

**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

- **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**  
P280 Wear protective gloves / eye protection / face protection.  
P264 Wash thoroughly after handling.  
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P321 Specific treatment (see on this label).  
P332+P313 If skin irritation occurs: Get medical advice/attention.  
P337+P313 If eye irritation persists: Get medical advice/attention.  
P302+P352 IF ON SKIN: Wash with plenty of water.  
P362+P364 Take off contaminated clothing and wash it before reuse.

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



Health = 1  
Fire = 0  
Reactivity = 0

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· **HMIS-ratings (scale 0 - 4)**

HEALTH	1	Health = 1
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: Mixtures**

· **Description:** Mixture of the substances listed below with nonhazardous 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. 3, 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, H317; STOT SE 3, H335	0.001%
7440-74-6	Indium		0.001%
7439-92-1	lead	Acute Tox. 3, H301 Carc. 2, H351; Repr. 1A, H360; STOT RE 2, H373 Acute Tox. 4, H332	0.001%
7439-93-2	lithium	Water-react. 1, H260 Skin Corr. 1B, H314	0.001%
7439-95-4	magnesium	Pyr. Sol. 1, H250; Water-react. 1, H260	0.001%
7440-45-1	cerium	Water-react. 2, H261	0.001%
7440-16-6	rhodium		0.001%
7440-28-0	thallium	Acute Tox. 2, H300; Acute Tox. 2, H330 STOT RE 2, H373	0.001%
7440-61-1	uranium	Acute Tox. 2, H300; Acute Tox. 2, H330 STOT RE 2, H373	0.001%

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7440-39-3	barium ⚠ Water-react. 2, H261	0.001%
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**

· **PAC-1:**

7647-01-0	Hydrochloric Acid	1.8 ppm
7697-37-2	Nitric Acid	0.16 ppm
7440-48-4	cobalt	0.18 mg/m <sup>3</sup>
7440-41-7	beryllium	0.0023 mg/m <sup>3</sup>
7440-74-6	Indium	0.3 mg/m <sup>3</sup>
7439-92-1	lead	0.15 mg/m <sup>3</sup>
7439-93-2	lithium	3.3 mg/m <sup>3</sup>
7439-95-4	magnesium	18 mg/m <sup>3</sup>

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7440-45-1	cerium	30 mg/m <sup>3</sup>
7440-16-6	rhodium	3 mg/m <sup>3</sup>
7440-28-0	thallium	0.06 mg/m <sup>3</sup>
7440-61-1	uranium	0.6 mg/m <sup>3</sup>
7440-39-3	barium	1.5 mg/m <sup>3</sup>
7440-65-5	yttrium	3 mg/m <sup>3</sup>

**· PAC-2:**

7647-01-0	Hydrochloric Acid	22 ppm
7697-37-2	Nitric Acid	24 ppm
7440-48-4	cobalt	2 mg/m <sup>3</sup>
7440-41-7	beryllium	0.025 mg/m <sup>3</sup>
7440-74-6	Indium	3.3 mg/m <sup>3</sup>
7439-92-1	lead	120 mg/m <sup>3</sup>
7439-93-2	lithium	36 mg/m <sup>3</sup>
7439-95-4	magnesium	200 mg/m <sup>3</sup>
7440-45-1	cerium	330 mg/m <sup>3</sup>
7440-16-6	rhodium	33 mg/m <sup>3</sup>
7440-28-0	thallium	3.3 mg/m <sup>3</sup>
7440-61-1	uranium	5 mg/m <sup>3</sup>
7440-39-3	barium	180 mg/m <sup>3</sup>
7440-65-5	yttrium	33 mg/m <sup>3</sup>

**· PAC-3:**

7647-01-0	Hydrochloric Acid	100 ppm
7697-37-2	Nitric Acid	92 ppm
7440-48-4	cobalt	20 mg/m <sup>3</sup>
7440-41-7	beryllium	0.1 mg/m <sup>3</sup>
7440-74-6	Indium	20 mg/m <sup>3</sup>
7439-92-1	lead	700 mg/m <sup>3</sup>
7439-93-2	lithium	220 mg/m <sup>3</sup>
7439-95-4	magnesium	1,200 mg/m <sup>3</sup>
7440-45-1	cerium	2,000 mg/m <sup>3</sup>
7440-16-6	rhodium	200 mg/m <sup>3</sup>
7440-28-0	thallium	20 mg/m <sup>3</sup>
7440-61-1	uranium	30 mg/m <sup>3</sup>
7440-39-3	barium	1,100 mg/m <sup>3</sup>
7440-65-5	yttrium	200 mg/m <sup>3</sup>

**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.

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- **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/m <sup>3</sup> , 5 ppm
REL	Ceiling limit value: 7 mg/m <sup>3</sup> , 5 ppm
TLV	Ceiling limit value: 2.98 mg/m <sup>3</sup> , 2 ppm

### 7697-37-2 Nitric Acid

PEL	Long-term value: 5 mg/m <sup>3</sup> , 2 ppm
REL	Short-term value: 10 mg/m <sup>3</sup> , 4 ppm Long-term value: 5 mg/m <sup>3</sup> , 2 ppm
TLV	Short-term value: 10 mg/m <sup>3</sup> , 4 ppm Long-term value: 5.2 mg/m <sup>3</sup> , 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 through time has to be found out by the manufacturer of the protective gloves and has to be observed.

