of the substances listed below with nonhazardous additions.

Hazardous	components:	
7697-37-2	Nitric Acid	© Ox. Liq. 2, H272 Skin Corr. 1A, H314
Additional	Components	
7440-70-2	calcium Water-react. 2, H261	0.3%
7439-89-6	iron	0.25%
7440-23-5	sodium Water-react. 1, H260 Skin Corr. 1B, H314	0.25%
7440-44-0	carbon The state of the state	0.2%
7664-39-3	Hydrofluoric acid Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330 Skin Corr. 1A, H314	0.2%
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Trade name: STD, Interferents A

		(Contd. of page
7723-14-0	red phosphorus	0.1%
	🔖 Flam. Liq. 2, H225; Flam. Sol. 1, H228	
7440-09-7	potassium	0.1%
	Water-react. 1, H260 Skin Corr. 1B, H314	
7439-95-4	magnesium	0.1%
	(a) Pyr. Sol. 1, H250; Water-react. 1, H260	
7704-34-9	sulfur	0.1%
	Skin Irrit. 2, H315	
7429-90-5	aluminium	0.1%
7782-50-5	chlorine	0.0021%
	� Oxid. Gas 1, H270	
	Acute Tox. 3, H331	
	♦ Skin Irrit. 2, H315; Eye Irrit. 2A, H319; STOT SE 3, H335	
7440-32-6	titanium	0.002%
	♦ Self-heat. 1, H251; Water-react. 1, H260	
1313-27-5	molybdenum trioxide	0.002%
	& Carc. 2, H351	
	Tye Irrit. 2A, H319; STOT SE 3, H335	
7732-18-5	Water	93.29399

4 First-aid measures

- Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- · After inhalation: In case of unconsciousness place patient stably in side position for transportation.
- · After skin contact:

Immediately wash with water and soap and rinse thoroughly.

Rub in Ca-gluconate solution or Ca-gluconate gel immediately.

- · After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
- After swallowing: Drink copious amounts of water and provide fresh air. Immediately call a doctor.
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed

No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

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Trade name: STD, Interferents A

(Contd. of page 3)

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

· Environmental precautions:

Inform respective authorities in case of seepage into water course or sewage system.

Dilute with plenty of water.

· Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

· Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

7697-37-2	Nitric Acid	0.16 ppm
7439-89-6	iron	3.2 mg/m^3
7440-23-5	sodium	13 mg/m^3
7440-44-0	carbon	6 mg/m^3
7723-14-0	red phosphorus	0.27 mg/n
7440-09-7	potassium	2.3 mg/m ²
7439-95-4	magnesium	18 mg/m³
7782-50-5	chlorine	0.50 ppm
7440-32-6	titanium	30 mg/m^3
1313-27-5	molybdenum trioxide	2.3 mg/m ⁻
PAC-2:		·
7697-37-2	Nitric Acid	24 ppm
7439-89-6	iron	35 mg/m
7440-23-5	sodium	140 mg/n
7440-44-0	carbon	330 mg/n
7723-14-0	red phosphorus	$3 mg/m^3$
7440-09-7	potassium	25 mg/m
7439-95-4	magnesium	200 mg/n
7782-50-5	chlorine	2.0 ppm
7440-32-6	titanium	330 mg/n
1313-27-5	molybdenum trioxide	43 mg/m ⁻
PAC-3:		
7697-37-2	Nitric Acid	92 ppm
7439-89-6	iron	150 mg/m^3
7440-23-5	sodium	870 mg/m³



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7440-44-0	carbon	(Contd. of page 4) 2,000 mg/m ³
7723-14-0	red phosphorus	18 mg/m^3
7440-09-7	potassium	150 mg/m^3
	magnesium	$1,200 \text{ mg/m}^3$
7782-50-5	chlorine	20 ppm
7440-32-6	titanium	$2,000 \text{ mg/m}^3$
1313-27-5	molybdenum trioxide	260 mg/m³

7 Handling and storage

- · Handling:
- · Precautions for safe handling No special precautions are necessary if used correctly.
- · Information about protection against explosions and fires: The product is not flammable.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see item 7.
- · Control parameters

· Components with limit values that require monitoring at the workplace

7697-37-2 Nitric Acid

PEL Long-term value: 5 mg/m³, 2 ppm
REL Short-term value: 10 mg/m³, 4 ppm
Long-term value: 5 mg/m³, 2 ppm
TLV Short-term value: 10 mg/m³, 4 ppm
Long-term value: 5.2 mg/m³, 2 ppm

- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

· Breathing equipment: Not required.

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Trade name: STD, Interferents A

Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection:



Tightly sealed goggles or safety glasses

Information on basic physical and c	hemical properties	
General Information		
Appearance: Form:	Liquid	
r orm: Color:	Liquid Transparent	
Odor:	Characteristic	
Odor threshold:	Not determined.	
pH-value:	Not determined.	
Change in condition		
Melting point/Melting range:	0 °C (32 °F)	
Boiling point/Boiling range:	100 °C (212 °F)	
Flash point:	Not applicable.	
Flammability (solid, gaseous):	Not applicable.	
Decomposition temperature:	Not determined.	
Auto igniting:	Product is not selfigniting.	
Danger of explosion:	Product does not present an explosion hazard.	
Explosion limits:		
Lower:	Not determined.	
Upper:	Not determined.	
Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)	

(Contd. on page 7)



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Trade name: STD, Interferents A

		(Contd. of page
· Density at 20 °C (68 °F):	1 g/cm³ (8.345 lbs/gal)	
Relative density	Not determined.	
· Vapor density	Not determined.	
Evaporation rate	Not determined.	
· Solubility in / Miscibility with		
Water:	Fully miscible.	
· Partition coefficient (n-octanol/w	vater): Not determined.	
· Viscosity:		
Dynamic:	Not determined.	
Kinematic:	Not determined.	
· Solvent content:		
Water:	93.3 %	
VOC content:	0.00 %	
Solids content:	1.1 %	
· Other information	No further relevant information available.	

10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:
- Primary irritant effect:
- · on the skin: Caustic effect on skin and mucous membranes.
- on the eye:

Strong caustic effect.

Strong irritant with the danger of severe eye injury.

- · Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Corrosive

Irritant

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

(Contd. on page 8)



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Trade name: STD, Interferents A

(Contd. of page 7)

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

- · Toxicity
- Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system. Must not reach bodies of water or drainage ditch undiluted or unneutralized.

- · Results of PBT and vPvB assessment
- · **PBT**: Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Dispose of container and materials in accordance with local, regional and national regulations.

- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

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· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name	
· DOT	Corrosive liquid, acidic, inorganic, n.o.s. (nitric acid)
· <i>ADR</i>	3264 Corrosive liquid, acidic, inorganic, n.o.s. (nitric acid)
· IMDG, IATA	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid)

(Contd. on page 9)



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Trade name: STD, Interferents A

(Contd. of page 8) · Transport hazard class(es) $\cdot DOT$ · Class 8 Corrosive substances ·Label $\cdot ADR$ · Class 8 (C1) Corrosive substances ·Label · IMDG, IATA · Class 8 Corrosive substances ·Label · Packing group · DOT, ADR, IMDG, IATA III· Environmental hazards: · Marine pollutant: Warning: Corrosive substances · Special precautions for user Danger code (Kemler): · EMS Number: F-A,S-B· Segregation groups Acids· Stowage Category · Stowage Code SW2 Clear of living quarters. · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable. · Transport/Additional information: $\cdot DOT$ On passenger aircraft/rail: 5 L · Quantity limitations On cargo aircraft only: 60 L $\cdot ADR$ · Excepted quantities (EQ) Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml

(Contd. on page 10)



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Trade name: STD, Interferents A

· IMDG
· Limited quantities (LQ)
· Excepted quantities (EQ)

· Excepted quantities (EQ)

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· UN "Model Regulation":

UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.

(NITRIC ACID), 8, III

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		lation specific for the substance or mixture	102 202
7732-18-5			93.2939
	Nitric Acid	Ox. Liq. 2, H272 Skin Corr. 1A, H314	5.0%
7440-70-2	calcium	🚱 Water-react. 2, H261	0.3%
Sara		·	
Section 35	5 (extremely hazardous substances):		
7697-37-2	Nitric Acid		
7723-14-0	red phosphorus		
7782-50-5	chlorine		
Section 31	3 (Specific toxic chemical listings):		
7697-37-2	Nitric Acid		
7723-14-0	red phosphorus		
7429-90-5	aluminium		
7782-50-5	chlorine		
1313-27-5	molybdenum trioxide		
	xic Substances Control Act): ents are listed.		
_	Nitric Acid		
7440-70-2	calcium		
7439-89-6	iron		
7440-23-5	sodium		
7440-44-0	carbon		
7723-14-0	red phosphorus		
7440-09-7	potassium		
7439-95-4	magnesium		
7704-34-9	sulfur		
7429-90-5	aluminium		
7782-50-5	chlorine		
7440-32-6	titanium		

USA •



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Trade name: STD, Interferents A

(Contd. of page 10)

1313-27-5 molybdenum trioxide

7732-18-5 Water

· Proposition 65

· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Cancerogenity categories

· <i>EPA</i>	(Environmental	Protection	Agency)
--------------	----------------	------------	---------

7723-14-0 red phosphorus

D

· TLV (Threshold Limit Value established by ACGIH)

7429-90-5 aluminium 7782-50-5 chlorine A4 A4

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

- · National regulations:
- Information about limitation of use:

Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

- · Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.
- · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Disclaimer

The information provided in this Material Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. PerkinElmer shall not be held liable for any damage resulting from handling or from contact with the product.

- Department issuing SDS: Environmental, Health and Safety
- · Contact:

Within the USA: 1-(800)-762-4000 Outside the USA: 1-(203)-712-8488

Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

(Contd. on page 12)



Printing date 07/17/2018 Review date 07/17/2018

Trade name: STD, Interferents A

(Contd. of page 11)

ICAO: International Civil Aviation Organisation

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International

Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Ox. Liq. 2: Oxidizing liquids – Category 2

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

Eye Dam. 1: Serious eye damage/eye irritation – Čategory 1

USA

^{* *} Data compared to the previous version altered.



Printing date 07/17/2018 Review date 07/17/2018

1 Identification

- · Product identifier
- · Trade name: STD, Analytes B
- · Article number N9303829
- · Application of the substance / the mixture Laboratory chemicals
- Details of the supplier of the safety data sheet
- · Manufacturer/Supplier:

PerkinElmer, Inc.

