

**acc. to OSHA HCS**

Printing date 08/28/2018

Review date 08/28/2018

## 1 Identification

- **Product identifier**
- **Trade name:** AFT Multi Element Solution
- **Article number** N8145061
- **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

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· **HMIS-ratings (scale 0 - 4)**

HEALTH	2	Health = 2
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:**

7697-37-2	Nitric Acid	 Ox. Liq. 2, H272  Skin Corr. 1A, H314	2.0%
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· **Additional Components**

7439-92-1	lead	 Acute Tox. 3, H301  Carc. 2, H351; Repr. 1A, H360-H362  Acute Tox. 4, H332	0.002%
7440-17-7	rubidium	 Water-react. 1, H260  Skin Corr. 1B, H314; Eye Dam. 1, H318	0.002%
7782-49-2	selenium	 Acute Tox. 3, H301; Acute Tox. 3, H331  STOT RE 2, H373	0.002%
7440-24-6	strontium	 Water-react. 1, H260	0.002%
7440-61-1	uranium	 Acute Tox. 2, H300; Acute Tox. 2, H330  STOT RE 2, H373	0.002%
7440-62-2	vanadium		0.002%
7440-66-6	zinc	 Water-react. 2, H261	0.002%
7440-48-4	cobalt	 Resp. Sens. 1, H334; Carc. 2, H351  Skin Sens. 1, H317	0.0002%
7440-47-3	chromium		0.0002%
14644-55-4	cesium vanadium trioxide		0.0002%
7440-50-8	copper		0.0002%

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7439-89-6	iron	0.0002%
7440-55-3	gallium	0.0002%
	⚠ Skin Corr. 1C, H314	
7440-74-6	Indium	0.0002%
7440-09-7	potassium	0.0002%
	⚠ Water-react. 1, H260	
	⚠ Skin Corr. 1B, H314	
7439-93-2	lithium	0.0002%
	⚠ Water-react. 1, H260	
	⚠ Skin Corr. 1B, H314	
7439-95-4	magnesium	0.0002%
	⚠ Pyr. Sol. 1, H250; Water-react. 1, H260	
7439-96-5	manganese	0.0002%
7440-23-5	sodium	0.0002%
	⚠ Water-react. 1, H260	
	⚠ Skin Corr. 1B, H314	
7440-02-0	nickel	0.0002%
	⚠ Carc. 2, H351; STOT RE 1, H372	
	⚠ Skin Sens. 1, H317	
7429-90-5	aluminium	0.0002%
7440-38-2	Arsenic	0.0002%
	⚠ Acute Tox. 3, H301; Acute Tox. 3, H331	
	⚠ Carc. 1A, H350	
7440-39-3	barium	0.0002%
	⚠ Water-react. 2, H261	
7440-41-7	beryllium	0.0002%
	⚠ 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	
7440-28-0	thallium	0.0002%
	⚠ Acute Tox. 2, H300; Acute Tox. 2, H330	
	⚠ STOT RE 2, H373	
7440-69-9	bismuth	0.0002%
7440-70-2	calcium	0.0002%
	⚠ Water-react. 2, H261	
7440-43-9	cadmium (non-pyrophoric)	0.0002%
	⚠ Acute Tox. 2, H330	
	⚠ Muta. 2, H341; Carc. 1B, H350; Repr. 2, H361; STOT RE 1, H372	
7440-22-4	silver	0.0002%
7732-18-5	Water	97.9816%

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#### 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.  
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 Acid	0.16 ppm
7439-92-1	lead	0.15 mg/m <sup>3</sup>
7440-17-7	rubidium	3.9 mg/m <sup>3</sup>
7782-49-2	selenium	0.6 mg/m <sup>3</sup>
7440-24-6	strontium	30 mg/m <sup>3</sup>
7440-61-1	uranium	0.6 mg/m <sup>3</sup>
7440-62-2	vanadium	3 mg/m <sup>3</sup>
7440-66-6	zinc	6 mg/m <sup>3</sup>
7440-48-4	cobalt	0.18 mg/m <sup>3</sup>
7440-47-3	chromium	1.5 mg/m <sup>3</sup>

