

acc. to OSHA HCS

Printing date 07/27/2021

Review date 07/27/2021

1 Identification

- **Product identifier**
- **Trade name:** Std, PerkinElmer Pure IV
- **Article number** N9303941
- **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**



Health hazard

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Carc. 1B H350 May cause cancer.

Repr. 1A H360 May damage fertility or the unborn child.



Corrosion

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

Eye Dam. 1 H318 Causes serious eye damage.



Skin Sens. 1 H317 May cause an allergic skin reaction.

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms** GHS05, GHS08
- **Signal word** Danger

- **Hazard-determining components of labeling:**

Nitric Acid
cadmium
lead
cobalt
nickel

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· Hazard statements

- H314 Causes severe skin burns and eye damage.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H317 May cause an allergic skin reaction.
- H350 May cause cancer.
- H360 May damage fertility or the unborn child.

· Precautionary statements

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P260 Do not breathe dusts or mists.
- P264 Wash thoroughly after handling.
- P272 Contaminated work clothing must not be allowed out of the workplace.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P284 [In case of inadequate ventilation] wear respiratory 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.
- P308+P313 IF exposed or concerned: Get medical advice/attention.
- P321 Specific treatment (see on this label).
- P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
- P342+P311 If experiencing respiratory symptoms: Call a poison center/doctor.
- 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)



· HMIS-ratings (scale 0 - 4)



· 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: 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 | 10.0% |
| 7439-89-6 | iron  Acute Tox. 2, H300 | 0.1% |
| 7439-92-1 | lead  Carc. 2, H351; Repr. 1A, H360 | 0.1% |
| 7440-02-0 | nickel  Carc. 2, H351; STOT RE 1, H372  Skin Sens. 1, H317 | 0.1% |
| 7440-28-0 | thallium  Acute Tox. 2, H300; Acute Tox. 2, H330  STOT RE 2, H373 Aquatic Chronic 4, H413 | 0.1% |
| 7440-43-9 | cadmium  Acute Tox. 3, H301; Acute Tox. 2, H330  Muta. 2, H341; Carc. 1B, H350; Repr. 2, H361; STOT RE 1, H372  Aquatic Acute 1, H400; Aquatic Chronic 1, H410 | 0.1% |
| 7440-48-4 | cobalt  Resp. Sens. 1, H334; Carc. 2, H351  Skin Sens. 1, H317 Aquatic Chronic 4, H413 | 0.1% |
| 7440-66-6 | zinc  Pyr. Sol. 1, H250; Water-react. 1, H260  Aquatic Acute 1, H400; Aquatic Chronic 1, H410 | 0.1% |

· **Additional Components**

| | | |
|-----------|--|-------|
| 7732-18-5 | Water | 87.7% |
| 7429-90-5 | aluminium | 0.1% |
| 7439-93-2 | lithium  Water-react. 1, H260  Skin Corr. 1B, H314 | 0.1% |
| 7439-95-4 | magnesium  Pyr. Sol. 1, H250; Water-react. 1, H260 | 0.1% |
| 7439-96-5 | manganese | 0.1% |
| 7440-09-7 | potassium  Water-react. 1, H260  Skin Corr. 1B, H314 | 0.1% |
| 7440-22-4 | silver | 0.1% |
| 7440-23-5 | sodium  Water-react. 1, H260  Skin Corr. 1B, H314 | 0.1% |

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|-----------|-------------------------------------|--------------------|
| 7440-24-6 | strontium ⚠ Water-react. 1, H260 | 0.1% |
| 7440-39-3 | barium ⚠ Water-react. 2, H261 | 0.1% |
| 7440-42-8 | boron ⚠ Acute Tox. 4, H302 | 0.1% |
| 7440-47-3 | chromium | 0.1% |
| 7440-50-8 | copper | 0.1% |
| 7440-55-3 | gallium ⚠ Skin Corr. 1B, H314 | 0.1% |
| 7440-69-9 | bismuth | 0.1% |
| 7440-70-2 | calcium ⚠ Water-react. 2, H261 | 0.1% |
| 7440-74-6 | Indium | 0.1% |

4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:**
Supply fresh air and to be sure call for a doctor.
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**
During heating or in case of fire poisonous gases are produced.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.