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· **Eye protection:**



Tightly sealed goggles or safety glasses

**9 Physical and chemical properties**

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

· <b>Form:</b>	Liquid
· <b>Color:</b>	Transparent
· <b>Odor:</b>	Odorless
· <b>Odor threshold:</b>	Not determined.

· **pH-value:** Not determined.

· **Change in condition**

· <b>Melting point/Melting range:</b>	0 °C (32 °F)
· <b>Boiling point/Boiling range:</b>	100 °C (212 °F)

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Not applicable.

· **Ignition temperature:**

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Product is not selfigniting.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Explosion limits:**

· <b>Lower:</b>	Not determined.
· <b>Upper:</b>	Not determined.

· **Vapor pressure at 20 °C (68 °F):** 23 hPa (17 mm Hg)

· **Density at 20 °C (68 °F):** 1 g/cm<sup>3</sup> (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):** Not determined.

· **Viscosity:**

· <b>Dynamic:</b>	Not determined.
· <b>Kinematic:</b>	Not determined.

· **Solvent content:**

· <b>Organic solvents:</b>	0.0 %
· <b>Water:</b>	93.0 %

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· **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)

7647-01-0	Hydrochloric Acid	3
7440-48-4	cobalt	2B
7440-41-7	beryllium	1
7439-92-1	lead	2B

### · NTP (National Toxicology Program)

7440-48-4	cobalt	R
7440-41-7	beryllium	K
7439-92-1	lead	R

### · 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.*

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- **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**

· <b>UN-Number</b>	
· <b>DOT, ADR, IMDG, IATA</b>	UN3264
· <b>UN proper shipping name</b>	
· <b>DOT, ADR</b>	Corrosive liquid, acidic, inorganic, n.o.s. (Hydrochloric acid, Nitric Acid)
· <b>IMDG, IATA</b>	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (HYDROCHLORIC ACID, Nitric Acid)
· <b>Transport hazard class(es)</b>	
· <b>DOT</b>	
· <b>Class</b>	8 Corrosive substances
· <b>Label</b>	8
· <b>ADR</b>	
· <b>Class</b>	8 (C1) Corrosive substances
· <b>Label</b>	8
· <b>IMDG, IATA</b>	
· <b>Class</b>	8 Corrosive substances
· <b>Label</b>	8

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

**15 Regulatory information**

· <b>Safety, health and environmental regulations/legislation specific for the substance or mixture</b>			
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. 3, H272 Skin Corr. 1A, H314	2.0%
· <b>Sara</b>			
· <b>Section 355 (extremely hazardous substances):</b>			
7647-01-0	Hydrochloric Acid		
7697-37-2	Nitric Acid		
· <b>Section 313 (Specific toxic chemical listings):</b>			
7647-01-0	Hydrochloric Acid		
7697-37-2	Nitric Acid		
7440-48-4	cobalt		

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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.

7647-01-0	Hydrochloric Acid
7697-37-2	Nitric Acid
7440-48-4	cobalt
7440-41-7	beryllium
7440-74-6	Indium
7439-92-1	lead
7439-93-2	lithium
7439-95-4	magnesium
7440-45-1	cerium
7440-16-6	rhodium
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
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· **Chemicals known to cause reproductive toxicity for males:**

7439-92-1	lead
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· **Chemicals known to cause developmental toxicity:**

7439-92-1	lead
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· **Carcinogenicity categories**

· **EPA (Environmental Protection Agency)**

7440-41-7	beryllium	B1, K/L(inh), CBD(oral)
7439-92-1	lead	B2
7440-39-3	barium	D, CBD(inh), NL(oral)

· **TLV (Threshold Limit Value established by ACGIH)**

7647-01-0	Hydrochloric Acid	A4
7440-48-4	cobalt	A3
7440-41-7	beryllium	A1
7439-92-1	lead	A3
7440-16-6	rhodium	A4

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7440-61-1	uranium	AI
7440-39-3	barium	A4

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

7440-41-7	beryllium
7440-61-1	uranium

· **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**

P280 Wear protective gloves / eye protection / face protection.

P264 Wash thoroughly after handling.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P321 Specific treatment (see on this label).

P332+P313 If skin irritation occurs: Get medical advice/attention.

P337+P313 If eye irritation persists: Get medical advice/attention.

P302+P352 IF ON SKIN: Wash with plenty of water.

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

· **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.

· **Contact:**

With in the USA: 1-(800)-762-4000

Out side 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

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

*NFPA: National Fire Protection Association (USA)*

*HMIS: Hazardous Materials Identification System (USA)*

*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. 3: Oxidizing liquids – Category 3*

*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.**