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7440-50-8	copper	3 mg/m <sup>3</sup>
7439-89-6	iron	3.2 mg/m <sup>3</sup>
7440-55-3	gallium	30 mg/m <sup>3</sup>
7440-74-6	Indium	0.3 mg/m <sup>3</sup>
7440-09-7	potassium	2.3 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>
7439-96-5	manganese	3 mg/m <sup>3</sup>
7440-23-5	sodium	13 mg/m <sup>3</sup>
7440-02-0	nickel	4.5 mg/m <sup>3</sup>
7440-38-2	Arsenic	1.5 mg/m <sup>3</sup>
7440-39-3	barium	1.5 mg/m <sup>3</sup>
7440-41-7	beryllium	0.0023 mg/m <sup>3</sup>
7440-28-0	thallium	0.06 mg/m <sup>3</sup>
7440-69-9	bismuth	15 mg/m <sup>3</sup>
7440-43-9	cadmium (non-pyrophoric)	0.10 mg/m <sup>3</sup>
7440-22-4	silver	0.3 mg/m <sup>3</sup>

**PAC-2:**

7697-37-2	Nitric Acid	24 ppm
7439-92-1	lead	120 mg/m <sup>3</sup>
7440-17-7	rubidium	43 mg/m <sup>3</sup>
7782-49-2	selenium	6.6 mg/m <sup>3</sup>
7440-24-6	strontium	330 mg/m <sup>3</sup>
7440-61-1	uranium	5 mg/m <sup>3</sup>
7440-62-2	vanadium	5.8 mg/m <sup>3</sup>
7440-66-6	zinc	21 mg/m <sup>3</sup>
7440-48-4	cobalt	2 mg/m <sup>3</sup>
7440-47-3	chromium	17 mg/m <sup>3</sup>
7440-50-8	copper	33 mg/m <sup>3</sup>
7439-89-6	iron	35 mg/m <sup>3</sup>
7440-55-3	gallium	330 mg/m <sup>3</sup>
7440-74-6	Indium	3.3 mg/m <sup>3</sup>
7440-09-7	potassium	25 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>
7439-96-5	manganese	5 mg/m <sup>3</sup>
7440-23-5	sodium	140 mg/m <sup>3</sup>
7440-02-0	nickel	50 mg/m <sup>3</sup>
7440-38-2	Arsenic	17 mg/m <sup>3</sup>
7440-39-3	barium	180 mg/m <sup>3</sup>

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7440-41-7	beryllium	0.025 mg/m <sup>3</sup>
7440-28-0	thallium	3.3 mg/m <sup>3</sup>
7440-69-9	bismuth	170 mg/m <sup>3</sup>
7440-43-9	cadmium (non-pyrophoric)	0.76 mg/m <sup>3</sup>
7440-22-4	silver	170 mg/m <sup>3</sup>
<b>· PAC-3:</b>		
7697-37-2	Nitric Acid	92 ppm
7439-92-1	lead	700 mg/m <sup>3</sup>
7440-17-7	rubidium	260 mg/m <sup>3</sup>
7782-49-2	selenium	40 mg/m <sup>3</sup>
7440-24-6	strontium	2,000 mg/m <sup>3</sup>
7440-61-1	uranium	30 mg/m <sup>3</sup>
7440-62-2	vanadium	35 mg/m <sup>3</sup>
7440-66-6	zinc	120 mg/m <sup>3</sup>
7440-48-4	cobalt	20 mg/m <sup>3</sup>
7440-47-3	chromium	99 mg/m <sup>3</sup>
7440-50-8	copper	200 mg/m <sup>3</sup>
7439-89-6	iron	150 mg/m <sup>3</sup>
7440-55-3	gallium	2,000 mg/m <sup>3</sup>
7440-74-6	Indium	20 mg/m <sup>3</sup>
7440-09-7	potassium	150 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>
7439-96-5	manganese	1,800 mg/m <sup>3</sup>
7440-23-5	sodium	870 mg/m <sup>3</sup>
7440-02-0	nickel	99 mg/m <sup>3</sup>
7440-38-2	Arsenic	100 mg/m <sup>3</sup>
7440-39-3	barium	1,100 mg/m <sup>3</sup>
7440-41-7	beryllium	0.1 mg/m <sup>3</sup>
7440-28-0	thallium	20 mg/m <sup>3</sup>
7440-69-9	bismuth	990 mg/m <sup>3</sup>
7440-43-9	cadmium (non-pyrophoric)	4.7 mg/m <sup>3</sup>
7440-22-4	silver	990 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:** No special measures required.

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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:**

**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:**

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Tightly sealed goggles or safety glasses

## 9 Physical and chemical properties

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

· **General Information**

· **Appearance:**

Form: Liquid

Color: According to product specification

· **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: Undetermined.

· **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:** Not determined.

· **Relative density** Not determined.

· **Vapor density** Not determined.