710 Bridgeport Avenue

Shelton, Connecticut 06484 USA

CustomerCareUS@perkinelmer.com

203-925-4600

· Emergency telephone number:

CHEMTREC (within US) 800-424-9300

CHEMTREC (from outside US) +1 703-527-3887 (call collect)

CHEMTREC (within AU) +(61)-290372994

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

- · Label elements
- · GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms GHS07
- · Signal word Warning
- · Hazard statements

H315 Causes skin irritation.

H319 Causes serious eye irritation.

· Precautionary statements

P264 Wash thoroughly after handling.

P280 Wear protective gloves / eye protection / face protection.

P302+P352 If on skin: Wash with plenty of water. P321 Specific treatment (see on this label).

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present

and easy to do. Continue rinsing.

P332+P313 If skin irritation occurs: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P337+P313 If eye irritation persists: Get medical advice/attention.

- · Classification system:
- · NFPA ratings (scale 0 4)



Health = 2 Fire = 0Reactivity = 0

(Contd. on page 2)



Printing date 07/17/2018 Review date 07/17/2018

Trade name: STD, Analytes B

· HMIS-ratings (scale 0 - 4)

 $(Contd.\ of\ page\ 1)$



Health = 2Fire = 0

REACTIVITY 0 Reactivity = 0

· Other hazards

The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.

- · Results of PBT and vPvB assessment
- · **PBT**: Not applicable.
- · vPvB: Not applicable.

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- · Chemical characterization: Substances
- · CAS No. Description

7732-18-5 water

- · Chemical characterization: Mixtures
- · Description: Mixture of the substances listed below with nonhazardous additions.

7697-37-2	Nitric Acid	Ox. Liq. 2, H272 Skin Corr. 1A, H314
Additional	Components	
7440-47-3	chromium	0.002%
7440-48-4	cobalt Resp. Sens. 1, H334; Carc. 2, H351 Skin Sens. 1, H317	0.002%
7440-50-8	copper	0.002%
1317-35-7	trimanganese tetraoxide	0.002%
7440-02-0	nickel	0.002%
7440-62-2	vanadium	0.002%
7782-49-2	selenium → Acute Tox. 3, H301; Acute Tox. 3, H331 → STOT RE 2, H373	0.001%
7440-43-9	cadmium (non-pyrophoric) Acute Tox. 2, H330 Muta. 2, H341; Carc. 1B, H350; Repr. 2, H361; STOT RE 1, H372	0.001%
7440-66-6	zinc Water-react. 2, H261	0.001%
7440-38-2	Arsenic	0.001%
7440-22-4	silver	0.00059

USA



Printing date 07/17/2018 Review date 07/17/2018

Trade name: STD, Analytes B

7732-18-5 Water (Contd. of page 2) 97.9835%

4 First-aid measures

- · Description of first aid measures
- · After inhalation: In case of unconsciousness place patient stably in side position for transportation.
- · After skin contact: Immediately wash with water and soap and rinse thoroughly.
- · After eye contact:

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

- · After swallowing: If symptoms persist consult doctor.
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · **Protective equipment:** No special measures required.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- · Environmental precautions:

Inform respective authorities in case of seepage into water course or sewage system.

Dilute with plenty of water.

- · Methods and material for containment and cleaning up:
- Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- · Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

PAC-1:		
7697-37-2	Nitric Acid	0.16 ppm
7440-47-3	chromium	1.5 mg/m^3
7440-48-4	cobalt	0.18 mg/m^3
7440-50-8	copper	$3 mg/m^3$
1317-35-7	trimanganese tetraoxide	4.2 mg/m^3
7440-02-0	nickel	4.5 mg/m^3
7440-62-2	vanadium	3 mg/m³
7782-49-2	selenium	0.6 mg/m^3

on page 4



Printing date 07/17/2018 Review date 07/17/2018

Trade name: STD, Analytes B

7440-43-9 cadmium (non-pyrophoric)	(Contd. of page 0.10 mg/m
7440-66-6 zinc	6 mg/m^3
7440-38-2 Arsenic	1.5 mg/m^3
7440-22-4 silver	0.3 mg/m^3
PAC-2:	
7697-37-2 Nitric Acid	24 ppm
7440-47-3 chromium	17 mg/m³
7440-48-4 cobalt	$2 mg/m^3$
7440-50-8 copper	33 mg/m^3
1317-35-7 trimanganese tetraoxide	6.9 mg/m^3
7440-02-0 nickel	50 mg/m^3
7440-62-2 vanadium	5.8 mg/m^3
7782-49-2 selenium	6.6 mg/m^3
7440-43-9 cadmium (non-pyrophoric)	0.76 mg/m
7440-66-6 zinc	21 mg/m^3
7440-38-2 Arsenic	17 mg/m³
7440-22-4 silver	170 mg/m³
PAC-3:	•
7697-37-2 Nitric Acid	92 ppm
7440-47-3 chromium	99 mg/m³
7440-48-4 cobalt	20 mg/m^3
7440-50-8 copper	200 mg/m
1317-35-7 trimanganese tetraoxide	41 mg/m^3
7440-02-0 nickel	99 mg/m³
7440-62-2 vanadium	35 mg/m^3
7782-49-2 selenium	40 mg/m^3
7440-43-9 cadmium (non-pyrophoric)	4.7 mg/m^3
7440-66-6 zinc	120 mg/m
7440-38-2 Arsenic	100 mg/m
7440-22-4 silver	990 mg/m

7 Handling and storage

- · Handling:
- Precautions for safe handling No special precautions are necessary if used correctly.
- Information about protection against explosions and fires: No special measures required.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.

(Contd. on page 5)



Printing date 07/17/2018 Review date 07/17/2018

Trade name: STD, Analytes B

(Contd. of page 4)

· Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see item 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:

7697-37-2 Nitric Acid

PEL Long-term value: 5 mg/m³, 2 ppm

REL Short-term value: 10 mg/m³, 4 ppm

Long-term value: 5 mg/m³, 2 ppm

TLV Short-term value: 10 mg/m³, 4 ppm

Long-term value: 5.2 mg/m³, 2 ppm

- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

- · Breathing equipment: Not required.
- · Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection:



Tightly sealed goggles or safety glasses

USA



Printing date 07/17/2018 Review date 07/17/2018

Trade name: STD, Analytes B

(Contd. of page 5)

Information on basic physical and c	chemical properties
General Information	
Appearance:	
Form:	Liquid
Color:	Transparent
Odor:	Odorless
Odor threshold:	Not determined.
pH-value:	Not determined.
Change in condition	
Melting point/Melting range:	0 °C (32 °F)
Boiling point/Boiling range:	100 °C (212 °F)
Flash point:	Not applicable.
Flammability (solid, gaseous):	Not applicable.
Decomposition temperature:	Not determined.
Auto igniting:	Product is not selfigniting.
Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)
Density at 20 °C (68 °F):	1 g/cm³ (8.345 lbs/gal)
Relative density	Not determined.
Vapor density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with	
Water:	Fully miscible.
Partition coefficient (n-octanol/wate	e r): Not determined.
Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
Solvent content:	
Water:	98.0 %
VOC content:	0.00 %
Other information	No further relevant information available.

10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- · Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

 $(Contd.\ on\ page\ 7)$



Printing date 07/17/2018 Review date 07/17/2018

Trade name: STD, Analytes B

(Contd. of page 6)

- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:
- · Primary irritant effect:
- · on the skin: Irritant to skin and mucous membranes.
- · on the eye: Irritating effect.
- · Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)	
7440-47-3 chromium	3
7440-48-4 cobalt	28
7440-02-0 nickel	2B
7782-49-2 selenium	3
7440-43-9 cadmium (non-pyrophoric)	1
7440-38-2 Arsenic	1
· NTP (National Toxicology Program)	
7440-48-4 cobalt	R
7440-02-0 nickel	R
7440-43-9 cadmium (non-pyrophoric)	K
7440-38-2 Arsenic	K
· OSHA-Ca (Occupational Safety & Health Administration)	
7440-43-9 cadmium (non-pyrophoric)	
7440-38-2 Arsenic	

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- $\cdot \textit{Bioaccumulative potential} \ \textit{No further relevant information available}.$
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

(Contd. on page 8)

USA



Printing date 07/17/2018 Review date 07/17/2018

Trade name: STD, Analytes B

(Contd. of page 7)

- · Results of PBT and vPvB assessment
- · **PBT**: Not applicable. · **vPvB**: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Dispose of container and materials in accordance with local, regional and national regulations.

- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

7 4 7				
14 1	<i>Transport</i>	ınt	ormai	ากท

•	UN-	Number	
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· DOT, ADR, IMDG, IATA UN3264

· UN proper shipping name

 $\cdot DOT$

Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid) 3264 Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)

· IMDG, IATA CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Nitric Acid)

- · Transport hazard class(es)
- $\cdot DOT$

 $\cdot ADR$



· Class

8 Corrosive substances

· Label

 $\cdot ADR$



· Class · Label 8 (C1) Corrosive substances

8

· IMDG, IATA



· Class

8 Corrosive substances

(Contd. on page 9)



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Trade name: STD, Analytes B

	(Contd. of page
Label	8
Packing group	
DOT, ADR, IMDG, IATA	III
Environmental hazards:	
Marine pollutant:	No
Special precautions for user	Warning: Corrosive substances
Danger code (Kemler):	80
EMS Number:	F- A , S - B
Segregation groups	Acids
Stowage Category	A
Stowage Code	SW2 Clear of living quarters.
Transport in bulk according to Annex	II of
MARPOL73/78 and the IBC Code	Not applicable.
Transport/Additional information:	
DOT	
Quantity limitations	On passenger aircraft/rail: 5 L
	On cargo aircraft only: 60 L
ADR	
Excepted quantities (EQ)	Code: E1
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
· IMDG	
Limited quantities (LQ)	5L
Excepted quantities (\widetilde{EQ})	Code: E1
- • • ~	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
UN ''Model Regulation'':	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.
<u> </u>	(NITRIC ACID), 8, III

Safety, hea	lth and environmental regula	tions/legislation specific for the substance or mixture	
7732-18-5	Water		97.9835%
7697-37-2	Nitric Acid	© Ox. Liq. 2, H272 Skin Corr. 1A, H314	2.0%
7440-48-4	cobalt	Resp. Sens. 1, H334; Carc. 2, H351 Skin Sens. 1, H317	0.002%
Sara			

(Contd. on page 10)



