

according to 1907/2006/EC, Article 31

Printing date 27.07.2021

Revision: 27.07.2021

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

- **1.1 Product identifier**
- **Trade name:** TWENTY-TWO ELEMENT A/S STANDARD
- **Article number:** N9303953
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture** Laboratory chemicals
- **1.3 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

PerkinElmer, Inc.
Chalfont Road Buckinghamshire
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Llantrisant Business Park, Unit A
Llantrisant CF72 8YW
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cc.uk@perkinelmer.com
P: 44 1443 234005

- **1.4 Emergency telephone number:**
CHEMTREC (within US) 800-424-9300
CHEMTREC (from outside US) +1 703-527-3887 (call collect)
CHEMTREC (within AU) +(61)-290372994

SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS05 corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.

- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.
- **Hazard pictograms** GHS05
- **Signal word** Danger

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

Nitric Acid

· **Hazard statements**

H314 Causes severe skin burns and eye damage.

· **Precautionary statements**

P260 Do not breathe dusts or mists.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

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).

P405 Store locked up.

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

· **2.3 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.

SECTION 3: Composition/information on ingredients







· **3.2 Chemical characterisation: Mixtures**

· **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous components:**

| | | | |
|-------------------------------------|-------------|---|------|
| CAS: 7697-37-2 EINECS: 231-714-2 | Nitric Acid |  Ox. Liq. 2, H272  Skin Corr. 1A, H314 | 5.0% |
|-------------------------------------|-------------|---|------|

· **Additional Components**

| | | | |
|-------------------------------------|--|--|----------|
| CAS: 7732-18-5 EINECS: 231-791-2 | Water | | 94.6882% |
| CAS: 7439-95-4 EINECS: 231-104-6 | magnesium  Pyr. Sol. 1, H250; Water-react. 1, H260 | | 0.05% |
| CAS: 7440-09-7 EINECS: 231-119-8 | potassium  Water-react. 1, H260  Skin Corr. 1B, H314 | | 0.05% |
| CAS: 7440-23-5 EINECS: 231-132-9 | sodium  Water-react. 1, H260  Skin Corr. 1B, H314 | | 0.05% |
| CAS: 7440-70-2 EINECS: 231-179-5 | calcium  Water-react. 2, H261 | | 0.05% |
| CAS: 133-37-9 EINECS: 205-105-7 | (+)-tartaric acid | | 0.03% |
















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| CAS: 7429-90-5 EINECS: 231-072-3 | aluminium | 0.02% |
| CAS: 7440-39-3 EINECS: 231-149-1 | barium  Water-react. 2, H261 | 0.02% |
| CAS: 7439-89-6 EINECS: 231-096-4 | iron  Acute Tox. 2, H300 | 0.01% |
| CAS: 7440-36-0 EINECS: 231-146-5 | antimony | 0.006% |
| CAS: 7440-48-4 EINECS: 231-158-0 | cobalt  Resp. Sens. 1, H334  Skin Sens. 1, H317 Aquatic Chronic 4, H413 | 0.005% |
| CAS: 7440-62-2 EINECS: 231-171-1 | vanadium | 0.005% |
| CAS: 7440-02-0 EINECS: 231-111-4 | nickel  Carc. 2, H351; STOT RE 1, H372  Skin Sens. 1, H317 | 0.004% |
| CAS: 7440-50-8 EINECS: 231-159-6 | copper | 0.0025% |
| CAS: 7440-66-6 EINECS: 231-175-3 | zinc  Pyr. Sol. 1, H250; Water-react. 1, H260  Aquatic Acute 1, H400; Aquatic Chronic 1, H410 | 0.002% |
| CAS: 1317-35-7 EINECS: 215-266-5 | trimanganese tetraoxide | 0.0015% |
| CAS: 7440-22-4 EINECS: 231-131-3 | silver | 0.001% |
| CAS: 7440-28-0 EINECS: 231-138-1 | thallium  Acute Tox. 2, H300; Acute Tox. 2, H330  STOT RE 2, H373 Aquatic Chronic 4, H413 | 0.001% |
| CAS: 7440-38-2 EINECS: 231-148-6 | Arsenic  Acute Tox. 3, H301; Acute Tox. 3, H331  Aquatic Acute 1, H400; Aquatic Chronic 1, H410 | 0.001% |
| CAS: 7440-47-3 EINECS: 231-157-5 | chromium | 0.001% |
| CAS: 7440-41-7 EINECS: 231-150-7 | beryllium  Acute Tox. 3, H301; Acute Tox. 2, H330  Carc. 1B, H350i; STOT RE 1, H372  Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335 | 0.0005% |