· **Evaporation rate** Not determined.

· **Solubility in / Miscibility with**

Water: Not miscible or difficult to mix.

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

· **Viscosity:**

Dynamic: Not determined.

Kinematic: Not determined.

· **Solvent content:**

Water: 98.0 %

VOC content: 0.00 %

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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)**

7439-92-1	lead	2B
7782-49-2	selenium	3
7440-48-4	cobalt	2B
7440-47-3	chromium	3
7440-02-0	nickel	2B
7440-38-2	Arsenic	1
7440-41-7	beryllium	1
7440-43-9	cadmium (non-pyrophoric)	1

#### · **NTP (National Toxicology Program)**

7439-92-1	lead	R
7440-48-4	cobalt	R
7440-02-0	nickel	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
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7440-43-9 cadmium (non-pyrophoric)

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**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.
- **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.

**14 Transport information**

- **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)**
- **DOT**
- **Class** 8 Corrosive substances



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

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· UN "Model Regulation": UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

**15 Regulatory information**

· Safety, health and environmental regulations/legislation specific for the substance or mixture

7732-18-5	Water		97.9816%
7697-37-2	Nitric Acid	 Ox. Liq. 2, H272  Skin Corr. 1A, H314	2.0%
7440-17-7	rubidium	 Water-react. 1, H260  Skin Corr. 1B, H314; Eye Dam. 1, H318	0.002%

· Sara

· Section 355 (extremely hazardous substances):

7697-37-2	Nitric Acid
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· Section 313 (Specific toxic chemical listings):

7697-37-2	Nitric Acid
7439-92-1	lead
7782-49-2	selenium
7440-62-2	vanadium
7440-66-6	zinc
7440-48-4	cobalt
7440-47-3	chromium
14644-55-4	cesium vanadium trioxide
7440-50-8	copper
7439-96-5	manganese
7440-02-0	nickel
7429-90-5	aluminium
7440-38-2	Arsenic
7440-39-3	barium
7440-41-7	beryllium
7440-28-0	thallium
7440-43-9	cadmium (non-pyrophoric)
7440-22-4	silver

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

7697-37-2	Nitric Acid
7439-92-1	lead
7440-17-7	rubidium
7782-49-2	selenium
7440-24-6	strontium

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7440-61-1	uranium
7440-62-2	vanadium
7440-66-6	zinc
7440-48-4	cobalt
7440-47-3	chromium
14644-55-4	cesium vanadium trioxide
7440-50-8	copper
7439-89-6	iron
7440-55-3	gallium
7440-74-6	Indium
7440-09-7	potassium
7439-93-2	lithium
7439-95-4	magnesium
7439-96-5	manganese
7440-23-5	sodium
7440-02-0	nickel
7429-90-5	aluminium
7440-38-2	Arsenic
7440-39-3	barium
7440-41-7	beryllium
7440-28-0	thallium
7440-69-9	bismuth
7440-70-2	calcium
7440-43-9	cadmium (non-pyrophoric)
7440-22-4	silver

· **Proposition 65**

· **Chemicals known to cause cancer:**

7439-92-1	lead
7440-48-4	cobalt
7440-02-0	nickel
7440-38-2	Arsenic
7440-41-7	beryllium
7440-43-9	cadmium (non-pyrophoric)

· **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
7440-43-9	cadmium (non-pyrophoric)

· **Chemicals known to cause developmental toxicity:**

7439-92-1	lead
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7440-43-9 cadmium (non-pyrophoric)

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**

7439-92-1	lead	B2
7782-49-2	selenium	D
7440-66-6	zinc	D, I, II
7440-47-3	chromium	D
7440-50-8	copper	D
7439-96-5	manganese	D
7440-38-2	Arsenic	A
7440-39-3	barium	D, CBD(inh), NL(oral)
7440-41-7	beryllium	B1, K/L(inh), CBD(oral)
7440-43-9	cadmium (non-pyrophoric)	B1
7440-22-4	silver	D

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

7439-92-1	lead	A3
7440-61-1	uranium	A1
7440-48-4	cobalt	A3
7440-47-3	chromium	A4
7440-02-0	nickel	A5
7429-90-5	aluminium	A4
7440-38-2	Arsenic	A1
7440-39-3	barium	A4
7440-41-7	beryllium	A1
7440-43-9	cadmium (non-pyrophoric)	A2

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

7440-61-1	uranium
7440-02-0	nickel
7440-38-2	Arsenic
7440-41-7	beryllium
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:** Generally not hazardous for water.

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

USA

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**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.**