Printing date 07/17/2018 Review date 07/17/2018

Trade name: STD, Analytes B

		(Contd. of pa
Section 31	3 (Specific toxic chemical listings):	
7697-37-2	Nitric Acid	
7440-47-3	chromium	
7440-48-4	cobalt	
7440-50-8	**	
1317-35-7	trimanganese tetraoxide	
7440-02-0	nickel	
7440-62-2	vanadium	
7782-49-2	selenium	
7440-43-9	cadmium (non-pyrophoric)	
7440-66-6	zinc	
7440-38-2	Arsenic	
7440-22-4	silver	
TSCA (To	xic Substances Control Act):	
All ingred	ents are listed.	
7697-37-2	Nitric Acid	
7440-47-3	chromium	
7440-48-4	cobalt	
7440-50-8	copper	
1317-35-7	trimanganese tetraoxide	
7440-02-0	nickel	
7440-62-2	vanadium	
7782-49-2	selenium	
7440-43-9	cadmium (non-pyrophoric)	
7440-66-6	zinc	
7440-38-2	Arsenic	
7440-22-4	silver	
7732-18-5	Water	
Propositio	n 65	
_	known to cause cancer:	
7440-48-4	cobalt	
7440-02-0	nickel	
7440-43-9	cadmium (non-pyrophoric)	
7440-38-2	, , ,	
	known to cause reproductive toxicity for females:	
	e ingredients is listed.	
	known to cause reproductive toxicity for males:	
	cadmium (non-pyrophoric)	
	known to cause developmental toxicity:	
7440-43-9	cadmium (non-pyrophoric)	



Printing date 07/17/2018 Review date 07/17/2018

Trade name: STD, Analytes B

(Contd. of page 10)

· Canceroge	nity categories	
· EPA (Envi	ronmental Protection Agency)	
7440-47-3	chromium	D
7440-50-8	copper	D
1317-35-7	trimanganese tetraoxide	D
7782-49-2	selenium	D
7440-43-9	cadmium (non-pyrophoric)	B1
7440-66-6	zinc	D, I, II
7440-38-2	Arsenic	A
7440-22-4	silver	D
· TLV (Thre	shold Limit Value established by ACGIH)	
7440-47-3	chromium	A4
7440-48-4	cobalt	A3
7440-02-0	nickel	A5
7440-43-9	cadmium (non-pyrophoric)	A2
7440-38-2	Arsenic	A1
· NIOSH-Ca	(National Institute for Occupational Safety and Health)	
7440-02-0	nickel	

· National regulations:

7440-38-2 Arsenic

Information about limitation of use:

7440-43-9 cadmium (non-pyrophoric)

Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

- · Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.
- · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Disclaimer

The information provided in this Material Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. PerkinElmer shall not be held liable for any damage resulting from handling or from contact with the product.

· Department issuing SDS: Environmental, Health and Safety

· Contact:

Within the USA: 1-(800)-762-4000 Outside the USA: 1-(203)-712-8488

(Contd. on page 12)



Printing date 07/17/2018 Review date 07/17/2018

Trade name: STD, Analytes B

(Contd. of page 11)

· Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU) PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value PEL: Permissible Exposure Limit REL: Recommended Exposure Limit Ox. Liq. 2: Oxidizing liquids - Category 2

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Skin Irrit. 2: Skin corrosion/irritation – Category 2 Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

* Data compared to the previous version altered.



Printing date 07/17/2018 Review date 07/17/2018

1 Identification

- · Product identifier
- · Trade name: STD, Spike Sample Standard 1 (water)
- · Article number N9303839
- · Application of the substance / the mixture Laboratory chemicals
- · Details of the supplier of the safety data sheet
- · Manufacturer/Supplier:

PerkinElmer, Inc.

710 Bridgeport Avenue

Shelton, Connecticut 06484 USA

CustomerCareUS@perkinelmer.com

203-925-4600

· Emergency telephone number:

CHEMTREC (within US) 800-424-9300

CHEMTREC (from outside US) +1 703-527-3887 (call collect)

CHEMTREC (within AU) +(61)-290372994

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

- · Label elements
- · GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms GHS05
- · Signal word Danger
- · Hazard-determining components of labeling:

Nitric Acid

· Hazard statements

H314 Causes severe skin burns and eye damage.

· Precautionary statements

P260 Do not breathe dusts or mists. P264 Wash thoroughly after handling.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/

shower.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present

and easy to do. Continue rinsing.

P310 Immediately call a poison center/doctor.
 P321 Specific treatment (see on this label).
 P363 Wash contaminated clothing before reuse.

P405 Store locked up.

(Contd. on page 2)



Printing date 07/17/2018 Review date 07/17/2018

Trade name: STD, Spike Sample Standard 1 (water)

(Contd. of page 1)

P501

Dispose of contents/container in accordance with local/regional/national/international regulations.

- · Classification system:
- · NFPA ratings (scale 0 4)



Health = 3Fire = 0Reactivity = 0

· HMIS-ratings (scale 0 - 4)



3 Health = 3Fire = 0

· Other hazards

The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

- · Chemical characterization: Substances
- · Identification number(s)
- · EC number: 231-791-2
- · Chemical characterization: Mixtures
- · Description: Mixture of the substances listed below with nonhazardous additions.

7697-37-2	Nitric Acid	Ox. Liq. 2, H272 Skin Corr. 1A, H.	314 5.09
Additional	Components		
87-69-4	(+)-tartaric acid		0.9%
7664 20 2	♦ Eye Irrit. 2A, H319		0.1%
/004-39-3	Hydrofluoric acid Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330 Skin Corr. 1A, H314		0.1%
7439-89-6	iron		0.05%
7440-66-6	zinc Water-react. 2, H261		0.025%
7440-39-3	barium Water-react. 2, H261		0.025%
7440-47-3	chromium		0.01%
7440-50-8	conner		0.01%



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7/30-06 5	manganese	(Contd. of page 0.01%
7440-02-0	nickel © Carc. 2, H351; STOT RE 1, H372 Skin Sens. 1, H317	0.01%
7440-36-0	antimony	0.01%
7440-62-2	vanadium	0.01%
7440-48-4	cobalt	0.01%
7439-92-1	lead Acute Tox. 3, H301 Carc. 2, H351; Repr. 1A, H360-H362 Acute Tox. 4, H332	0.005%
7440-38-2	Arsenic	0.005%
7440-41-7	beryllium Acute Tox. 3, H301; Acute Tox. 2, H330 Carc. 1B, H350; STOT RE 1, H372 Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317; STOT SE 3, H335	0.0025%
7440-43-9	cadmium (non-pyrophoric) ♠ Acute Tox. 2, H330 ♠ Muta. 2, H341; Carc. 1B, H350; Repr. 2, H361; STOT RE 1, H372	0.0025%
7782-49-2	selenium	0.0025%
7440-28-0	thallium Acute Tox. 2, H300; Acute Tox. 2, H330 STOT RE 2, H373	0.0025%
7440-22-4	silver	0.00259
7732-18-5	Water	93.8075

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- · After inhalation: In case of unconsciousness place patient stably in side position for transportation.
- · After skin contact:

Immediately wash with water and soap and rinse thoroughly.

Rub in Ca-gluconate solution or Ca-gluconate gel immediately.

- · After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
- · After swallowing: Drink copious amounts of water and provide fresh air. Immediately call a doctor.
- · Most important symptoms and effects, both acute and delayed No further relevant information available.

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· Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

- · Environmental precautions: Inform respective authorities in case of seepage into water course or sewage system.
- Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

· Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

Protective Action Criteria for Chemicals

PAC-1:	
7697-37-2 Nitric Acid	0.16 ppm
87-69-4 (+)-tartaric acid	1.6 mg/m³
7439-89-6 iron	3.2 mg/m³
7440-66-6 zinc	6 mg/m^3
7440-39-3 barium	1.5 mg/m^3
7440-47-3 chromium	1.5 mg/m ³
7440-50-8 copper	$3 mg/m^3$
7439-96-5 manganese	$3 mg/m^3$
7440-02-0 nickel	4.5 mg/m^3
7440-36-0 antimony	1.5 mg/m^3
7440-62-2 vanadium	$3 mg/m^3$
7440-48-4 cobalt	0.18 mg/m^3
7439-92-1 lead	0.15 mg/m^3
7440-38-2 Arsenic	1.5 mg/m^3
7440-41-7 beryllium	0.0023 mg/r
7440-43-9 cadmium (non-pyrophoric)	0.10 mg/m^3
·	(Contd. on pag

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7702 40 2	a olonium	(Contd. of pag
7782-49-2		0.6 mg/m^3
7440-28-0		0.06 mg/m^3
7440-22-4	silver	0.3 mg/m^3
· PAC-2:		
	Nitric Acid	24 ppm
	(+)-tartaric acid	17 mg/m^3
7439-89-6		35 mg/m^3
7440-66-6	zinc	21 mg/m³
7440-39-3	barium	180 mg/m³
7440-47-3		17 mg/m³
7440-50-8	copper	33 mg/m³
7439-96-5	manganese	$5 mg/m^3$
7440-02-0	nickel	50 mg/m^3
7440-36-0	antimony	13 mg/m^3
7440-62-2	vanadium	5.8 mg/m^3
7440-48-4	cobalt	$2 mg/m^3$
7439-92-1	lead	120 mg/m³
7440-38-2	Arsenic	17 mg/m^3
7440-41-7	beryllium	0.025 mg/n
7440-43-9	cadmium (non-pyrophoric)	0.76 mg/m
7782-49-2	selenium	6.6 mg/m^3
7440-28-0	thallium	3.3 mg/m^3
7440-22-4	silver	170 mg/m³
· PAC-3:		<u>'</u>
	Nitric Acid	92 ppm
87-69-4	(+)-tartaric acid	$\frac{11}{100 \text{ mg/m}^3}$
7439-89-6		150 mg/m^3
7440-66-6	zinc	120 mg/m^3
7440-39-3	barium	1,100 mg/m
7440-47-3	chromium	99 mg/m^3
7440-50-8	copper	200 mg/m^3
	manganese	1,800 mg/n
7440-02-0		99 mg/m³
7440-36-0		80 mg/m^3
7440-62-2	<u> </u>	35 mg/m^3
7440-48-4		20 mg/m^3
7439-92-1		700 mg/m^3
7440-38-2		100 mg/m^3
7440-41-7		0.1 mg/m^3
	cadmium (non-pyrophoric)	4.7 mg/m^3



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		(Contd. of page 5)
7782-49-2	selenium	40 mg/m³
7440-28-0	thallium	20 mg/m³
7440-22-4	silver	990 mg/m³

7 Handling and storage

- · Handling:
- Precautions for safe handling No special precautions are necessary if used correctly.
- Information about protection against explosions and fires: The product is not flammable.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see item 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:

7697-37-2 Nitric Acid

PEL	Long-term value: 5 mg/m³, 2 ppm
REL	Short-term value: 10 mg/m³, 4 ppm
	Long-term value: 5 mg/m³, 2 ppm
TLV	Short-term value: 10 mg/m³, 4 ppm
	Long-term value: 5 mg/m³, 2 ppm Short-term value: 10 mg/m³, 4 ppm Long-term value: 5 mg/m³, 2 ppm Short-term value: 10 mg/m³, 4 ppm Long-term value: 5.2 mg/m³, 2 ppm

- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

- · Breathing equipment: Not required.
- · Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

(Contd. on page 7)



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· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection:



Tightly sealed goggles or safety glasses

-	Liquid Transparent Odorless Not determined. Not determined.
Form: Color: Odor: Odor threshold: pH-value: Change in condition Melting point/Melting range:	Transparent Odorless Not determined. Not determined.
Color: Odor: Odor threshold: pH-value: Change in condition Melting point/Melting range:	Transparent Odorless Not determined. Not determined.
Odor: Odor threshold: pH-value: Change in condition Melting point/Melting range:	Odorless Not determined. Not determined.
Odor threshold: pH-value: Change in condition Melting point/Melting range:	Not determined. Not determined.
pH-value: Change in condition Melting point/Melting range:	Not determined.
Change in condition Melting point/Melting range:	
Melting point/Melting range:	0.00(23.05)
	0.00 (23.05)
Roiling point/Roiling range:	0 °C (32 °F)
Douing point/Douing range.	100 °C (212 °F)
Flash point:	Not applicable.
Flammability (solid, gaseous):	Not applicable.
Decomposition temperature:	Not determined.
Auto igniting:	Product is not selfigniting.
Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)
Density at 20 °C (68 °F):	1.11 g/cm³ (9.26295 lbs/gal)
, ,	Not determined.
Vapor density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with	
Relative density Vapor density Evaporation rate	Not determined. Not determined.

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		(Contd. of page 7
· Partition coefficient (n-octan	ol/water): Not determined.	
· Viscosity:		
Dynamic:	Not determined.	
Kinematic:	Not determined.	
· Solvent content:		
Water:	93.8 %	
VOC content:	0.00 %	
Solids content:	0.2 %	
· Other information	No further relevant information available.	

10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:
- · Primary irritant effect:
- · on the skin: Caustic effect on skin and mucous membranes.
- · on the eye:

Strong caustic effect.

Strong irritant with the danger of severe eye injury.

- · Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Corrosive

Irritant

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)		
7440-47-3	chromium	3
7440-02-0	nickel	2B
7440-48-4	cobalt	2B
7439-92-1	lead	2B
7440-38-2	Arsenic	1
	(Cont.	d on page (

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		(Contd. of page 8)
7440-41-7	beryllium	1
7440-43-9	cadmium (non-pyrophoric)	1
7782-49-2	selenium	3
· NTP (Nati	onal Toxicology Program)	
7440-02-0	nickel	R
7440-48-4	cobalt	R
7439-92-1	lead	R
7440-38-2	Arsenic	K
7440-41-7	beryllium	K
7440-43-9	cadmium (non-pyrophoric)	K
· OSHA-Ca	(Occupational Safety & Health Administration)	
7440-38-2	Arsenic	
7440-43-9	cadmium (non-pyrophoric)	

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- Additional ecological information:
- · General notes:

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system. Must not reach bodies of water or drainage ditch undiluted or unneutralized.

- · Results of PBT and vPvB assessment
- · **PBT**: Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Dispose of container and materials in accordance with local, regional and national regulations.

- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.

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UN-Number DOT, ADR, IMDG, IATA	UN3264
UN proper shipping name	
DOT	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid, hydrofluc
ADR	acid) 3264 Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Ac
	hydrofluoric acid)
·IMDG	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Nitric A hydrofluoric acid), MARINE POLLUTANT
IATA	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Nitric A
	hydrofluoric acid)
Transport hazard class(es)	
DOT	
To The State of th	
Class	8 Corrosive substances
Label	8
ADR	
Class	8 (C1) Corrosive substances
Label	8
IMDG	
(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	
Class	8 Corrosive substances
Label	8
IATA	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Class	8 Corrosive substances
Label	8
Packing group	
DOT, ADR, IMDG, IATA	III



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Trade name: STD, Spike Sample Standard 1 (water)

	(Contd. of page
Environmental hazards:	
Marine pollutant:	No
•	Symbol (fish and tree)
Special precautions for user	Warning: Corrosive substances
Danger code (Kemler):	80
EMS Number:	F-A,S-B
Segregation groups	Acids
Stowage Category	В
Stowage Code	SW2 Clear of living quarters.
Transport in bulk according to Annex	II of
MARPOL73/78 and the IBC Code	Not applicable.
Transport/Additional information:	
DOT	
Quantity limitations	On passenger aircraft/rail: 5 L
	On cargo aircraft only: 60 L
Remarks:	Special marking with the symbol (fish and tree).
ADR	
Excepted quantities (EQ)	Code: E1
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
IMDG	
Limited quantities (LQ)	5L
Excepted quantities (\widetilde{EQ})	Code: E1
• • • • • • • • • • • • • • • • • • • •	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.
	(NITRIC ACID, HYDROFLUORIC ACID), 8, III

Safety, hea	ulth and environmental regulations/legislo	ution specific for the substance or mixture	
7732-18-5	Water		93.8075%
7697-37-2	Nitric Acid	© Ox. Liq. 2, H272 Skin Corr. 1A, H314	5.0%
87-69-4	(+)-tartaric acid	② Eye Irrit. 2A, H319	0.9%
Sara			
	5 (extremely hazardous substances):		
7697-37-2	Nitric Acid		
Section 31	3 (Specific toxic chemical listings):		
7697-37-2	Nitric Acid		
	zinc		

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	(Contd. of page 1	1)
7440-39-3		1)
	chromium	\exists
7440-50-8		-
	manganese	\exists
7440-02-0		\dashv
7440-36-0		\dashv
	vanadium	\dashv
7440-48-4	cobalt	-
7439-92-1	lead	\exists
7440-38-2		\dashv
7440-41-7		\dashv
	cadmium (non-pyrophoric)	\dashv
7782-49-2		-
7440-28-0		\dashv
7440-22-4		\dashv
	xic Substances Control Act):	_
All ingredi	ients are listed.	
	Nitric Acid	٦
87-69-4	(+)-tartaric acid	٦
7439-89-6	iron	٦
7440-66-6	zinc	٦
7440-39-3	barium	٦
7440-47-3	chromium	٦
7440-50-8	copper	٦
7439-96-5	manganese	
7440-02-0	nickel	٦
7440-36-0	antimony	٦
7440-62-2	vanadium	٦
7440-48-4	cobalt	٦
7439-92-1	lead	٦
7440-38-2	Arsenic	٦
7440-41-7	beryllium	
7440-43-9	cadmium (non-pyrophoric)	٦
7782-49-2	selenium	_
7440-28-0	thallium	٦
7440-22-4	silver	٦
7732-18-5	Water	
· Proposition	n 65	_
· Chemicals	known to cause cancer:	\neg
7440-02-0	nickel	٦
	(Contd. on page 1	3)



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	(Contd. of page
7440-48-4 cobalt	
7439-92-1 lead	
7440-38-2 Arsenic	
7440-41-7 beryllium	
7440-43-9 cadmium (non-pyrophoric)	
Chemicals known to cause reproductive toxicity for fer	males:
7439-92-1 lead	
Chemicals known to cause reproductive toxicity for mo	ales:
7439-92-1 lead	
7440-43-9 cadmium (non-pyrophoric)	
Chemicals known to cause developmental toxicity:	
7439-92-1 lead	
7440-43-9 cadmium (non-pyrophoric)	
Cancerogenity categories	
EPA (Environmental Protection Agency)	
7440-66-6 zinc	D, I, II
7440-39-3 barium	D, CBD(inh), NL(oral)
7440-47-3 chromium	D
7440-50-8 copper	D
7439-96-5 manganese	D
7439-92-1 lead	B2
7440-38-2 Arsenic	A
7440-41-7 beryllium	B1, K/L(inh), CBD(ord
7440-43-9 cadmium (non-pyrophoric)	BI
7782-49-2 selenium	D
7440-22-4 silver	D
TLV (Threshold Limit Value established by ACGIH)	
7440-39-3 barium	
7440-47-3 chromium	1
7440-02-0 nickel	1
7440-48-4 cobalt	1
7439-92-1 lead	
7440-38-2 Arsenic	2
7440-41-7 beryllium	
7440-43-9 cadmium (non-pyrophoric)	2
NIOSH-Ca (National Institute for Occupational Safet	y and Health)
MIOSH-Ca (Nanonai Institute for Occupational Safet	
7440-02-0 nickel	
, , , , , , , , , , , , , , , , , , , ,	



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7440-43-9 cadmium (non-pyrophoric)

- · National regulations:
- Information about limitation of use:

Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

- · Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.
- · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Disclaimer

The information provided in this Material Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. PerkinElmer shall not be held liable for any damage resulting from handling or from contact with the product.

- · Department issuing SDS: Environmental, Health and Safety
- · Contact:

Within the USA: 1-(800)-762-4000 Outside the USA: 1-(203)-712-8488

· Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

 $PBT: Persistent, \, Bioaccumulative \, and \, \, Toxic$

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Ox. Liq. 2: Oxidizing liquids – Category 2

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

* Data compared to the previous version altered.



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1 Identification

- · Product identifier
- · Trade name: STD, Spike Sample Standard 2 (soil)
- · Article number N9303840
- · Application of the substance / the mixture Laboratory chemicals
- · Details of the supplier of the safety data sheet
- · Manufacturer/Supplier:

PerkinElmer, Inc.

710 Bridgeport Avenue

Shelton, Connecticut 06484 USA

CustomerCareUS@perkinelmer.com

203-925-4600

· Emergency telephone number:

CHEMTREC (within US) 800-424-9300

CHEMTREC (from outside US) +1 703-527-3887 (call collect)

CHEMTREC (within AU) +(61)-290372994

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

- · Label elements
- · GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms GHS05
- · Signal word Danger
- · Hazard-determining components of labeling:

Nitric Acid

· Hazard statements

H314 Causes severe skin burns and eve damage.

· Precautionary statements

P260 Do not breathe dusts or mists. P264 Wash thoroughly after handling.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/

shower.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present

and easy to do. Continue rinsing.

P310 Immediately call a poison center/doctor.
 P321 Specific treatment (see on this label).
 P363 Wash contaminated clothing before reuse.

P405 Store locked up.

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P501

Dispose of contents/container in accordance with local/regional/national/international regulations.

