

1 Identification of the substance/mixture and of the company/undertaking

- **Product details**
- **Trade name:** FIVE ELEMENT A/S STD CAL 4
- **Article number** N9300221
- **Application of the substance / the preparation** Laboratory chemicals
- **Manufacturer/Supplier:**
PerkinElmer Life and Analytical Sciences
710 Bridgeport Avenue
Shelton, Connecticut 06484 USA
- **Emergency information:**
CHEMTREC (within U.S.) 800 424-9300
CHEMTREC (from outside U.S.) 1(703)-572-3887

2 Composition/information on ingredients

- **Chemical characterization:**
- **CAS No. Description**
7732-18-5 Water
- **Identification number(s)**
- **EINECS Number:** 231-791-2
- **Description:** Mixture of the substances listed below with nonhazardous additions.


· **Hazardous components:**

7697-37-2	nitric acid	2.5-10%
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· **Additional Components**

7732-18-5	Water	50-100%
7440-38-2	Arsenic	< 0.1%
7440-43-9	cadmium (non-pyrophoric)	< 0.1%
7439-92-1	lead	< 0.1%
7782-49-2	selenium	< 0.1%
7440-28-0	thallium	< 0.1%

3 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**
 Corrosive
Causes burns.
- **Information concerning particular hazards for human and environment:**
The product has to be labelled due to the calculation procedure of international guidelines.
- **Classification system:**
The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.

· **Label elements**

- **Labelling according to EU guidelines:**
Observe the general safety regulations when handling chemicals.
The product has been classified and marked in accordance with directives on hazardous materials.

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· **Code letter and hazard designation of product:**



Corrosive

· **Hazard-determining components of labelling:**

nitric acid

· **Risk phrases:**

Causes burns.

· **Safety phrases:**

Keep away from combustible material.

When using do not eat or drink.

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Wear suitable protective clothing, gloves and eye/face protection.

In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

This material and its container must be disposed of as hazardous waste.

· **NFPA ratings (scale 0 - 4)**



Health = 3

Fire = 0

Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 3

Fire = 0

Reactivity = 0

4 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.

5 Firefighting measures

- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Person-related safety precautions:** Wear protective equipment. Keep unprotected persons away.
- **Measures for environmental protection:**
Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
Dilute with plenty of water.

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- Do not allow to enter sewers/ surface or ground water.
- **Measures for cleaning/collecting:**
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.

7 Handling and storage

- **Handling:**
- **Information for safe handling:**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:** No special measures required.
- **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.

8 Exposure controls/personal protection

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

- **Components with limit values that require monitoring at the workplace:**

7697-37-2 nitric acid

PEL	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

- **Additional information:** The lists that were valid during the creation were used as basis.
- **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:**
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.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

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

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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

· **Body protection:** Apron

9 Physical and chemical properties

· **General Information**

· **Appearance:**

Form: Liquid
Color: Colorless
Odor: Characteristic

· **Change in condition**

Melting point/Melting range: 0°C (32°F)
Boiling point/Boiling range: 100°C (212°F)

· **Flash point:** Not applicable.

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

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

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

· **Density at 20°C (68°F):** 1 g/cm³ (8.345 lbs/gal)

· **Solubility in / Miscibility with**

Water: Fully miscible.

· **Solvent content:**

Organic solvents: 0.0 %
Water: 94.9 %

10 Stability and reactivity

· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

· **Materials to be avoided:**

· **Dangerous reactions** No dangerous reactions known.

· **Dangerous products of decomposition:** No dangerous decomposition products known.

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11 Toxicological information

- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** Caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Corrosive
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

12 Ecological information

- **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.

13 Disposal considerations

- **Product:**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

- **DOT regulations:**



- **Hazard class:** 8
- **Identification number:** UN3264
- **Packing group:** II
- **Proper shipping name (technical name):** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
- **Label:** 8

- **Land transport ADR/RID (cross-border):**



- **ADR/RID class:** 8 Corrosive substances
- **Danger code (Kemler):** 80

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· **UN-Number:** 3264
 · **Packaging group:** II
 · **Label:** 8
 · **Description of goods:** 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)

· **Maritime transport IMDG:**



· **IMDG Class:** 8
 · **UN Number:** 3264
 · **Label:** 8
 · **Packaging group:** II
 · **EMS Number:** F-A,S-B
 · **Marine pollutant:** No
 · **Segregation groups:** Acids
 · **Propper shipping name:** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)

· **Air transport ICAO-TI and IATA-DGR:**



· **ICAO/IATA Class:** 8
 · **UN/ID Number:** 3264
 · **Label:** 8
 · **Packaging group:** II
 · **Propper shipping name:** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)

15 Regulatory information

· **Sara**

· **Section 355 (extremely hazardous substances):**

7697-37-2 nitric acid

· **Section 313 (Specific toxic chemical listings):**

7697-37-2 nitric acid

7440-38-2 Arsenic

7440-43-9 cadmium (non-pyrophoric)

7439-92-1 lead

7782-49-2 selenium

7440-28-0 thallium

· **Proposition 65**

· **Chemicals known to cause cancer:**

7440-43-9 cadmium (non-pyrophoric)

7439-92-1 lead

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· **Chemicals known to cause reproductive toxicity for females:**

7439-92-1	lead
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· **Chemicals known to cause reproductive toxicity for males:**

7440-43-9	cadmium (non-pyrophoric)
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7439-92-1	lead
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· **Chemicals known to cause developmental toxicity:**

7440-43-9	cadmium (non-pyrophoric)
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7439-92-1	lead
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· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**

7440-38-2	Arsenic	A
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7440-43-9	cadmium (non-pyrophoric)	B1
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7439-92-1	lead	B2
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7782-49-2	selenium	D
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· **IARC (International Agency for Research on Cancer)**

7440-38-2	Arsenic	1
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7440-43-9	cadmium (non-pyrophoric)	1
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7439-92-1	lead	2B
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7782-49-2	selenium	3
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· **NTP (National Toxicology Program)**

7440-38-2	Arsenic	K
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7440-43-9	cadmium (non-pyrophoric)	K
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7439-92-1	lead	R
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7782-49-2	selenium	R
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· **TLV (Threshold Limit Value established by ACGIH)**

7440-38-2	Arsenic	A1
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7440-43-9	cadmium (non-pyrophoric)	A2
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7439-92-1	lead	A3
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· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

7440-38-2	Arsenic
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7440-43-9	cadmium (non-pyrophoric)
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· **OSHA-Ca (Occupational Safety & Health Administration)**

7440-38-2	Arsenic
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7440-43-9	cadmium (non-pyrophoric)
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· **Product related hazard informations:**

Observe the general safety regulations when handling chemicals.

The product has been classified and marked in accordance with directives on hazardous materials.

· **Hazard symbols:**

Corrosive

· **Hazard-determining components of labelling:**

nitric acid

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· **Risk phrases:**

Causes burns.

· **Safety phrases:**

Keep away from combustible material.

When using do not eat or drink.

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Wear suitable protective clothing, gloves and eyeface protection.

In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

This material and its container must be disposed of as hazardous waste.

· **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 Life and Analytical Sciences shall not be held liable for any damage resulting from handling or from contact with the product.

· **Department issuing MSDS:** *Safety and Health*

· **Contact:**

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

Out side the USA: 1-(203)-712-8488

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