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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).

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 |
| 7439-92-1 | lead | 0.15 mg/m ³ |
| 7439-93-2 | lithium | 3.3 mg/m ³ |
| 7439-95-4 | magnesium | 18 mg/m ³ |
| 7439-96-5 | manganese | 3 mg/m ³ |
| 7440-02-0 | nickel | 4.5 mg/m ³ |
| 7440-09-7 | potassium | 2.3 mg/m ³ |
| 7440-22-4 | silver | 0.3 mg/m ³ |
| 7440-23-5 | sodium | 13 mg/m ³ |
| 7440-24-6 | strontium | 30 mg/m ³ |
| 7440-28-0 | thallium | 0.06 mg/m ³ |
| 7440-39-3 | barium | 1.5 mg/m ³ |
| 7440-42-8 | boron | 1.9 mg/m ³ |
| 7440-43-9 | cadmium | 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 |
| 7440-55-3 | gallium | 30 mg/m ³ |
| 7440-66-6 | zinc | 6 mg/m ³ |
| 7440-69-9 | bismuth | 15 mg/m ³ |
| 7440-74-6 | Indium | 0.3 mg/m ³ |

PAC-2:

| | | |
|-----------|-------------|-----------------------|
| 7697-37-2 | Nitric Acid | 24 ppm |
| 7439-89-6 | iron | 35 mg/m ³ |
| 7439-92-1 | lead | 120 mg/m ³ |
| 7439-93-2 | lithium | 36 mg/m ³ |
| 7439-95-4 | magnesium | 200 mg/m ³ |
| 7439-96-5 | manganese | 5 mg/m ³ |

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| | | (Contd. of page 5) |
|-----------|------------------|------------------------|
| 7440-02-0 | <i>nickel</i> | 50 mg/m ³ |
| 7440-09-7 | <i>potassium</i> | 25 mg/m ³ |
| 7440-22-4 | <i>silver</i> | 170 mg/m ³ |
| 7440-23-5 | <i>sodium</i> | 140 mg/m ³ |
| 7440-24-6 | <i>strontium</i> | 330 mg/m ³ |
| 7440-28-0 | <i>thallium</i> | 3.3 mg/m ³ |
| 7440-39-3 | <i>barium</i> | 180 mg/m ³ |
| 7440-42-8 | <i>boron</i> | 21 mg/m ³ |
| 7440-43-9 | <i>cadmium</i> | 0.76 mg/m ³ |
| 7440-47-3 | <i>chromium</i> | 17 mg/m ³ |
| 7440-48-4 | <i>cobalt</i> | 2 mg/m ³ |
| 7440-50-8 | <i>copper</i> | 33 mg/m ³ |
| 7440-55-3 | <i>gallium</i> | 330 mg/m ³ |
| 7440-66-6 | <i>zinc</i> | 21 mg/m ³ |
| 7440-69-9 | <i>bismuth</i> | 170 mg/m ³ |
| 7440-74-6 | <i>Indium</i> | 3.3 mg/m ³ |

PAC-3:

| | | |
|-----------|--------------------|-------------------------|
| 7697-37-2 | <i>Nitric Acid</i> | 92 ppm |
| 7439-89-6 | <i>iron</i> | 150 mg/m ³ |
| 7439-92-1 | <i>lead</i> | 700 mg/m ³ |
| 7439-93-2 | <i>lithium</i> | 220 mg/m ³ |
| 7439-95-4 | <i>magnesium</i> | 1,200 mg/m ³ |
| 7439-96-5 | <i>manganese</i> | 1,800 mg/m ³ |
| 7440-02-0 | <i>nickel</i> | 99 mg/m ³ |
| 7440-09-7 | <i>potassium</i> | 150 mg/m ³ |
| 7440-22-4 | <i>silver</i> | 990 mg/m ³ |
| 7440-23-5 | <i>sodium</i> | 870 mg/m ³ |
| 7440-24-6 | <i>strontium</i> | 2,000 mg/m ³ |
| 7440-28-0 | <i>thallium</i> | 20 mg/m ³ |
| 7440-39-3 | <i>barium</i> | 1,100 mg/m ³ |
| 7440-42-8 | <i>boron</i> | 130 mg/m ³ |
| 7440-43-9 | <i>cadmium</i> | 4.7 mg/m ³ |
| 7440-47-3 | <i>chromium</i> | 99 mg/m ³ |
| 7440-48-4 | <i>cobalt</i> | 20 mg/m ³ |
| 7440-50-8 | <i>copper</i> | 200 mg/m ³ |
| 7440-55-3 | <i>gallium</i> | 2,000 mg/m ³ |
| 7440-66-6 | <i>zinc</i> | 120 mg/m ³ |
| 7440-69-9 | <i>bismuth</i> | 990 mg/m ³ |

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7440-74-6 Indium

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20 mg/m³

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:** Keep respiratory protective device available.
- **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:**
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.
At this time, the other constituents have no known exposure limits.

7697-37-2 Nitric Acid

| | |
|-----|--|
| PEL | Long-term value: 5 mg/m ³ , 2 ppm |
| REL | Short-term value: 10 mg/m ³ , 4 ppm Long-term value: 5 mg/m ³ , 2 ppm |
| TLV | Short-term value: 10 mg/m ³ , 4 ppm Long-term value: 5.2 mg/m ³ , 2 ppm |

7440-02-0 nickel

| | |
|-----|--|
| PEL | Long-term value: 1 mg/m ³ |
| REL | Long-term value: 0.015 mg/m ³ as Ni; See Pocket Guide App. A |
| TLV | Long-term value: 1.5* mg/m ³ elemental, *inhalable fraction |

7440-43-9 cadmium

| | |
|-----|--|
| PEL | Long-term value: 0.005 mg/m ³ as Cd; see 29 CFR 1910.1027 |
| REL | See Pocket Guide App. A |
| TLV | Long-term value: 0.01 0.002* mg/m ³ as Cd; *respirable fraction; BEI |

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7440-48-4 cobalt

PEL Long-term value: 0.1* mg/m³
as Co; *for metal dust and fume

REL Long-term value: 0.05 mg/m³
as Co; metal dust & fume

TLV Long-term value: 0.02* mg/m³
*inh. fraction; DSEN, RSEN, BEI

· Ingredients with biological limit values:

7440-43-9 cadmium

BEI 5 µg/g creatinine
Medium: urine
Time: not critical
Parameter: Cadmium (background)

5 µg/L
Medium: blood
Time: not critical
Parameter: Cadmium (background)

7440-48-4 cobalt

BEI 15 µg/L
Medium: urine
Time: end of shift at end of workweek
Parameter: Cobalt (background)

1 µg/L
Medium: blood
Time: end of shift at end of workweek
Parameter: Cobalt (background, semi-quantitative)

· **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.
- Store protective clothing separately.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin.

· **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**



Protective gloves

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

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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: | <i>Liquid</i> |
| · Color: | <i>Dark brown</i> |
| · Odor: | <i>Characteristic</i> |
| · Odor threshold: | <i>Not determined.</i> |

· **pH-value:** *Not determined.*

· **Change in condition**

| | |
|---------------------------------------|------------------------|
| · Melting point/Melting range: | <i>Undetermined.</i> |
| · Boiling point/Boiling range: | <i>100 °C (212 °F)</i> |

· **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.
Not determined.*

· **Explosion limits:**

| | |
|-----------------|------------------------|
| · Lower: | <i>Not determined.</i> |
| · Upper: | <i>Not determined.</i> |

· **Vapor pressure at 20 °C (68 °F):** *23 hPa (17.3 mm Hg)*

| | |
|---------------------------|------------------------|
| · Density: | <i>Not determined.</i> |
| · Relative density | <i>Not determined.</i> |
| · Vapor density | <i>Not determined.</i> |
| · Evaporation rate | <i>Not determined.</i> |