- · Classification system:
- · NFPA ratings (scale 0 4)



Health = 3Fire = 0

Reactivity = 0

· HMIS-ratings (scale 0 - 4)



3 Health = 3Fire = 0

· Other hazards

The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

- · Chemical characterization: Substances
- · CAS No. Description

7732-18-5 water

- · Identification number(s)
- · EC number: 231-791-2
- · Chemical characterization: Mixtures
- Description: Mixture of the substances listed below with nonhazardous additions.

	Nitric Acid	© Ox. Liq. 2, H272 Skin Corr. 1A, H314
Additional	Components	
7440-39-3	barium Water-react. 2, H261	0.025%
7440-47-3	chromium	0.025%
7440-50-8	copper	0.025%
7440-66-6	zinc Water-react. 2, H261	0.025%
147-71-7	(-)-tartaric acid ◆ Skin Irrit. 2, H315	0.02%
7440-62-2	vanadium	0.015%
7440-02-0	nickel Carc. 2, H351; STOT RE 1, H372 Skin Sens. 1, H317	0.0125%
	▼	(Contd. on page



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Trade name: STD, Spike Sample Standard 2 (soil)

		(Contd. of pag
7439-92-1	lead	0.01%
	♦ Acute Tox. 3, H301	
	& Carc. 2, H351; Repr. 1A, H360-H362	
	♦ Acute Tox. 4, H332	
7664-39-3	Hydrofluoric acid	0.01%
	Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330 Skin Corr. 1A, H314	
7440-48-4	cobalt	0.01%
	Resp. Sens. 1, H334; Carc. 2, H351 Skin Sens. 1, H317	
7440-36-0	antimony	0.01%
7440-38-2	Arsenic	0.005%
	Acute Tox. 3, H301; Acute Tox. 3, H331 Carc. 1A, H350	
7440-43-9	cadmium (non-pyrophoric)	0.005%
	Acute Tox. 2, H330 Muta. 2, H341; Carc. 1B, H350; Repr. 2, H361; STOT RE 1, H372	
7440-28-0	thallium	0.00259
	Acute Tox. 2, H300; Acute Tox. 2, H330 STOT RE 2, H373	
7440-22-4	silver	0.00259
7782-49-2	selenium	0.00259
	Acute Tox. 3, H301; Acute Tox. 3, H331 STOT RE 2, H373	
7440-41-7	beryllium	0.00259
	Acute Tox. 3, H301; Acute Tox. 2, H330 Carc. 1B, H350; STOT RE 1, H372	
	Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317; STOT SE 3, H335	
7732-18-5	Water	94.7925

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- · After inhalation: In case of unconsciousness place patient stably in side position for transportation.
- · After skin contact: Immediately wash with water and soap and rinse thoroughly.
- · After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
- · After swallowing: Drink copious amounts of water and provide fresh air. Immediately call a doctor.
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed No further relevant information available.

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Trade name: STD, Spike Sample Standard 2 (soil)

(Contd. of page 3)

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- · Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

· Environmental precautions:

Inform respective authorities in case of seepage into water course or sewage system.

Dilute with plenty of water.

· Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

· Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

Protective Action Criteria for Chemicals

7697-37-2 Nitric Acid	0.16 ppm
7440-39-3 barium	1.5 mg/m^3
7440-47-3 chromium	1.5 mg/m^3
7440-50-8 copper	3 mg/m ³
7440-66-6 zinc	6 mg/m³
7440-62-2 vanadium	3 mg/m ³
7440-02-0 nickel	4.5 mg/m^3
7439-92-1 lead	0.15 mg/m^3
7440-48-4 cobalt	0.18 mg/m^3
7440-36-0 antimony	1.5 mg/m^3
7440-38-2 Arsenic	1.5 mg/m^3
7440-43-9 cadmium (non-pyrophoric)	0.10 mg/m^3
7440-28-0 thallium	0.06 mg/m^3
7440-22-4 silver	0.3 mg/m^3
7782-49-2 selenium	0.6 mg/m^3
7440-41-7 beryllium	0.0023 mg/n
PAC-2:	
7697-37-2 Nitric Acid	24 ppm

-USA



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Trade name: STD, Spike Sample Standard 2 (soil)

	(Contd. of page 4)
7440-39-3 barium	180 mg/m^3
7440-47-3 chromium	17 mg/m^3
7440-50-8 copper	33 mg/m^3
7440-66-6 zinc	21 mg/m³
7440-62-2 vanadium	5.8 mg/m^3
7440-02-0 nickel	50 mg/m^3
7439-92-1 lead	120 mg/m^3
7440-48-4 cobalt	2 mg/m³
7440-36-0 antimony	13 mg/m³
7440-38-2 Arsenic	17 mg/m³
7440-43-9 cadmium (non-pyrophoric)	0.76 mg/m^3
7440-28-0 thallium	3.3 mg/m^3
7440-22-4 silver	170 mg/m³
7782-49-2 selenium	6.6 mg/m^3
7440-41-7 beryllium	0.025 mg/m^3
· PAC-3:	
7697-37-2 Nitric Acid	92 ррт
7440-39-3 barium	$1{,}100 \text{ mg/m}^{3}$
7440-47-3 chromium	99 mg/m³
7440-50-8 copper	200 mg/m^3
7440-66-6 zinc	120 mg/m³
7440-62-2 vanadium	35 mg/m^3
7440-02-0 nickel	99 mg/m³
7439-92-1 lead	700 mg/m^3
7440-48-4 cobalt	20 mg/m^3
7440-36-0 antimony	80 mg/m^3
7440-38-2 Arsenic	100 mg/m^3
7440-43-9 cadmium (non-pyrophoric)	$4.7 mg/m^3$
7440-28-0 thallium	20 mg/m³
7440-22-4 silver	990 mg/m³
7782-49-2 selenium	40 mg/m^3
7440-41-7 beryllium	0.1 mg/m^3

7 Handling and storage

- · Handling:
- · Precautions for safe handling No special precautions are necessary if used correctly.
- Information about protection against explosions and fires: The product is not flammable.

(Contd. on page 6)



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Trade name: STD, Spike Sample Standard 2 (soil)

(Contd. of page 5)

- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: Keep receptacle tightly sealed.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see item 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:

7697-37-2 Nitric Acid

- PEL Long-term value: 5 mg/m³, 2 ppm

 REL Short-term value: 10 mg/m³, 4 ppm

 Long-term value: 5 mg/m³, 2 ppm

 TLV Short-term value: 10 mg/m³, 4 ppm

 Long-term value: 5.2 mg/m³, 2 ppm
- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

- · Breathing equipment: Not required.
- · Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

(Contd. on page 7)



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Trade name: STD, Spike Sample Standard 2 (soil)

(Contd. of page 6)

· Eye protection:



Tightly sealed goggles or safety glasses

Information on basic physical and	chemical properties	
General Information	F - F	
Appearance:		
Form:	Liquid	
Color:	Transparent	
Odor:	Odorless	
Odor threshold:	Not determined.	
pH-value:	Not determined.	
Change in condition		
Melting point/Melting range:	0 °C (32 °F)	
Boiling point/Boiling range:	100 °C (212 °F)	
Flash point:	Not applicable.	
Flammability (solid, gaseous):	Not applicable.	
Decomposition temperature:	Not determined.	
Auto igniting:	Product is not selfigniting.	
Danger of explosion:	Product does not present an explosion hazard.	
Explosion limits:		
Lower:	Not determined.	
Upper:	Not determined.	
Vapor pressure at 20 °C (68 °F):	1 hPa (0.8 mm Hg)	
Density at 20 °C (68 °F):	1 g/cm³ (8.345 lbs/gal)	
Relative density	Not determined.	
Vapor density	Not determined.	
Evaporation rate	Not determined.	
Solubility in / Miscibility with		
Water:	Fully miscible.	
Partition coefficient (n-octanol/wat	er): Not determined.	
Viscosity:		
Dynamic:	Not determined.	
Kinematic:	Not determined.	
Solvent content:		
Water:	94.8 %	

(Contd. on page 8)



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Trade name: STD, Spike Sample Standard 2 (soil)

(Contd. of page 7)

VOC content:	0.00 %	
Solids content: Other information	0.2 % No further relevant information available.	

10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:
- Primary irritant effect:
- on the skin: Caustic effect on skin and mucous membranes.
- on the eye:

Strong caustic effect.

Strong irritant with the danger of severe eye injury.

- · Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Corrosive

Irritant

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

· Carcinogenic categories

7439-92-1 lead

7440-47-3 chromium		-
7440-02-0 nickel		2
7439-92-1 lead		2
7440-48-4 cobalt		2
7440-38-2 Arsenic		i
7440-43-9 cadmium (non-pyrop	phoric)	
7782-49-2 selenium		3
7440-41-7 beryllium		

(Contd. on page 9)

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Trade name: STD, Spike Sample Standard 2 (soil)

		(Contd. of page 8)
7440-48-4	cobalt	R
7440-38-2		K
	cadmium (non-pyrophoric)	K
7440-41-7	beryllium	K
· OSHA-Ca	(Occupational Safety & Health Administration)	
7440-38-2	Arsenic	
7440-43-9	cadmium (non-pyrophoric)	

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system. Must not reach bodies of water or drainage ditch undiluted or unneutralized.

- · Results of PBT and vPvB assessment
- · **PBT**: Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Dispose of container and materials in accordance with local, regional and national regulations.