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| | | (Contd. of page 3) |
|-------------------------------------|--|--------------------|
| CAS: 7440-43-9 EINECS: 231-152-8 | cadmium  Acute Tox. 3, H301; Acute Tox. 2, H330  Muta. 2, H341; Carc. 1B, H350; Repr. 2, H361fd; STOT RE 1, H372  Aquatic Acute 1, H400; Aquatic Chronic 1, H410 | 0.0005% |
| CAS: 7782-49-2 EINECS: 231-957-4 | selenium  Acute Tox. 3, H301; Acute Tox. 3, H331  STOT RE 2, H373 Aquatic Chronic 4, H413 | 0.0005% |
| CAS: 7439-92-1 EINECS: 231-100-4 | lead  Repr. 1A, H360FD-H362 | 0.0003% |

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

- **4.1 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 plenty of water and provide fresh air. Call for a doctor immediately.
- **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:** Use fire extinguishing methods suitable to surrounding conditions.
- **5.2 Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.
- **5.3 Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.
- **6.2 Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
- **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralising agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.

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- **6.4 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.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
- **Information about fire - and explosion protection:** Keep respiratory protective device available.
- **7.2 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 container tightly sealed.
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**
- **Additional information about design of technical facilities:** No further data; see item 7.

· **Ingredients with limit values that require monitoring at the workplace:**

7697-37-2 Nitric Acid

WEL Short-term value: 2.6 mg/m³, 1 ppm

· **Additional information:** The lists valid during the making were used as basis.

- **8.2 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.
- **Respiratory protection:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
- **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

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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 through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

SECTION 9: Physical and chemical properties

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

· **General Information**

· **Appearance:**

| | |
|---------------------------|-----------------|
| · Form: | Liquid |
| · Colour: | Dark brown |
| · Odour: | Characteristic |
| · Odour threshold: | Not determined. |

· **pH-value:** Not determined.

· **Change in condition**

| | |
|---|---------------|
| · Melting point/freezing point: | Undetermined. |
| · Initial boiling point and boiling range: | Undetermined. |

· **Flash point:** Not applicable.

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

· **Decomposition temperature:** Not determined.

· **Auto-ignition temperature:** Product is not selfigniting.

· **Explosive properties:** Product does not present an explosion hazard.
Not determined.

· **Explosion limits:**

| | |
|-----------------|-----------------|
| · Lower: | Not determined. |
| · Upper: | Not determined. |

· **Vapour pressure:** Not determined.

· **Density:** Not determined.

· **Relative density** Not determined.

· **Vapour density** Not determined.

· **Evaporation rate** Not determined.

· **Solubility in / Miscibility with water:**

Not miscible or difficult to mix.

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- | | |
|--|--|
| · Partition coefficient: n-octanol/water: | Not determined. |
| · Viscosity: | |
| Dynamic: | Not determined. |
| Kinematic: | Not determined. |
| · Solvent content: | |
| Water: | 94.7 % |
| · 9.2 Other information | No further relevant information available. |

SECTION 10: Stability and reactivity

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

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity** Based on available data, the classification criteria are not met.
- **Primary irritant effect:**
- **Skin corrosion/irritation**
Causes severe skin burns and eye damage.
- **Serious eye damage/irritation**
Causes serious eye damage.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **Additional toxicological information:**
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.

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· **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 sewage water or drainage ditch undiluted or unneutralised.*

· **12.5 Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

· **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**

· **Recommendation**

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packaging:**

· **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

· **14.1 UN-Number**

· **ADR, IMDG, IATA**

UN3264

· **14.2 UN proper shipping name**

· **ADR**

3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
(nitric acid)

· **IMDG, IATA**

CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid)

· **14.3 Transport hazard class(es)**

· **ADR**



· **Class**

8 (C1) Corrosive substances.

· **Label**

8

· **IMDG, IATA**



· **Class**

8 Corrosive substances.

· **Label**

8

· **14.4 Packing group**

· **ADR, IMDG, IATA**

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| | |
|---|--|
| · 14.5 Environmental hazards: | |
| · Marine pollutant: | No |
| · 14.6 Special precautions for user <i>Warning: Corrosive substances.</i> | |
| · Hazard identification number (Kemler code): | 80 |
| · EMS Number: | F-A,S-B |
| · Segregation groups | Acids |
| · Stowage Category | A |
| · Stowage Code | SW2 Clear of living quarters. |
| · 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code <i>Not applicable.</i> | |
| · Transport/Additional information: | |
| · ADR | |
| · Limited quantities (LQ) | 5L |
| · Excepted quantities (EQ) | Code: E1 <i>Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml</i> |
| · Transport category | 3 |
| · Tunnel restriction code | E |
| · IMDG | |
| · Limited quantities (LQ) | 5L |
| · Excepted quantities (EQ) | Code: E1 <i>Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml</i> |
| · UN "Model Regulation": | UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III |

SECTION 15: Regulatory information

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

| | | |
|-------------------------------------|--|----------|
| CAS: 7732-18-5 EINECS: 231-791-2 | Water | 94.6882% |
| CAS: 7697-37-2 EINECS: 231-714-2 | Nitric Acid  Ox. Liq. 2, H272  Skin Corr. 1A, H314 | 5.0% |
| CAS: 7439-95-4 EINECS: 231-104-6 | magnesium  Pyr. Sol. 1, H250; Water-react. 1, H260 | 0.05% |

· **Directive 2012/18/EU**

· **Named dangerous substances - ANNEX I** None of the ingredients is listed.

· **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3

· **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**

None of the ingredients is listed.

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· **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.

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

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

SECTION 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.

· **Relevant phrases**

- H250 *Catches fire spontaneously if exposed to air.*
- H260 *In contact with water releases flammable gases which may ignite spontaneously.*
- H261 *In contact with water releases flammable gases.*
- H272 *May intensify fire; oxidiser.*
- H300 *Fatal if swallowed.*
- H301 *Toxic if swallowed.*
- H314 *Causes severe skin burns and eye damage.*
- H315 *Causes skin irritation.*
- H317 *May cause an allergic skin reaction.*
- H319 *Causes serious eye irritation.*
- H330 *Fatal if inhaled.*
- H331 *Toxic if inhaled.*
- H334 *May cause allergy or asthma symptoms or breathing difficulties if inhaled.*
- H335 *May cause respiratory irritation.*
- H341 *Suspected of causing genetic defects.*
- H350 *May cause cancer.*
- H350i *May cause cancer by inhalation.*
- H351 *Suspected of causing cancer.*
- H360FD *May damage fertility. May damage the unborn child.*
- H361fd *Suspected of damaging fertility. Suspected of damaging the unborn child.*
- H362 *May cause harm to breast-fed children.*
- H372 *Causes damage to organs through prolonged or repeated exposure.*
- H373 *May cause damage to organs through prolonged or repeated exposure.*
- H400 *Very toxic to aquatic life.*
- H410 *Very toxic to aquatic life with long lasting effects.*
- H413 *May cause long lasting harmful effects to aquatic life.*

· **Department issuing SDS:**

*Environmental, Health and Safety
PerkinElmer
Chalfont Road*

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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

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

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)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

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.**