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| | |
|---|--|
| · Solubility in / Miscibility with Water: | Fully miscible. |
| · Partition coefficient (n-octanol/water): | Not determined. |
| · Viscosity: | |
| Dynamic: | Not determined. |
| Kinematic: | Not determined. |
| · Solvent content: | |
| Water: | 87.7 % |
| VOC content: | 0.00 % |
| Solids content: | 2.3 % |
| · 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:**

| |
|---|
| · LD/LC50 values that are relevant for classification: |
| 7440-43-9 cadmium |
| Oral LD50 225 mg/kg (rat) |

- **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:**
Sensitization possible through inhalation.
Sensitization possible through skin contact.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Harmful
Corrosive
Irritant

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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)**

| | | |
|-----------|----------|----|
| 7439-92-1 | lead | 2B |
| 7440-02-0 | nickel | 2B |
| 7440-43-9 | cadmium | 1 |
| 7440-47-3 | chromium | 3 |
| 7440-48-4 | cobalt | 2B |

· **NTP (National Toxicology Program)**

| | | |
|-----------|---------|---|
| 7439-92-1 | lead | R |
| 7440-02-0 | nickel | R |
| 7440-43-9 | cadmium | K |
| 7440-48-4 | cobalt | R |

· **OSHA-Ca (Occupational Safety & Health Administration)**

| | | |
|-----------|---------|--|
| 7440-43-9 | cadmium | |
|-----------|---------|--|

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:**
Not hazardous for water.
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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· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

| | |
|---|---|
| · UN-Number · DOT, ADR, IMDG, IATA | UN2031 |
| · UN proper shipping name · DOT · ADR · IMDG, IATA | Nitric acid 2031 NITRIC ACID NITRIC ACID |
| · Transport hazard class(es) · DOT | |
|  | |
| · 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 | II |
| · Environmental hazards: · Marine pollutant: | No |
| · Special precautions for user · Hazard identification number (Kemler code): · EMS Number: · Segregation groups · Stowage Category | Warning: Corrosive substances 80 F-A,S-B Strong acids D |

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| | |
|--|---|
| · Segregation Code | SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides |
| · 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: 1 L On cargo aircraft only: 30 L |
| · ADR | |
| · Excepted quantities (EQ) | Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml |
| · IMDG | |
| · Limited quantities (LQ) | 1L |
| · Excepted quantities (EQ) | Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml |
| · UN "Model Regulation": | UN 2031 NITRIC ACID, 8, II |

15 Regulatory information

| | | | |
|---|-------------|---|-------|
| · Safety, health and environmental regulations/legislation specific for the substance or mixture | | | |
| 7732-18-5 | Water | | 87.7% |
| 7697-37-2 | Nitric Acid | Ox. Liq. 2, H272 Skin Corr. 1A, H314 | 10.0% |
| 7429-90-5 | aluminium | | 0.1% |
| · Sara | | | |
| · Section 355 (extremely hazardous substances): | | | |
| 7697-37-2 | Nitric Acid | | |
| · Section 313 (Specific toxic chemical listings): | | | |
| 7697-37-2 | Nitric Acid | | |
| 7429-90-5 | aluminium | | |
| 7439-92-1 | lead | | |
| 7439-96-5 | manganese | | |
| 7440-02-0 | nickel | | |
| 7440-22-4 | silver | | |
| 7440-28-0 | thallium | | |
| 7440-39-3 | barium | | |
| 7440-43-9 | cadmium | | |
| 7440-47-3 | chromium | | |

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| | |
|-----------|--------|
| 7440-48-4 | cobalt |
| 7440-50-8 | copper |
| 7440-66-6 | zinc |