- · Uncleaned packagings:
- Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

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· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name · DOT	Corrosive liquid, acidic, inorganic, n.o.s. (nitric acid)
·ADR	3264 Corrosive liquid, acidic, inorganic, n.o.s. (nitric acid)
· IMDG, IATA	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid)

(Contd. on page 10)



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Trade name: STD, Spike Sample Standard 2 (soil)

Transport hazard class(es) DOT		
DOT		
<u></u>		
CORROSOVE		
Class Label	8 Corrosive substances 8	
ADR		
E TO STATE OF THE		
Class	8 (C1) Corrosive substances	
Label IMDG, IATA	8	
Class Label	8 Corrosive substances 8	
Packing group DOT, ADR, IMDG, IATA	III	
Environmental hazards: Marine pollutant:	No	
Special precautions for user	Warning: Corrosive substances	
Danger code (Kemler):	80 F. A.S. B.	
EMS Number: Segregation groups	F-A,S-B Acids	
Stowage Category	Actas A	
Stowage Code	SW2 Clear of living quarters.	
Transport in bulk according to Annex I. MARPOL73/78 and the IBC Code	I of Not applicable.	
Transport/Additional information:		
DOT		
Quantity limitations	On passenger aircraft/rail: 5 L	
	On cargo aircraft only: 60 L	
ADR		
Excepted quantities (EQ)	Code: E1	
	Maximum net quantity per inner packaging: 30 ml	
	Maximum net quantity per outer packaging: 1000 ml	

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Trade name: STD, Spike Sample Standard 2 (soil)

· IMDG
· Limited quantities (LQ)
· Excepted quantities (EQ)

Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 1000 ml

· UN "Model Regulation":

UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
(NITRIC ACID), 8, III

Safety, hea	lth and environmental regulations/legislatio	n specific for the substance or mixture	
7732-18-5	Water		94.79.
7697-37-2	Nitric Acid	© Ox. Liq. 2, H272 Skin Corr. 1A, H314	5.0
7440-47-3	chromium		0.02
Sara		<u>'</u>	
Section 35.	5 (extremely hazardous substances):		
7697-37-2	Nitric Acid		
Section 31.	3 (Specific toxic chemical listings):		
7697-37-2	Nitric Acid		
7440-39-3	barium		
7440-47-3	chromium		
7440-50-8	copper		
7440-66-6	zinc		
7440-62-2	vanadium		
7440-02-0	nickel		
7439-92-1	lead		
7440-48-4	cobalt		
7440-36-0	antimony		
7440-38-2	Arsenic		
7440-43-9	cadmium (non-pyrophoric)		
7440-28-0	thallium		
7440-22-4			
7782-49-2			
7440-41-7			
	cic Substances Control Act): ents are listed.		
7697-37-2	Nitric Acid		
7440-39-3	barium		



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Trade name: STD, Spike Sample Standard 2 (soil)

		(Contd. of pag
7440-50-8		
7440-66-6		
	(-)-tartaric acid	
	vanadium	
7440-02-0		
7439-92-1		
7440-48-4		
7440-36-0		
7440-38-2		
	cadmium (non-pyrophoric)	
7440-28-0	thallium	
7440-22-4		
7782-49-2		
7440-41-7	I Total Control of the Control of th	
7732-18-5		
Propositio	n 65	
	known to cause cancer:	
7440-02-0		
7439-92-1		
7440-48-4		
7440-38-2		
	cadmium (non-pyrophoric)	
7440-41-7	beryllium	
Chemicals	known to cause reproductive toxicity for females:	
7439-92-1	lead	
Chemicals	known to cause reproductive toxicity for males:	
7439-92-1	lead	
7440-43-9	cadmium (non-pyrophoric)	
	known to cause developmental toxicity:	
Chemicals		
Chemicals 7439-92-1	lead	
7439-92-1	lead cadmium (non-pyrophoric)	
7439-92-1 7440-43-9	cadmium (non-pyrophoric)	
7439-92-1 7440-43-9 Canceroge		
7439-92-1 7440-43-9 Canceroge	cadmium (non-pyrophoric) enity categories ironmental Protection Agency)	D, CBD(inh), NL(oral
7439-92-1 7440-43-9 Canceroge EPA (Env 7440-39-3	cadmium (non-pyrophoric) enity categories ironmental Protection Agency)	D, CBD(inh), NL(oral
7439-92-1 7440-43-9 Canceroge EPA (Env 7440-39-3	cadmium (non-pyrophoric) enity categories ironmental Protection Agency) barium chromium	, ,
7439-92-1 7440-43-9 Canceroge EPA (Env 7440-39-3 7440-47-3	cadmium (non-pyrophoric) enity categories ironmental Protection Agency) barium chromium copper	D
7439-92-1 7440-43-9 Canceroge EPA (Env 7440-39-3 7440-47-3 7440-50-8	cadmium (non-pyrophoric) enity categories ironmental Protection Agency) barium chromium copper	D D



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Trade name: STD, Spike Sample Standard 2 (soil)

		(Contd. of page
7440-43-9	cadmium (non-pyrophoric)	BI
7440-22-4	silver	D
7782-49-2	selenium	D
7440-41-7	beryllium	B1, K/L(inh), CBD(ora
· TLV (Thre	shold Limit Value established by ACGIH)	
7440-39-3	barium	A
7440-47-3	chromium	A
7440-02-0	nickel	A
7439-92-1	lead	A
7440-48-4	cobalt	A
7440-38-2	Arsenic	A
7440-43-9	cadmium (non-pyrophoric)	A
7440-41-7	beryllium	A
· NIOSH-Ca	(National Institute for Occupational Safety and Health)	
7440-02-0	nickel	
7440-38-2	Arsenic	
7440-43-9	cadmium (non-pyrophoric)	
7440-41-7	beryllium	

- · National regulations:
- · Information about limitation of use:

Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

- · Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.
- · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Disclaimer

The information provided in this Material Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. PerkinElmer shall not be held liable for any damage resulting from handling or from contact with the product.

- · Department issuing SDS: Environmental, Health and Safety
- · Contact:

Within the USA: 1-(800)-762-4000 Outside the USA: 1-(203)-712-8488

· Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

(Contd. on page 14)



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Trade name: STD, Spike Sample Standard 2 (soil)

(Contd. of page 13)

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Ox. Liq. 2: Oxidizing liquids – Category 2

Skin Corr. 1A: Skin corrosion/irritation - Category 1A

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

* * Data compared to the previous version altered.

LICA



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1 Identification

- · Product identifier
- · Trade name: STD, Memory Test 1
- · Article number N9303835
- · Application of the substance / the mixture Laboratory chemicals
- · Details of the supplier of the safety data sheet
- · Manufacturer/Supplier:

PerkinElmer, Inc.

710 Bridgeport Avenue

Shelton, Connecticut 06484 USA

CustomerCareUS@perkinelmer.com

203-925-4600

· Emergency telephone number:

CHEMTREC (within US) 800-424-9300

CHEMTREC (from outside US) +1 703-527-3887 (call collect)

CHEMTREC (within AU) +(61)-290372994

2 Hazard(s) identification

· Classification of the substance or mixture



Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

- · Label elements
- · GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms GHS05
- · Signal word Danger
- · Hazard-determining components of labeling:

Nitric Acid

· Hazard statements

H314 Causes severe skin burns and eye damage.

· Precautionary statements

P260 Do not breathe dusts or mists. P264 Wash thoroughly after handling.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/

shower.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present

and easy to do. Continue rinsing.

P310 Immediately call a poison center/doctor.
 P321 Specific treatment (see on this label).
 P363 Wash contaminated clothing before reuse.

P405 Store locked up.

(Contd. on page 2)



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Trade name: STD, Memory Test 1

(Contd. of page 1)

P501

Dispose of contents/container in accordance with local/regional/national/international regulations.

- · Classification system:
- · NFPA ratings (scale 0 4)



Health = 3Fire = 0

Reactivity = 0

· HMIS-ratings (scale 0 - 4)



3 Health = 3Fire = 0

· Other hazards

The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

- · Chemical characterization: Substances
- · CAS No. Description

7732-18-5 water

- · Identification number(s)
- · EC number: 231-791-2
- · Chemical characterization: Mixtures
- · **Description:** Mixture of the substances listed below with nonhazardous additions.

Hazardous	components:	
7697-37-2	Nitric Acid	Ox. Liq. 2, H272 Skin Corr. 1A, H314
Additional	Components	
7439-89-6	iron	0.1%
7439-95-4	magnesium Pyr. Sol. 1, H250; Water-react. 1, H260	0.1%
7440-09-7	potassium Water-react. 1, H260 Skin Corr. 1B, H314	0.1%
7440-23-5	sodium Water-react. 1, H260 Skin Corr. 1B, H314	0.1%
7429-90-5	aluminium	0.1%



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Trade name: STD, Memory Test 1

		(Contd. of pa
7440-70-2	L	0.15
	♦ Water-react. 2, H261	
7440-39-3	barium	0.002
	♦ Water-react. 2, H261	
7439-92-1	lead	0.00
	♠ Acute Tox. 3, H301	
	& Carc. 2, H351; Repr. 1A, H360-H362	
	♦ Acute Tox. 4, H332	
7440-41-7	beryllium	0.00
	Acute Tox. 3, H301; Acute Tox. 2, H330	
	& Carc. 1B, H350; STOT RE 1, H372	
	♦ Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317; STOT SE 3, H335	
7440-02-0	nickel	0.00
	♦ Carc. 2, H351; STOT RE 1, H372	
	♦ Skin Sens. 1, H317	
7440-38-2	Arsenic	0.00
	♦ Acute Tox. 3, H301; Acute Tox. 3, H331	
	& Carc. 1A, H350	
7440-43-9	cadmium (non-pyrophoric)	0.00
, , , , , , ,	Acute Tox. 2, H330	
	Muta. 2, H341; Carc. 1B, H350; Repr. 2, H361; STOT RE 1, H372	
7782-49-2	selenium	0.00
	♦ Acute Tox. 3, H301; Acute Tox. 3, H331	
	♦ STOT RE 2, H373	
7440-22-4	silver	0.00
7440-47-3	chromium	0.00.
7440-28-0		0.00
/440-20-0	Acute Tox. 2, H300; Acute Tox. 2, H330	
	STOT RE 2, H373	
7440-62-2	vanadium	0.00
7440-48-4		0.00
/ 4 4 0 - 4 0 - 4	© Resp. Sens. 1, H334; Carc. 2, H351	
	Nesp. Sens. 1, H334; Carc. 2, H331 Nesp. Sens. 1, H317	
7440-66-6	· ·	0.00
/ ++0-00-0	Water-react. 2, H261	
7440-50-8		0.00.
	manganese	0.002
7732-18-5	Water	94.3

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- · After inhalation: In case of unconsciousness place patient stably in side position for transportation.
- · After skin contact: Immediately wash with water and soap and rinse thoroughly.

(Contd. on page 4)



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(Contd. of page 3)

- · After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
- · After swallowing: Drink copious amounts of water and provide fresh air. Immediately call a doctor.
- Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

· Environmental precautions:

Inform respective authorities in case of seepage into water course or sewage system.

Dilute with plenty of water.

· Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

· Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

· PAC-1:		
7697-37-2	Nitric Acid	0.16 ppm
7439-89-6	iron	3.2 mg/m^3
7439-95-4	magnesium	18 mg/m³
7440-09-7	potassium	2.3 mg/m^3
7440-23-5	sodium	13 mg/m³
7440-39-3	barium	1.5 mg/m^3
7439-92-1	lead	0.15 mg/m^3
7440-41-7	beryllium	0.0023 mg/m
7440-02-0	nickel	4.5 mg/m^3
7440-38-2	Arsenic	1.5 mg/m^3
7440-43-9	cadmium (non-pyrophoric)	0.10 mg/m^3
7782-49-2	selenium	0.6 mg/m^3
		(Contd. on page

-USA



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	(Contd. of page
7440-22-4 silver	0.3 mg/m^3
7440-47-3 chromium	1.5 mg/m^3
7440-28-0 thallium	$0.06 \text{mg/m}^{\text{3}}$
7440-62-2 vanadium	$3 mg/m^3$
7440-48-4 cobalt	0.18 mg/m^3
7440-66-6 zinc	$6 mg/m^3$
7440-50-8 copper	3 mg/m^3
7439-96-5 manganese	3 mg/m^3
· PAC-2:	
7697-37-2 Nitric Acid	24 ppm
7439-89-6 iron	35 mg/m^3
7439-95-4 magnesium	200 mg/m^3
7440-09-7 potassium	25 mg/m^3
7440-23-5 sodium	$\frac{140 \text{ mg/m}^3}{140 \text{ mg/m}^3}$
7440-39-3 barium	180 mg/m^3
7439-92-1 lead	$\frac{120 \text{ mg/m}^3}{\text{m}^3}$
7440-41-7 beryllium	0.025 mg/m
7440-02-0 nickel	50 mg/m ³
7440-38-2 Arsenic	17 mg/m^3
7440-43-9 cadmium (non-pyrophoric)	0.76 mg/m^3
7782-49-2 selenium	$6.6 mg/m^3$
7440-22-4 silver	170 mg/m³
7440-47-3 chromium	17 mg/m^3
7440-28-0 thallium	3.3 mg/m^3
7440-62-2 vanadium	5.8 mg/m^3
7440-48-4 cobalt	$2 mg/m^3$
7440-66-6 zinc	21 mg/m^3
7440-50-8 copper	33 mg/m^3
7439-96-5 manganese	5 mg/m ³
PAC-3:	,
7697-37-2 Nitric Acid	92 ppm
7439-89-6 iron	150 mg/m^3
7439-95-4 magnesium	1,200 mg/m
7440-09-7 potassium	150 mg/m^3
7440-23-5 sodium	870 mg/m³
7440-39-3 barium	1,100 mg/m
7439-92-1 lead	700 mg/m^3
7440-41-7 beryllium	0.1 mg/m^3
7440-02-0 nickel	99 mg/m³
7440-38-2 Arsenic	100mg/m^3



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		(Contd. of page 5)
7440-43-9	cadmium (non-pyrophoric)	4.7 mg/m^3
7782-49-2	selenium	40 mg/m³
7440-22-4	silver	990 mg/m³
7440-47-3	chromium	99 mg/m³
7440-28-0	thallium	20 mg/m³
7440-62-2	vanadium	35 mg/m³
7440-48-4	cobalt	20 mg/m³
7440-66-6	zinc	120 mg/m^3
7440-50-8	copper	200 mg/m^3
7439-96-5	manganese	$1,800 \text{ mg/m}^3$

7 Handling and storage

- · Handling:
- · Precautions for safe handling No special precautions are necessary if used correctly.
- Information about protection against explosions and fires: The product is not flammable.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- Further information about storage conditions: Keep receptacle tightly sealed.
- · **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.
- · Control parameters

· Components with limit values that require monitoring at the workplace:

7697-37-2 Nitric Acid

PEL Long-term value: 5 mg/m³, 2 ppm

REL Short-term value: 10 mg/m³, 4 ppm
Long-term value: 5 mg/m³, 2 ppm

TLV Short-term value: 10 mg/m³, 4 ppm
Long-term value: 5.2 mg/m³, 2 ppm

- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

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(Contd. of page 6)

- · Breathing equipment: Not required.
- Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection:



Tightly sealed goggles or safety glasses

y	P	nysic	ai ana	cn	em	ıca	ı p	prop	er	tie:	S
		_		-		-			-		

· Information on basic physical and chemical properties

· General Information

· Appearance:

Form:
Color:
Color:
Transparent
Odor:
Odorless
Not determined.

PH-value:
Not determined.

Change in condition

Melting point/Melting range:0 °C (32 °F)Boiling point/Boiling range:100 °C (212 °F)

Flash point: Not applicable.

Flammability (solid, gaseous): Not applicable.
 Decomposition temperature: Not determined.

· Auto igniting: Product is not selfigniting.

• Danger of explosion: Product does not present an explosion hazard.

· Explosion limits:

Lower:Not determined.Upper:Not determined.

(Contd. on page 8)



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		(Contd. of page
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)	
Density at 20 °C (68 °F):	1 g/cm³ (8.345 lbs/gal)	
Relative density	Not determined.	
· Vapor density	Not determined.	
· Evaporation rate	Not determined.	
· Solubility in / Miscibility with		
Water:	Fully miscible.	
· Partition coefficient (n-octanol/wate	e r): Not determined.	
· Viscosity:		
Dynamic:	Not determined.	
Kinematic:	Not determined.	
· Solvent content:		
Water:	94.4 %	
VOC content:	0.00 %	
Solids content:	0.5 %	
· Other information	No further relevant information available.	

10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:
- Primary irritant effect:
- · on the skin: Caustic effect on skin and mucous membranes.
- on the eye:

Strong caustic effect.

Strong irritant with the danger of severe eye injury.

- · Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Corrosive

Irritani

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

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(Contd. of page 8) · Carcinogenic categories · IARC (International Agency for Research on Cancer) 2B 7439-92-1 lead 7440-41-7 beryllium 7440-02-0 nickel 2B 7440-38-2 Arsenic 1 7440-43-9 cadmium (non-pyrophoric) 7782-49-2 selenium 3 7440-47-3 chromium 3 7440-48-4 cobalt 2B · NTP (National Toxicology Program) 7439-92-1 lead R 7440-41-7 beryllium K 7440-02-0 nickel R K 7440-38-2 Arsenic 7440-43-9 cadmium (non-pyrophoric) K 7440-48-4 cobalt R · OSHA-Ca (Occupational Safety & Health Administration) 7440-38-2 Arsenic 7440-43-9 cadmium (non-pyrophoric)

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Must not reach bodies of water or drainage ditch undiluted or unneutralized.

Danger to drinking water if even extremely small quantities leak into the ground.

- · Results of PBT and vPvB assessment
- · **PBT**: Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

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(Contd. of page 9)

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Dispose of container and materials in accordance with local, regional and national regulations.

- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.
- · Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information
TINI NI
· UN-Number

· DOT, ADR, IMDG, IATA UN3264

· UN proper shipping name

· DOT Corrosive liquid, acidic, inorganic, n.o.s. (nitric acid)
· ADR 3264 Corrosive liquid, acidic, inorganic, n.o.s. (nitric acid)

· IMDG, IATA CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid)

· Transport hazard class(es)

 $\cdot DOT$



· Class 8 Corrosive substances 8 Label 8

 $\cdot ADR$



· Class 8 (C1) Corrosive substances

·Label

· IMDG, IATA



· Class 8 Corrosive substances

8

· Label

· Packing group

· DOT, ADR, IMDG, IATA III

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	(Contd. of page
· Environmental hazards:	
· Marine pollutant:	No
· Special precautions for user	Warning: Corrosive substances
· Danger code (Kemler):	80
· EMS Number:	F- A , S - B
· Segregation groups	Acids
· Stowage Category	A
· Stowage Code	SW2 Clear of living quarters.
· Transport in bulk according to Annex II	T of
MARPOL73/78 and the IBC Code	Not applicable.
Transport/Additional information:	
· DOT	
· Quantity limitations	On passenger aircraft/rail: 5 L
2	On cargo aircraft only: 60 L
· ADR	
· Excepted quantities (EQ)	Code: E1
Excepted quantities (25)	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
· IMDG	T
	5L
· Limited quantities (LQ)	SL Code: El
· Excepted quantities (EQ)	50WC, 21
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.C (NITRIC ACID), 8, III

7722 10 5	117	ations/legislation specific for the substance or mixture	0.4.270
7732-18-5			94.37%
7697-37-2	Nitric Acid	Ox. Liq. 2, H272 Skin Corr. 1A, H314	5.0%
7439-95-4	magnesium	📀 Pyr. Sol. 1, H250; Water-react. 1, H260	0.1%
Sara			
Section 35	5 (extremely hazardous subs	tances):	
7697-37-2	Nitric Acid		
Section 31	3 (Specific toxic chemical lis	tings):	
7697-37-2	Nitric Acid		
. 0 =			
7429-90-5	aluminium		



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	(Contd. of
7440-41-7 beryllium	
7440-02-0 nickel	
7440-38-2 Arsenic	
7440-43-9 cadmium (non-	-pyrophoric)
7782-49-2 selenium	
7440-22-4 silver	
7440-47-3 chromium	
7440-28-0 thallium	
7440-62-2 vanadium	
7440-48-4 cobalt	
7440-66-6 zinc	
7440-50-8 copper	
7439-96-5 manganese	
TSCA (Toxic Substances	Control Act):
All ingredients are listed.	
7697-37-2 Nitric Acid	
7439-89-6 iron	
7439-95-4 magnesium	
7440-09-7 potassium	
7440-23-5 sodium	
7429-90-5 aluminium	
7440-70-2 calcium	
7440-39-3 barium	
7439-92-1 lead	
7440-41-7 beryllium	
7440-02-0 nickel	
7440-38-2 Arsenic	
7440-43-9 cadmium (non-	-pyrophoric)
7782-49-2 selenium	
7440-22-4 silver	
7440-47-3 chromium	
7440-28-0 thallium	
7440-62-2 vanadium	
7440-48-4 cobalt	
7440-66-6 zinc	
7440-50-8 copper	
7439-96-5 manganese	
7732-18-5 Water	