· **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

| | | |
|-----------|-------------|--------|
| 7732-18-5 | Water | ACTIVE |
| 7697-37-2 | Nitric Acid | ACTIVE |
| 7429-90-5 | aluminium | ACTIVE |
| 7439-89-6 | iron | ACTIVE |
| 7439-92-1 | lead | ACTIVE |
| 7439-93-2 | lithium | ACTIVE |
| 7439-95-4 | magnesium | ACTIVE |
| 7439-96-5 | manganese | ACTIVE |
| 7440-02-0 | nickel | ACTIVE |
| 7440-09-7 | potassium | ACTIVE |
| 7440-22-4 | silver | ACTIVE |
| 7440-23-5 | sodium | ACTIVE |
| 7440-24-6 | strontium | ACTIVE |
| 7440-28-0 | thallium | ACTIVE |
| 7440-39-3 | barium | ACTIVE |
| 7440-42-8 | boron | ACTIVE |
| 7440-43-9 | cadmium | ACTIVE |
| 7440-47-3 | chromium | ACTIVE |
| 7440-48-4 | cobalt | ACTIVE |
| 7440-50-8 | copper | ACTIVE |
| 7440-55-3 | gallium | ACTIVE |
| 7440-66-6 | zinc | ACTIVE |
| 7440-69-9 | bismuth | ACTIVE |
| 7440-70-2 | calcium | ACTIVE |
| 7440-74-6 | Indium | ACTIVE |

· **Hazardous Air Pollutants**

| | |
|-----------|-----------|
| 7439-92-1 | lead |
| 7439-96-5 | manganese |
| 7440-48-4 | cobalt |

· **Proposition 65**

· **Chemicals known to cause cancer:**

| | |
|-----------|---------|
| 7439-92-1 | lead |
| 7440-02-0 | nickel |
| 7440-43-9 | cadmium |
| 7440-48-4 | cobalt |

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· **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 |

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

| | |
|-----------|---------|
| 7439-92-1 | lead |
| 7440-43-9 | cadmium |

· **Carcinogeny categories**

· **EPA (Environmental Protection Agency)**

| | | |
|-----------|-----------|-----------------------|
| 7439-92-1 | lead | B2 |
| 7439-96-5 | manganese | D |
| 7440-22-4 | silver | D |
| 7440-39-3 | barium | D, CBD(inh), NL(oral) |
| 7440-42-8 | boron | I (oral) |
| 7440-43-9 | cadmium | B1 |
| 7440-47-3 | chromium | D |
| 7440-50-8 | copper | D |
| 7440-66-6 | zinc | D, I, II |

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

| | | |
|-----------|-----------|----|
| 7429-90-5 | aluminium | A4 |
| 7439-92-1 | lead | A3 |
| 7440-02-0 | nickel | A5 |
| 7440-39-3 | barium | A4 |
| 7440-43-9 | cadmium | A2 |
| 7440-47-3 | chromium | A4 |
| 7440-48-4 | cobalt | A3 |

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

| | |
|-----------|---------|
| 7440-02-0 | nickel |
| 7440-43-9 | cadmium |

· **National regulations:**

· **Additional classification according to Decree on Hazardous Materials:**

Carcinogenic hazardous material group III (dangerous).

· **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.

Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases.

· **Water hazard class:** Generally not hazardous for water.

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· **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)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

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

BEI: Biological Exposure Limit

Pyr. Sol. 1: Pyrophoric solids – Category 1

Water-react. 1: Substances and mixtures which in contact with water emit flammable gases – Category 1

Ox. Liq. 2: Oxidizing liquids – Category 2

Acute Tox. 2: Acute toxicity – Category 2

Acute Tox. 3: Acute toxicity – Category 3

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

Resp. Sens. 1: Respiratory sensitisation – Category 1

Skin Sens. 1: Skin sensitisation – Category 1

Muta. 2: Germ cell mutagenicity – Category 2

Carc. 1B: Carcinogenicity – Category 1B

Carc. 2: Carcinogenicity – Category 2

Repr. 1A: Reproductive toxicity – Category 1A

Repr. 2: Reproductive toxicity – Category 2

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STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1

Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1

Aquatic Chronic 4: Hazardous to the aquatic environment - long-term aquatic hazard – Category 4

*** Data compared to the previous version altered.**

USA