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Proposition 65	(Contd. of page
Chemicals known to cause cancer:	
7439-92-1 lead	
7440-41-7 beryllium	
7440-02-0 nickel	
7440-38-2 Arsenic	
7440-43-9 cadmium (non-pyrophoric)	
7440-48-4 cobalt	
Chemicals known to cause reproductive toxicity for females:	
7439-92-1 lead	
Chemicals known to cause reproductive toxicity for males:	
7439-92-1 lead	
7440-43-9 cadmium (non-pyrophoric)	
Chemicals known to cause developmental toxicity:	
7439-92-1 lead	
7440-43-9 cadmium (non-pyrophoric)	
Cancerogenity categories EPA (Environmental Protection Agency)	
7440-39-3 barium	D, CBD(inh), NL(oral
7439-92-1 lead	B2
7440-41-7 beryllium	B1, K/L(inh), CBD(ore
7440-38-2 Arsenic	A
7440-43-9 cadmium (non-pyrophoric)	<i>B1</i>
7782-49-2 selenium	D
7440-22-4 silver	D
7440-47-3 chromium	D
7440-66-6 zinc	D, I, II
7440-50-8 copper	D
7439-96-5 manganese	D
<u> </u>	
7429-90-5 aluminium	
7429-90-5 aluminium 7440-39-3 barium	2
7429-90-5 aluminium 7440-39-3 barium 7439-92-1 lead	
7429-90-5 aluminium 7440-39-3 barium 7439-92-1 lead 7440-41-7 beryllium	2 2
7440-39-3 barium 7439-92-1 lead 7440-41-7 beryllium 7440-02-0 nickel	
7429-90-5 aluminium 7440-39-3 barium 7439-92-1 lead 7440-41-7 beryllium 7440-02-0 nickel 7440-38-2 Arsenic	2 2 2 2 2
7429-90-5 aluminium 7440-39-3 barium 7439-92-1 lead 7440-41-7 beryllium 7440-02-0 nickel 7440-38-2 Arsenic 7440-43-9 cadmium (non-pyrophoric)	
7429-90-5 aluminium 7440-39-3 barium 7439-92-1 lead 7440-41-7 beryllium 7440-02-0 nickel 7440-38-2 Arsenic	2 2 2 2



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· NIOSH-Ca	· NIOSH-Ca (National Institute for Occupational Safety and Health)		
7440-41-7	beryllium		
7440-02-0	nickel		
7440-38-2	Arsenic		
7440-43-9	cadmium (non-pyrophoric)		

· National regulations:

· Information about limitation of use:

Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

- · Water hazard class: Water hazard class 3 (Self-assessment): extremely hazardous for water.
- · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Disclaimer

The information provided in this Material Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. PerkinElmer shall not be held liable for any damage resulting from handling or from contact with the product.

· Department issuing SDS: Environmental, Health and Safety

· Contact:

Within the USA: 1-(800)-762-4000 Outside the USA: 1-(203)-712-8488

· Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Ox. Liq. 2: Oxidizing liquids - Category 2

Skin Corr. 1A: Skin corrosion/irritation - Category 1A

(Contd. on page 15)





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Skin Corr. 1B: Skin corrosion/irritation – Category 1B Eye Dam. 1: Serious eye damage/eye irritation – Category 1

* Data compared to the previous version altered.

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1 Identification

- · Product identifier
- · Trade name: STD, Memory Test 2
- · Article number N9303836
- · Application of the substance / the mixture Laboratory chemicals
- Details of the supplier of the safety data sheet
- · Manufacturer/Supplier:

PerkinElmer, Inc.

710 Bridgeport Avenue

Shelton, Connecticut 06484 USA

CustomerCareUS@perkinelmer.com

203-925-4600

· Emergency telephone number:

CHEMTREC (within US) 800-424-9300

CHEMTREC (from outside US) +1 703-527-3887 (call collect)

CHEMTREC (within AU) +(61)-290372994

2 Hazard(s) identification

· Classification of the substance or mixture

The product is not classified, according to the Globally Harmonized System (GHS).

- · Label elements
- · GHS label elements Void
- · Hazard pictograms Void
- · Signal word Void
- · Hazard statements Void
- · Classification system:
- · NFPA ratings (scale 0 4)



Health = 0

Fire = 0

Reactivity = 0

· HMIS-ratings (scale 0 - 4)



Health = 1

Fire = 0

REACTIVITY 0 Reactivity = 0

Other hazards

The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.

- · Results of PBT and vPvB assessment
- · **PBT**: Not applicable.
- · vPvB: Not applicable.



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3 Composition/information on ingredients

- · Chemical characterization: Substances
- · CAS No. Description 7732-18-5 Water
- · Identification number(s)
- EC number: 231-791-2
- · Chemical characterization: Mixtures
- **Description:** Mixture of the substances listed below with nonhazardous additions.
- · Hazardous components: Void

Additional (Components	
12125-02-9	ammonium chloride	0.72%
	♦ Acute Tox. 4, H302; Eye Irrit. 2A, H319	-
7440-44-0	carbon	0.2%
	� Flam. Sol. 1, H228	
7723-14-0	red phosphorus	0.1%
	♦ Flam. Liq. 2, H225; Flam. Sol. 1, H228	
7704-34-9	sulfur	0.1%
	◊ Skin Irrit. 2, H315	
7664-39-3	Hydrofluoric acid	0.1%
	Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330 Skin Corr. 1A, H314	_
7440-32-6	titanium	0.002%
	♦ Self-heat. 1, H251; Water-react. 1, H260	
7440-36-0	antimony	0.002%
7439-98-7	molybdenum	0.002%
7732-18-5	Water	98.774%

4 First-aid measures

- · Description of first aid measures
- · General information: No special measures required.
- · After inhalation: Supply fresh air; consult doctor in case of complaints.
- · After skin contact: Rub in Ca-gluconate solution or Ca-gluconate gel immediately.
- · After eye contact: Rinse opened eye for several minutes under running water.
- · After swallowing: If symptoms persist consult doctor.
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed

No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.

(Contd. on page 3)



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Trade name: STD, Memory Test 2

(Contd. of page 2)

- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- · Environmental precautions:

Inform respective authorities in case of seepage into water course or sewage system.

Dilute with plenty of water.

- · Methods and material for containment and cleaning up:
- Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- · Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

12125-02-9	ammonium chloride	20 mg/m^3
7440-44-0	carbon	6 mg/m ³
7723-14-0	red phosphorus	0.27 mg/m
7440-32-6	titanium	30 mg/m^3
7440-36-0	antimony	1.5 mg/m ³
7439-98-7	molybdenum	30 mg/m³
PAC-2:		
12125-02-9	ammonium chloride	54 mg/m ³
7440-44-0	carbon	330 mg/n
7723-14-0	red phosphorus	$3 mg/m^3$
7440-32-6	titanium	330 mg/n
7440-36-0	antimony	13 mg/m ³
7439-98-7	molybdenum	330 mg/n
<i>PAC-3:</i>		
12125-02-9	ammonium chloride	330 mg/m^3
7440-44-0	carbon	2,000 mg/m
7723-14-0	red phosphorus	18 mg/m³
7440-32-6	titanium	2,000 mg/m
7440-36-0	antimony	80 mg/m^3
7439-98-7	molybdenum	2,000 mg/m

7 Handling and storage

- · Handling:
- · Precautions for safe handling No special measures required.

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- · Information about protection against explosions and fires: No special measures required.
- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions: None.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

- · Additional information: The lists that were valid during the creation were used as basis.
- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:

The usual precautionary measures for handling chemicals should be followed.

- · Breathing equipment: Not required.
- · Protection of hands:

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection: Goggles recommended during refilling.

9 Physical and chemical properties

- Information on basic physical and chemical properties
- · General Information
- · Appearance:

Form: Liquid
Color: Transparent
Odor: Odorless
Odor threshold: Not determined.

· pH-value: Not determined.

· Change in condition

Melting point/Melting range: $0 \, ^{\circ}C \, (32 \, ^{\circ}F)$

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		(Contd. of pag
Boiling point/Boiling range:	100 °C (212 °F)	
Flash point:	Not applicable.	
Flammability (solid, gaseous):	Not applicable.	
Decomposition temperature:	Not determined.	
Auto igniting:	Product is not selfigniting.	
Danger of explosion:	Product does not present an explosion hazard.	
Explosion limits:		
Lower:	Not determined.	
Upper:	Not determined.	
Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)	
Density at 20 °C (68 °F):	0.99536 g/cm³ (8.30628 lbs/gal)	
Relative density	Not determined.	
Vapor density	Not determined.	
Evaporation rate	Not determined.	
Solubility in / Miscibility with		
Water:	Fully miscible.	
Partition coefficient (n-octanol/wate	e r): Not determined.	
Viscosity:		
Dynamic:	Not determined.	
Kinematic:	Not determined.	
Solvent content:		
Water:	98.8 %	
VOC content:	0.00 %	
Solids content:	0.1 %	
Other information	No further relevant information available.	

10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

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11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:
- Primary irritant effect:
- · on the skin: No irritant effect.
- · on the eye: No irritating effect.
- · Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product is not subject to classification according to internally approved calculation methods for preparations:

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

- · Carcinogenic categories
- · IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes:

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- · **PBT**: Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation: Smaller quantities can be disposed of with household waste.
- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.

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· Recommended cleansing agent: Water, if necessary with cleansing agents.

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· UN-Number		
DOT, ADR, ADN, IMDG, IATA	Void	
· UN proper shipping name		
· DOT, ADR, ADN, IMDG, IATA	Void	
· Transport hazard class(es)		
· DOT, ADR, ADN, IMDG, IATA		
· Class	Void	
· Packing group		
· DOT, ADR, IMDG, IATA	Void	
Environmental hazards:		
· Marine pollutant:	No	
· Special precautions for user	Not applicable.	
Transport in bulk according to Annex	· II of	
MARPOL73/78 and the IBC Code	Not applicable.	
· UN ''Model Regulation'':	Non regulated according to above specifications.	

· Safety, heal	th and environmental regulation	ns/legislation specific for the substance or mixture	
7732-18-5	Water		98.774%
12125-02-9	ammonium chloride	♦ Acute Tox. 4, H302; Eye Irrit. 2A, H319	0.72%
7440-44-0	carbon	♦ Flam. Sol. 1, H228	0.2%
· Sara			_
· Section 355	(extremely hazardous substance	es):	
7723-14-0	red phosphorus		
Section 313	(Specific toxic chemical listings	s):	
7723-14-0	red phosphorus		
7440-36-0 d	untimony		
	c Substances Control Act): nts are listed.		
12125-02-9	ammonium chloride		
7440-44-0	carbon		
7723-14-0	red phosphorus		
7704-34-9	- 1 <i>C</i>		

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7440-32-6 titanium
7440-36-0 antimony
7439-98-7 molybdenum
7732-18-5 Water

· Proposition 65

· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Cancerogenity categories

· EPA (Environmental Protection Agency)

7723-14-0 red phosphorus

D

· TLV (Threshold Limit Value established by ACGIH)

7439-98-7 molybdenum

A3

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

- · National regulations:
- · Information about limitation of use:

Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

- · Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.
- · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Disclaimer

The information provided in this Material Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. PerkinElmer shall not be held liable for any damage resulting from handling or from contact with the product.

· Department issuing SDS: Environmental, Health and Safety

· Contact:

Within the USA: 1-(800)-762-4000 Outside the USA: 1-(203)-712-8488

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· Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU) PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health TLV: Threshold Limit Value

PEL: Permissible Exposure Limit REL: Recommended Exposure Limit

* * Data compared to the previous version altered.

USA: