Kit Components

Product code	Description
N9307110	**Environmental EPA Set 1**

Components:

N9300200	STD-MULTI ELEMENT BE/CD/BP/MN/SE/ZN
N9300201	FIVE ELEMENT A/S STD BA/CO/CU/FE/V
N9300202	THREE ELEMENT A/S STD AS/MO/SI
N9300203	SIX ELEMENT A/S STD AL/CA/CR/NI/K/NA
N9300204	FIVE ELEMENT A/S STD SB/B/MG/AG/TL
N9300205a	INTERFERENCE CHECK 18 A/S STANDARD
N9300223	MERCURY 100 PPM A/S STANDARD
N9300208	FIVE ELEMENT A/S STD INTRER CHK
N9300207	ANTIMONY 1000 PPM A/S STANDARD
N9308571	STD NITRIC ACID BLANK 5% HNO3 500 ML
N9308572	STD HYDROCHLORIC ACID BLANK 5% HCL 500 ML

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Printing date 10/09/2020 *Review date 10/09/2020*

*
1 Identification

· **Product identifier**

· **Trade name: STD-MULTI ELEMENT BE/CD/BP/MN/SE/ZN**
· **Article number** N9300200
· **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

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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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Trade name: STD-MULTI ELEMENT BE/CD/BP/MN/SE/ZN

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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.

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3 Composition/information on ingredients

· **Chemical characterization: Substances**
· **CAS No. Description**
7732-18-5 Water
· **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%
7439-92-1	lead	Carc. 2, H351; Repr. 1A, H360	0.05%

· **Additional Components**		
7732-18-5	Water	97.885%
7782-49-2	selenium Acute Tox. 3, H301; Acute Tox. 3, H331 STOT RE 2, H373 Aquatic Chronic 4, H413	0.02%
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	0.015%
7440-66-6	zinc Water-react. 2, H261 Aquatic Acute 1, H400; Aquatic Chronic 1, H410	0.015%
7439-96-5	manganese	0.01%
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	0.005%

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Trade name: STD-MULTI ELEMENT BE/CD/BP/MN/SE/ZN

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4 First-aid measures

· **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. 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.

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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.

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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.
· **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/m³
7782-49-2	selenium	0.6 mg/m³
7440-43-9	cadmium	0.10 mg/m³
7440-66-6	zinc	6 mg/m³
7439-96-5	manganese	3 mg/m³
7440-41-7	beryllium	0.0023 mg/m³

· **PAC-2:**		
7697-37-2	Nitric Acid	24 ppm
7439-92-1	lead	120 mg/m³
7782-49-2	selenium	6.6 mg/m³

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7440-43-9	cadmium	0.76 mg/m³
7440-66-6	zinc	21 mg/m³
7439-96-5	manganese	5 mg/m³
7440-41-7	beryllium	0.025 mg/m³

· **PAC-3:**

7697-37-2	Nitric Acid	92 ppm
7439-92-1	lead	700 mg/m³
7782-49-2	selenium	40 mg/m³
7440-43-9	cadmium	4.7 mg/m³
7440-66-6	zinc	120 mg/m³
7439-96-5	manganese	1,800 mg/m³
7440-41-7	beryllium	0.1 mg/m³

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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.

· **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.

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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 constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.
At this time, the remaining constituent has no known exposure limits.

7697-37-2 Nitric Acid	
PEL	Long-term value: 5 mg/m³, 2 ppm
REL	Short-term value: 10 mg/m³, 4 ppm Long-term value: 5 mg/m³, 2 ppm
TLV	Short-term value: 10 mg/m³, 4 ppm Long-term value: 5.2 mg/m³, 2 ppm

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

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Trade name: STD-MULTI ELEMENT BE/CD/BP/MN/SE/ZN

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· **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 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

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9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	*Liquid*
Color:	*Transparent*
· **Odor:**	*Odorless*
· **Odor threshold:**	*Not determined.*
· **pH-value:**	*Not determined.*
· **Change in condition**	
Melting point/Melting range:	*0 °C (32 °F)*
Boiling point/Boiling range:	*100 °C (212 °F)*
· **Flash point:**	*Not applicable.*
· **Flammability (solid, gaseous):**	*Not applicable.*
· **Decomposition temperature:**	*Not determined.*

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Trade name: STD-MULTI ELEMENT BE/CD/BP/MN/SE/ZN

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· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard. Not determined.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17.3 mm Hg)
· **Density at 20 °C (68 °F):**	1 g/cm³ (8.345 lbs/gal)
· **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:	97.9 %
VOC content:	0.00 %
· **Other information**	No further relevant information available.

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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.

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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:

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Trade name: STD-MULTI ELEMENT BE/CD/BP/MN/SE/ZN

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Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**		
7439-92-1	lead	2B
7782-49-2	selenium	3
7440-43-9	cadmium	1
7440-41-7	beryllium	1

· **NTP (National Toxicology Program)**		
7439-92-1	lead	R
7440-43-9	cadmium	K
7440-41-7	beryllium	K

· **OSHA-Ca (Occupational Safety & Health Administration)**	
7440-43-9	cadmium

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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:**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

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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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14 Transport information

· **UN-Number**
· **DOT, ADR, IMDG, IATA** UN3264

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Trade name: STD-MULTI ELEMENT BE/CD/BP/MN/SE/ZN

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· **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*
· **Label**	*8*
· **ADR**	
	
· **Class**	*8 (C1) Corrosive substances*
· **Label**	*8*
· **IMDG, IATA**	
	
· **Class**	*8 Corrosive substances*
· **Label**	*8*
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	*III*
· **Environmental hazards:**	
· **Marine pollutant:**	*No*
· **Special precautions for user**	*Warning: Corrosive substances*
· **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.*
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	*Not applicable.*

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Trade name: STD-MULTI ELEMENT BE/CD/BP/MN/SE/ZN

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· **Transport/Additional information:**

· **DOT**
· **Quantity limitations** On passenger aircraft/rail: 5 L
On cargo aircraft only: 60 L

· **ADR**
· **Excepted quantities (EQ)** Code: E1
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 1000 ml

· **IMDG**
· **Limited quantities (LQ)** 5L
· **Excepted quantities (EQ)** Code: E1
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 1000 ml

· **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		97.885%
7697-37-2	Nitric Acid	Ox. Liq. 2, H272 Skin Corr. 1A, H314	2.0%
7439-92-1	lead	Carc. 2, H351; Repr. 1A, H360	0.05%

· **Sara**

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

7697-37-2	Nitric Acid

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

7697-37-2	Nitric Acid
7439-92-1	lead
7782-49-2	selenium
7440-43-9	cadmium
7440-66-6	zinc
7439-96-5	manganese
7440-41-7	beryllium

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

7732-18-5	Water	ACTIVE
7697-37-2	Nitric Acid	ACTIVE
7439-92-1	lead	ACTIVE
7782-49-2	selenium	ACTIVE

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Trade name: STD-MULTI ELEMENT BE/CD/BP/MN/SE/ZN

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7440-43-9	cadmium	ACTIVE
7440-66-6	zinc	ACTIVE
7439-96-5	manganese	ACTIVE
7440-41-7	beryllium	ACTIVE

· **Hazardous Air Pollutants**

7439-92-1	lead
7439-96-5	manganese

· **Proposition 65**

· **Chemicals known to cause cancer:**

7439-92-1	lead
7440-43-9	cadmium
7440-41-7	beryllium

· **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

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**

7439-92-1	lead	B2
7782-49-2	selenium	D
7440-43-9	cadmium	B1
7440-66-6	zinc	D, I, II
7439-96-5	manganese	D
7440-41-7	beryllium	B1, K/L(inh), CBD(oral)

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

7439-92-1	lead	A3
7440-43-9	cadmium	A2
7440-41-7	beryllium	A1

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

7440-43-9	cadmium
7440-41-7	beryllium

· **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.

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Trade name: STD-MULTI ELEMENT BE/CD/BP/MN/SE/ZN

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· **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.*

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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
Carc. 2: Carcinogenicity – Category 2
Repr. 1A: Reproductive toxicity – Category 1A
· *** Data compared to the previous version altered.**

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*
1 Identification

· **Product identifier**

· **Trade name: FIVE ELEMENT A/S STD BA/CO/CU/FE/V**
· **Article number** N9300201
· **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**


Corrosion

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

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

· **Hazard-determining components of labeling:**
Nitric Acid
· **Hazard statements**
H314 Causes severe skin burns and eye damage.
· **Precautionary statements**

P260	Do not breathe dusts or mists.
P264	Wash thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face 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.
P321	Specific treatment (see on this label).
P363	Wash contaminated clothing before reuse.
P405	Store locked up.

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Trade name: FIVE ELEMENT A/S STD BA/CO/CU/FE/V

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

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

Health = 3
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 3
Fire = 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: Substances**
· **CAS No. Description**
7732-18-5 Water
· **Identification number(s)**
· **EC number:** 231-791-2
· **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	5.0%
7439-89-6	iron	Acute Tox. 2, H300	1.0%

· **Additional Components**			
7732-18-5	Water		93.96%
7440-39-3	barium	Water-react. 2, H261	0.01%
7440-48-4	cobalt	Resp. Sens. 1, H334; Carc. 2, H351 Skin Sens. 1, H317 Aquatic Chronic 4, H413	0.01%
7440-50-8	copper		0.01%
7440-62-2	vanadium		0.01%

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Trade name: FIVE ELEMENT A/S STD BA/CO/CU/FE/V

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*
4 First-aid measures

· **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 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.

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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.
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).
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/m³
7440-39-3	barium	1.5 mg/m³
7440-48-4	cobalt	0.18 mg/m³
7440-50-8	copper	3 mg/m³
7440-62-2	vanadium	3 mg/m³

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· PAC-2:		
7697-37-2	Nitric Acid	24 ppm
7439-89-6	iron	35 mg/m³
7440-39-3	barium	180 mg/m³
7440-48-4	cobalt	2 mg/m³
7440-50-8	copper	33 mg/m³
7440-62-2	vanadium	5.8 mg/m³

· PAC-3:		
7697-37-2	Nitric Acid	92 ppm
7439-89-6	iron	150 mg/m³
7440-39-3	barium	1,100 mg/m³
7440-48-4	cobalt	20 mg/m³
7440-50-8	copper	200 mg/m³
7440-62-2	vanadium	35 mg/m³

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7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
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 constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.
At this time, the remaining constituent has no known exposure limits.

7697-37-2 Nitric Acid	
PEL	Long-term value: 5 mg/m³, 2 ppm
REL	Short-term value: 10 mg/m³, 4 ppm Long-term value: 5 mg/m³, 2 ppm

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TLV	Short-term value: 10 mg/m³, 4 ppm Long-term value: 5.2 mg/m³, 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.
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.
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

· **Body protection:** *Apron*

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9 Physical and chemical properties

· **Information on basic physical and chemical properties**
· **General Information**
· **Appearance:**

Form:	*Liquid*
Color:	*Transparent*
· **Odor:**	*Characteristic*
· **Odor threshold:**	*Not determined.*
· **pH-value:**	*Not determined.*

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· **Change in condition**	
Melting point/Melting range:	0 °C (32 °F)
Boiling point/Boiling range:	100 °C (212 °F)
· **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:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17.3 mm Hg)
· **Density at 20 °C (68 °F):**	1 g/cm³ (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:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Water:	94.0 %
VOC content:	0.00 %
Solids content:	1.0 %
· **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.

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11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **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:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Corrosive
Irritant
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)**		
7440-48-4	cobalt	2B

· **NTP (National Toxicology Program)**		
7440-48-4	cobalt	R

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

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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:**
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.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

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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.*

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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*
· **Label**	*8*
· **ADR**	

· **Class**	*8 (C1) Corrosive substances*
· **Label**	*8*
· **IMDG, IATA**	

· **Class**	*8 Corrosive substances*
· **Label**	*8*

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· **Packing group**	
· **DOT, ADR, IMDG, IATA**	*III*
· **Environmental hazards:**	
· **Marine pollutant:**	*No*
· **Special precautions for user**	*Warning: Corrosive substances*
· **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.*
· **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: 5 L* *On cargo aircraft only: 60 L*
· **ADR**	
· **Excepted quantities (EQ)**	*Code: E1* *Maximum net quantity per inner packaging: 30 ml* *Maximum net quantity per outer packaging: 1000 ml*
· **IMDG**	
· **Limited quantities (LQ)**	*5L*
· **Excepted quantities (EQ)**	*Code: E1* *Maximum net quantity per inner packaging: 30 ml* *Maximum net quantity per outer packaging: 1000 ml*
· **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*		*93.96%*
7697-37-2	*Nitric Acid*	*Ox. Liq. 2, H272* *Skin Corr. 1A, H314*	*5.0%*
7439-89-6	*iron*	*Acute Tox. 2, H300*	*1.0%*

· **Sara**

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

7697-37-2	*Nitric Acid*

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

7697-37-2	*Nitric Acid*
7440-39-3	*barium*

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7440-48-4	cobalt
7440-50-8	copper
7440-62-2	vanadium

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

7732-18-5	Water	ACTIVE
7697-37-2	Nitric Acid	ACTIVE
7439-89-6	iron	ACTIVE
7440-39-3	barium	ACTIVE
7440-48-4	cobalt	ACTIVE
7440-50-8	copper	ACTIVE
7440-62-2	vanadium	ACTIVE

· **Hazardous Air Pollutants**

7440-48-4	cobalt

· **Proposition 65**

· **Chemicals known to cause cancer:**

7440-48-4	cobalt

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**

7440-39-3	barium	D, CBD(inh), NL(oral)
7440-50-8	copper	D

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

7440-39-3	barium	A4
7440-48-4	cobalt	A3

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

· **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.

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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
Acute Tox. 2: Acute toxicity – 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.**

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*
1 Identification

· **Product identifier**

· **Trade name: THREE ELEMENT A/S STD AS/MO/SI**
· **Article number** N9300202
· **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: Substances**
· **CAS No. Description**
7732-18-5 Water
· **Identification number(s)**
· **EC number:** *231-791-2*
· **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%*
7664-39-3	*Hydrofluoric acid* *Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330* *Skin Corr. 1A, H314*	*0.2%*

· **Additional Components**		
7732-18-5	*Water*	*97.73%*
7440-38-2	*Arsenic* *Acute Tox. 3, H301; Acute Tox. 3, H331* *Carc. 1A, H350* *Aquatic Acute 1, H400; Aquatic Chronic 1, H410*	*0.05%*
1313-27-5	*molybdenum trioxide* *Acute Tox. 3, H301* *Carc. 2, H351* *Eye Irrit. 2A, H319; STOT SE 3, H335*	*0.01%*
7440-21-3	*silicon* *Flam. Sol. 2, H228*	*0.01%*

*
4 First-aid measures

· **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.*

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· ***After skin contact:***
Immediately wash with water and soap and rinse thoroughly.
Rub in Ca-gluconate solution or Ca-gluconate gel immediately.
· ***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.*
· ***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*
7440-38-2	*Arsenic*	*1.5 mg/m³*
1313-27-5	*molybdenum trioxide*	*2.3 mg/m³*
7440-21-3	*silicon*	*45 mg/m³*

· ***PAC-2:***		
7697-37-2	*Nitric Acid*	*24 ppm*
7440-38-2	*Arsenic*	*17 mg/m³*
1313-27-5	*molybdenum trioxide*	*43 mg/m³*
7440-21-3	*silicon*	*100 mg/m³*

· ***PAC-3:***		
7697-37-2	*Nitric Acid*	*92 ppm*
7440-38-2	*Arsenic*	*100 mg/m³*
1313-27-5	*molybdenum trioxide*	*260 mg/m³*

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7440-21-3	silicon	630 mg/m³

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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.

· **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/m³, 2 ppm
REL	Short-term value: 10 mg/m³, 4 ppm Long-term value: 5 mg/m³, 2 ppm
TLV	Short-term value: 10 mg/m³, 4 ppm Long-term value: 5.2 mg/m³, 2 ppm
7664-39-3 Hydrofluoric acid	
PEL	Long-term value: 3 ppm as F
REL	Long-term value: 2.5 mg/m³, 3 ppm Ceiling limit value: 5* mg/m³, 6* ppm *15-min, as F
TLV	Long-term value: 0.41 mg/m³, 0.5 ppm Ceiling limit value: 1.64 mg/m³, 2 ppm as F; Skin; BEI

· **Ingredients with biological limit values:**	
7664-39-3 Hydrofluoric acid	
BEI	3 mg/g creatinine Medium: urine Time: prior to shift Parameter: Flourides (background) 10 mg/g creatinine Medium: urine Time: end of shift Parameter: Flourides (background)

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· **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 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:	*Liquid*
Color:	*Transparent*
· **Odor:**	*Odorless*
· **Odor threshold:**	*Not determined.*
· **pH-value:**	*Not determined.*
· **Change in condition**	
Melting point/Melting range:	*0 °C (32 °F)*
Boiling point/Boiling range:	*100 °C (212 °F)*
· **Flash point:**	*Not applicable.*
· **Flammability (solid, gaseous):**	*Not applicable.*

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· **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:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17.3 mm Hg)
· **Density at 20 °C (68 °F):**	1 g/cm³ (8.345 lbs/gal)
· **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:	97.7 %
VOC content:	0.00 %
Solids content:	0.1 %
· **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.

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Trade name: THREE ELEMENT A/S STD AS/MO/SI

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· **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)**		
7440-38-2	Arsenic	1
1313-27-5	molybdenum trioxide	2B

· **NTP (National Toxicology Program)**		
7440-38-2	Arsenic	K

· **OSHA-Ca (Occupational Safety & Health Administration)**	
7440-38-2	Arsenic

*
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.
· **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*

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Trade name: THREE ELEMENT A/S STD AS/MO/SI

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· **UN proper shipping name**	
· **DOT**	*Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid, Hydrogen fluoride)*
· **ADR**	*3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Nitric Acid, HYDROGEN FLUORIDE)*
· **IMDG, IATA**	*CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Nitric Acid, HYDROGEN FLUORIDE)*
· **Transport hazard class(es)**	
· **DOT**	
	
· **Class**	*8 Corrosive substances*
· **Label**	*8*
· **ADR**	
	
· **Class**	*8 (C1) Corrosive substances*
· **Label**	*8*
· **IMDG, IATA**	
	
· **Class**	*8 Corrosive substances*
· **Label**	*8*
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	*III*
· **Environmental hazards:**	
· **Marine pollutant:**	*No*
· **Special precautions for user**	*Warning: Corrosive substances*
· **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.*
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	*Not applicable.*

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Trade name: THREE ELEMENT A/S STD AS/MO/SI

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· **Transport/Additional information:**

· **DOT**

· **Quantity limitations**	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· **ADR**	
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· **IMDG**	
· **Limited quantities (LQ)**	5L
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· **UN "Model Regulation":**	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID, HYDROGEN FLUORIDE), 8, III

*

15 Regulatory information

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

7732-18-5	Water	97.73%
7697-37-2	Nitric Acid Ox. Liq. 2, H272 Skin Corr. 1A, H314	2.0%
7664-39-3	Hydrofluoric acid Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330 Skin Corr. 1A, H314	0.2%

· **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
1313-27-5	molybdenum trioxide

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

7732-18-5	Water	ACTIVE
7697-37-2	Nitric Acid	ACTIVE
7440-38-2	Arsenic	ACTIVE
1313-27-5	molybdenum trioxide	ACTIVE
7440-21-3	silicon	ACTIVE

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Trade name: THREE ELEMENT A/S STD AS/MO/SI

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· **Hazardous Air Pollutants**
None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

7440-38-2	Arsenic

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**

7440-38-2	Arsenic	A

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

7440-38-2	Arsenic	A1

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

7440-38-2	Arsenic

· **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.

· **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)

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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
BEI: Biological Exposure Limit
Ox. Liq. 2: Oxidizing liquids – Category 2
Acute Tox. 2: Acute toxicity – Category 2
Acute Tox. 1: Acute toxicity – Category 1
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.***

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*
1 Identification

· **Product identifier**

· **Trade name: SIX ELEMENT A/S STD AL/CA/CR/NI/K/NA**
· **Article number** N9300203
· **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**


Corrosion

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

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

· **Hazard-determining components of labeling:**
Nitric Acid
· **Hazard statements**
H314 Causes severe skin burns and eye damage.
· **Precautionary statements**

P260	Do not breathe dusts or mists.
P264	Wash thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face 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.
P321	Specific treatment (see on this label).
P363	Wash contaminated clothing before reuse.
P405	Store locked up.

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Trade name: SIX ELEMENT A/S STD AL/CA/CR/NI/K/NA

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

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**

Health = 3
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 3
Fire = 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	5.0%

· **Additional Components**			
7732-18-5	Water		94.8934%
7440-70-2	calcium	Water-react. 2, H261	0.1%
7440-09-7	potassium	Water-react. 1, H260 Skin Corr. 1B, H314	0.004%
7440-23-5	sodium	Water-react. 1, H260 Skin Corr. 1B, H314	0.002%
7429-90-5	aluminium		0.0002%
7440-02-0	nickel	Carc. 2, H351; STOT RE 1, H372 Skin Sens. 1, H317	0.0002%
7440-47-3	chromium		0.0002%

*

4 First-aid measures

· **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.

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Trade name: SIX ELEMENT A/S STD AL/CA/CR/NI/K/NA

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· **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.
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).
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
7440-09-7	potassium	2.3 mg/m³
7440-23-5	sodium	13 mg/m³
7440-02-0	nickel	4.5 mg/m³
7440-47-3	chromium	1.5 mg/m³

· **PAC-2:**		
7697-37-2	Nitric Acid	24 ppm
7440-09-7	potassium	25 mg/m³
7440-23-5	sodium	140 mg/m³
7440-02-0	nickel	50 mg/m³

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Trade name: SIX ELEMENT A/S STD AL/CA/CR/NI/K/NA

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7440-47-3	chromium	17 mg/m³

· **PAC-3:**

7697-37-2	Nitric Acid	92 ppm
7440-09-7	potassium	150 mg/m³
7440-23-5	sodium	870 mg/m³
7440-02-0	nickel	99 mg/m³
7440-47-3	chromium	99 mg/m³

*

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
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:**

7697-37-2 Nitric Acid

PEL	Long-term value: 5 mg/m³, 2 ppm
REL	Short-term value: 10 mg/m³, 4 ppm Long-term value: 5 mg/m³, 2 ppm
TLV	Short-term value: 10 mg/m³, 4 ppm Long-term value: 5.2 mg/m³, 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.
Avoid contact with the eyes and skin.

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Trade name: SIX ELEMENT A/S STD AL/CA/CR/NI/K/NA

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· **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.
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:	*Liquid*
Color:	*Transparent*
· **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:	*100 °C (212 °F)*
· **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.*

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Trade name: SIX ELEMENT A/S STD AL/CA/CR/NI/K/NA

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· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17.3 mm Hg)
· **Density at 20 °C (68 °F):**	1 g/cm³ (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:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Water:	94.9 %
VOC content:	0.00 %
Solids content:	0.1 %
· **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:** Caustic effect on skin and mucous membranes.
· **on the eye:**
Strong caustic effect.
Strong irritant with the danger of severe eye injury.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Corrosive

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Trade name: SIX ELEMENT A/S STD AL/CA/CR/NI/K/NA

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Irritant
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)**		
7440-02-0	nickel	2B
7440-47-3	chromium	3

· **NTP (National Toxicology Program)**		
7440-02-0	nickel	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.
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.
· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

*
14 Transport information

· **UN-Number**
· **DOT, ADR, IMDG, IATA** UN3264

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Trade name: SIX ELEMENT A/S STD AL/CA/CR/NI/K/NA

(Contd. of page 7)

· **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*
· **Label**	*8*
· **ADR**	
	
· **Class**	*8 (C1) Corrosive substances*
· **Label**	*8*
· **IMDG, IATA**	
	
· **Class**	*8 Corrosive substances*
· **Label**	*8*
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	*III*
· **Environmental hazards:**	
· **Marine pollutant:**	*No*
· **Special precautions for user**	*Warning: Corrosive substances*
· **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.*
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	*Not applicable.*

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Trade name: SIX ELEMENT A/S STD AL/CA/CR/NI/K/NA

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· **Transport/Additional information:**

· **DOT**

· **Quantity limitations**	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· **ADR**	
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· **IMDG**	
· **Limited quantities (LQ)**	5L
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· **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		94.8934%
7697-37-2	Nitric Acid	Ox. Liq. 2, H272 Skin Corr. 1A, H314	5.0%
7440-70-2	calcium	Water-react. 2, H261	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
7440-02-0	nickel
7440-47-3	chromium

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

7732-18-5	Water	ACTIVE
7697-37-2	Nitric Acid	ACTIVE
7440-70-2	calcium	ACTIVE
7440-09-7	potassium	ACTIVE
7440-23-5	sodium	ACTIVE
7429-90-5	aluminium	ACTIVE
7440-02-0	nickel	ACTIVE

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Trade name: SIX ELEMENT A/S STD AL/CA/CR/NI/K/NA

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7440-47-3	chromium	ACTIVE

· **Hazardous Air Pollutants**

None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

7440-02-0	nickel

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

None of the ingredients is listed.

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

None of the ingredients is listed.

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

None of the ingredients is listed.

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**

7440-47-3	chromium	D

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

7429-90-5	aluminium	A4
7440-02-0	nickel	A5
7440-47-3	chromium	A4

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

7440-02-0	nickel

· **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.

· **Department issuing SDS:** Environmental, Health and Safety
· **Contact:**
Within the USA: 1-(800)-762-4000
Outside the USA: 1-(203)-712-8488

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Printing date 10/09/2020 *Review date 10/09/2020*

Trade name: SIX ELEMENT A/S STD AL/CA/CR/NI/K/NA

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· **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 Corr. 1B: Skin corrosion/irritation – Category 1B
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
· **** Data compared to the previous version altered.***

acc. to OSHA HCS

Printing date 10/09/2020 *Review date 10/09/2020*

*
1 Identification

· **Product identifier**

· **Trade name: FIVE ELEMENT A/S STD SB/B/MG/AG/TL**
· **Article number** N9300204
· **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**


Corrosion

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

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

· **Hazard-determining components of labeling:**
Nitric Acid
· **Hazard statements**
H314 Causes severe skin burns and eye damage.
· **Precautionary statements**

P260	Do not breathe dusts or mists.
P264	Wash thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face 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.
P321	Specific treatment (see on this label).
P363	Wash contaminated clothing before reuse.
P405	Store locked up.

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Trade name: FIVE ELEMENT A/S STD SB/B/MG/AG/TL

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

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

Health = 3
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 3
Fire = 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: Substances**
· **CAS No. Description**
7732-18-5 Water
· **Identification number(s)**
· **EC number:** *231-791-2*
· **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*	*5.0%*
7664-39-3	*Hydrofluoric acid* *Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330* *Skin Corr. 1A, H314*	*0.1%*

· **Additional Components**		
7732-18-5	*Water*	*93.95%*
133-37-9	*(+-)-tartaric acid*	*0.9%*
7439-95-4	*magnesium* *Pyr. Sol. 1, H250; Water-react. 1, H260*	*0.01%*
7440-22-4	*silver*	*0.01%*
7440-28-0	*thallium* *Acute Tox. 2, H300; Acute Tox. 2, H330* *STOT RE 2, H373* *Aquatic Chronic 4, H413*	*0.01%*

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Trade name: FIVE ELEMENT A/S STD SB/B/MG/AG/TL

(Contd. of page 2)

7440-36-0	antimony Acute Tox. 3, H311; Acute Tox. 3, H331	0.01%
10043-35-3	boric acid Repr. 1B, H360	0.01%

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4 First-aid measures

· **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.
Rub in Ca-gluconate solution or Ca-gluconate gel immediately.
· **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.

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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.

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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.
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).
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.

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Trade name: FIVE ELEMENT A/S STD SB/B/MG/AG/TL

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· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
7697-37-2	Nitric Acid	0.16 ppm
7439-95-4	magnesium	18 mg/m³
7440-22-4	silver	0.3 mg/m³
7440-28-0	thallium	0.06 mg/m³
7440-36-0	antimony	1.5 mg/m³
10043-35-3	boric acid	6 mg/m³

· **PAC-2:**		
7697-37-2	Nitric Acid	24 ppm
7439-95-4	magnesium	200 mg/m³
7440-22-4	silver	170 mg/m³
7440-28-0	thallium	3.3 mg/m³
7440-36-0	antimony	13 mg/m³
10043-35-3	boric acid	23 mg/m³

· **PAC-3:**		
7697-37-2	Nitric Acid	92 ppm
7439-95-4	magnesium	1,200 mg/m³
7440-22-4	silver	990 mg/m³
7440-28-0	thallium	20 mg/m³
7440-36-0	antimony	80 mg/m³
10043-35-3	boric acid	830 mg/m³

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7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
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.

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8 Exposure controls/personal protection

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

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Trade name: FIVE ELEMENT A/S STD SB/B/MG/AG/TL

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· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
7697-37-2 Nitric Acid	
PEL	Long-term value: 5 mg/m³, 2 ppm
REL	Short-term value: 10 mg/m³, 4 ppm Long-term value: 5 mg/m³, 2 ppm
TLV	Short-term value: 10 mg/m³, 4 ppm Long-term value: 5.2 mg/m³, 2 ppm
7664-39-3 Hydrofluoric acid	
PEL	Long-term value: 3 ppm as F
REL	Long-term value: 2.5 mg/m³, 3 ppm Ceiling limit value: 5* mg/m³, 6* ppm *15-min, as F
TLV	Long-term value: 0.41 mg/m³, 0.5 ppm Ceiling limit value: 1.64 mg/m³, 2 ppm as F; Skin; BEI

· **Ingredients with biological limit values:**	
7664-39-3 Hydrofluoric acid	
BEI	3 mg/g creatinine Medium: urine Time: prior to shift Parameter: Flourides (background) 10 mg/g creatinine Medium: urine Time: end of shift Parameter: Flourides (background)

· **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.
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

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Trade name: FIVE ELEMENT A/S STD SB/B/MG/AG/TL

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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 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

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	*Liquid*
Color:	*Transparent*
· **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:	*100 °C (212 °F)*
· **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:	*Not determined.*
Upper:	*Not determined.*
· **Vapor pressure at 20 °C (68 °F):**	*23 hPa (17.3 mm Hg)*
· **Density at 20 °C (68 °F):**	*1 g/cm³ (8.345 lbs/gal)*
· **Relative density**	*Not determined.*
· **Vapor density**	*Not determined.*

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Trade name: FIVE ELEMENT A/S STD SB/B/MG/AG/TL

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· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with**	
Water:	Fully miscible.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Water:	94.0 %
VOC content:	0.00 %
Solids content:	0.1 %
· **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:** Caustic effect on skin and mucous membranes.
· **on the eye:**
Strong caustic effect.
Strong irritant with the danger of severe eye injury.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Corrosive
Irritant
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)**
None of the ingredients is listed.

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Trade name: FIVE ELEMENT A/S STD SB/B/MG/AG/TL

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· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **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.
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.
· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

*

14 Transport information

· **UN-Number**	
· **DOT, ADR, IMDG, IATA**	UN3264
· **UN proper shipping name**	
· **DOT**	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid, Hydrogen fluoride)
· **ADR**	3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Nitric Acid, HYDROGEN FLUORIDE)
· **IMDG, IATA**	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Nitric Acid, HYDROGEN FLUORIDE)

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Trade name: FIVE ELEMENT A/S STD SB/B/MG/AG/TL

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· **Transport hazard class(es)**

· **DOT**

· **Class**	8 Corrosive substances
· **Label**	8

· **ADR**

· **Class**	8 (C1) Corrosive substances
· **Label**	8

· **IMDG, IATA**

· **Class**	8 Corrosive substances
· **Label**	8
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	III
· **Environmental hazards:**	
· **Marine pollutant:**	No
· **Special precautions for user**	Warning: Corrosive substances
· **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.
· **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: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml

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Trade name: FIVE ELEMENT A/S STD SB/B/MG/AG/TL

(Contd. of page 9)

· **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 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID, HYDROGEN FLUORIDE), 8, III

*

15 Regulatory information

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

7732-18-5	Water		93.95%
7697-37-2	Nitric Acid	Ox. Liq. 2, H272 Skin Corr. 1A, H314	5.0%
133-37-9	(+-)-tartaric acid		0.9%

· **Sara**

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

7697-37-2	Nitric Acid

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

7697-37-2	Nitric Acid
7440-22-4	silver
7440-28-0	thallium
7440-36-0	antimony

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

7732-18-5	Water	ACTIVE
7697-37-2	Nitric Acid	ACTIVE
133-37-9	(+-)-tartaric acid	ACTIVE
7439-95-4	magnesium	ACTIVE
7440-22-4	silver	ACTIVE
7440-28-0	thallium	ACTIVE
7440-36-0	antimony	ACTIVE
10043-35-3	boric acid	ACTIVE

· **Hazardous Air Pollutants**
None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

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Trade name: FIVE ELEMENT A/S STD SB/B/MG/AG/TL

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· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**

7440-22-4	silver	D
10043-35-3	boric acid	I (oral)

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

10043-35-3	boric acid	A4

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

· **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.

· **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)

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Trade name: FIVE ELEMENT A/S STD SB/B/MG/AG/TL

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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
BEI: Biological Exposure Limit
Ox. Liq. 2: Oxidizing liquids – Category 2
Acute Tox. 2: Acute toxicity – Category 2
Acute Tox. 1: Acute toxicity – Category 1
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.***

acc. to OSHA HCS

Printing date 10/09/2020 *Review date 10/09/2020*

*
1 Identification

· **Product identifier**

· **Trade name: INTERFERENCE CHECK 18 A/S STANDARD**
· **Article number** N9300205a
· **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

Carc. 1A	H350	May cause cancer.
Repr. 1A	H360-H362	May damage fertility or the unborn child. May cause harm to breast-fed children.


Corrosion

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

· **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
Arsenic
lead
potassium
· **Hazard statements**
H314 Causes severe skin burns and eye damage.
H350 May cause cancer.
H360-H362 May damage fertility or the unborn child. May cause harm to breast-fed children.
· **Precautionary statements**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.

(Contd. on page 2)

acc. to OSHA HCS

Printing date 10/09/2020 *Review date 10/09/2020*

Trade name: INTERFERENCE CHECK 18 A/S STANDARD

(Contd. of page 1)

P260	Do not breathe dusts or mists.
P263	Avoid contact during pregnancy/while nursing.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/protective clothing/eye protection/face 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).
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)**

Health = 3
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

*Health = *3*
Fire = 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.*

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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	5.0%
7440-09-7	potassium Water-react. 1, H260 Skin Corr. 1B, H314	2.0%

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7439-92-1	lead Carc. 2, H351; Repr. 1A, H360	0.1%
7440-28-0	thallium Acute Tox. 2, H300; Acute Tox. 2, H330 STOT RE 2, H373 Aquatic Chronic 4, H413	0.1%
7440-38-2	Arsenic Acute Tox. 3, H301; Acute Tox. 3, H331 Carc. 1A, H350 Aquatic Acute 1, H400; Aquatic Chronic 1, H410	0.1%

· **Additional Components**

7732-18-5	Water	92.35%
7782-49-2	selenium Acute Tox. 3, H301; Acute Tox. 3, H331 STOT RE 2, H373 Aquatic Chronic 4, H413	0.05%
7440-02-0	nickel Carc. 2, H351; STOT RE 1, H372 Skin Sens. 1, H317	0.03%
7440-22-4	silver	0.03%
7440-39-3	barium Water-react. 2, H261	0.03%
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	0.03%
7440-47-3	chromium	0.03%
7440-48-4	cobalt Resp. Sens. 1, H334; Carc. 2, H351 Skin Sens. 1, H317 Aquatic Chronic 4, H413	0.03%
7440-50-8	copper	0.03%
7440-62-2	vanadium	0.03%
7440-66-6	zinc Water-react. 2, H261 Aquatic Acute 1, H400; Aquatic Chronic 1, H410	0.03%
7439-96-5	manganese	0.02%
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	0.01%

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4 First-aid measures

· **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 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.

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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.

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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.
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).
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
7440-09-7	potassium	2.3 mg/m³
7439-92-1	lead	0.15 mg/m³
7440-28-0	thallium	0.06 mg/m³
7440-38-2	Arsenic	1.5 mg/m³
7782-49-2	selenium	0.6 mg/m³

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7440-02-0	nickel	4.5 mg/m³
7440-22-4	silver	0.3 mg/m³
7440-39-3	barium	1.5 mg/m³
7440-43-9	cadmium	0.10 mg/m³
7440-47-3	chromium	1.5 mg/m³
7440-48-4	cobalt	0.18 mg/m³
7440-50-8	copper	3 mg/m³
7440-62-2	vanadium	3 mg/m³
7440-66-6	zinc	6 mg/m³
7439-96-5	manganese	3 mg/m³
7440-41-7	beryllium	0.0023 mg/m³

· **PAC-2:**

7697-37-2	Nitric Acid	24 ppm
7440-09-7	potassium	25 mg/m³
7439-92-1	lead	120 mg/m³
7440-28-0	thallium	3.3 mg/m³
7440-38-2	Arsenic	17 mg/m³
7782-49-2	selenium	6.6 mg/m³
7440-02-0	nickel	50 mg/m³
7440-22-4	silver	170 mg/m³
7440-39-3	barium	180 mg/m³
7440-43-9	cadmium	0.76 mg/m³
7440-47-3	chromium	17 mg/m³
7440-48-4	cobalt	2 mg/m³
7440-50-8	copper	33 mg/m³
7440-62-2	vanadium	5.8 mg/m³
7440-66-6	zinc	21 mg/m³
7439-96-5	manganese	5 mg/m³
7440-41-7	beryllium	0.025 mg/m³

· **PAC-3:**

7697-37-2	Nitric Acid	92 ppm
7440-09-7	potassium	150 mg/m³
7439-92-1	lead	700 mg/m³
7440-28-0	thallium	20 mg/m³
7440-38-2	Arsenic	100 mg/m³
7782-49-2	selenium	40 mg/m³
7440-02-0	nickel	99 mg/m³
7440-22-4	silver	990 mg/m³
7440-39-3	barium	1,100 mg/m³
7440-43-9	cadmium	4.7 mg/m³

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7440-47-3	chromium	99 mg/m³
7440-48-4	cobalt	20 mg/m³
7440-50-8	copper	200 mg/m³
7440-62-2	vanadium	35 mg/m³
7440-66-6	zinc	120 mg/m³
7439-96-5	manganese	1,800 mg/m³
7440-41-7	beryllium	0.1 mg/m³

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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.

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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/m³, 2 ppm
REL	Short-term value: 10 mg/m³, 4 ppm Long-term value: 5 mg/m³, 2 ppm
TLV	Short-term value: 10 mg/m³, 4 ppm Long-term value: 5.2 mg/m³, 2 ppm
7440-38-2 Arsenic	
PEL	Long-term value: 0.5* 0.01** mg/m³ as As; *organic**inorg. compds.; 29 CFR 1910.1018
REL	Ceiling limit value: 0.002 mg/m³ as As; 15min; See Pocket Guide App. A

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TLV	*Long-term value: 0.01 mg/m³* *as As; BEI*

· **Ingredients with biological limit values:**

7440-38-2 Arsenic

BEI	*35 µg As/L* *Medium: urine* *Time: end of workweek* *Parameter: Inorganic arsenic plus methylated metabolites (background)*

· **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.
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

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9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Color:	Transparent
· **Odor:**	Characteristic
· **Odor threshold:**	Not determined.
· **pH-value at 20 °C (68 °F):**	<2
· **Change in condition**	
Melting point/Melting range:	0 °C (32 °F)
Boiling point/Boiling range:	83 °C (181.4 °F)
· **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:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17.3 mm Hg)
· **Density at 20 °C (68 °F):**	1.0698 g/cm³ (8.92748 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:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Water:	92.4 %
VOC content:	0.00 %
Solids content:	0.6 %
· **Other information**	No further relevant information available.

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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.

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11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** Strong caustic effect on skin and mucous membranes.
· **on the eye:**
Strong caustic effect.
Strong irritant with the danger of severe eye injury.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Corrosive
Irritant
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
7440-38-2	Arsenic	1
7782-49-2	selenium	3
7440-02-0	nickel	2B
7440-43-9	cadmium	1
7440-47-3	chromium	3
7440-48-4	cobalt	2B
7440-41-7	beryllium	1

· **NTP (National Toxicology Program)**		
7439-92-1	lead	R
7440-38-2	Arsenic	K
7440-02-0	nickel	R
7440-43-9	cadmium	K
7440-48-4	cobalt	R
7440-41-7	beryllium	K

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

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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:**
Do not allow product to reach ground water, water course or sewage system.
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
Danger to drinking water if even small quantities leak into the ground.
Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

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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.

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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)

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· **Transport hazard class(es)**

· **DOT**

· **Class**	*8 Corrosive substances*
· **Label**	*8*

· **ADR**

· **Class**	*8 (C1) Corrosive substances*
· **Label**	*8*

· **IMDG, IATA**

· **Class**	*8 Corrosive substances*
· **Label**	*8*

· **Packing group**	
· **DOT, ADR, IMDG, IATA**	*III*

· **Environmental hazards:**	
· **Marine pollutant:**	*No*

· **Special precautions for user**	*Warning: Corrosive substances*
· **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.*

· **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: 5 L* *On cargo aircraft only: 60 L*

· **ADR**

· **Excepted quantities (EQ)**	*Code: E1* *Maximum net quantity per inner packaging: 30 ml* *Maximum net quantity per outer packaging: 1000 ml*

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· **IMDG**	
· **Limited quantities (LQ)**	5L
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· **UN "Model Regulation":**	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

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15 Regulatory information

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

7732-18-5	Water		92.35%
7697-37-2	Nitric Acid	Ox. Liq. 2, H272 Skin Corr. 1A, H314	5.0%
7440-09-7	potassium	Water-react. 1, H260 Skin Corr. 1B, H314	2.0%

· **Sara**

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

7697-37-2	Nitric Acid

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

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

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

7732-18-5	Water	ACTIVE
7697-37-2	Nitric Acid	ACTIVE

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7440-09-7	potassium	ACTIVE
7439-92-1	lead	ACTIVE
7440-28-0	thallium	ACTIVE
7440-38-2	Arsenic	ACTIVE
7782-49-2	selenium	ACTIVE
7440-02-0	nickel	ACTIVE
7440-22-4	silver	ACTIVE
7440-39-3	barium	ACTIVE
7440-43-9	cadmium	ACTIVE
7440-47-3	chromium	ACTIVE
7440-48-4	cobalt	ACTIVE
7440-50-8	copper	ACTIVE
7440-62-2	vanadium	ACTIVE
7440-66-6	zinc	ACTIVE
7439-96-5	manganese	ACTIVE
7440-41-7	beryllium	ACTIVE

· **Hazardous Air Pollutants**

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

· **Proposition 65**

· **Chemicals known to cause cancer:**

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

· **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

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**

7439-92-1	lead	B2

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

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

7439-92-1	lead	A3
7440-38-2	Arsenic	A1
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
7440-41-7	beryllium	A1

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

7440-38-2	Arsenic
7440-02-0	nickel
7440-43-9	cadmium
7440-41-7	beryllium

· **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.
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:** Water hazard class 2 (Self-assessment): 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.

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· **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
BEI: Biological Exposure Limit
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
Carc. 1A: Carcinogenicity – Category 1A
Carc. 2: Carcinogenicity – Category 2
Repr. 1A: Reproductive toxicity – Category 1A
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.***

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Printing date 10/09/2020 *Review date 10/09/2020*

*
1 Identification

· **Product identifier**

· **Trade name: MERCURY 100 PPM A/S STANDARD**
· **Article number** N9300223
· **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**


Corrosion

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

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

· **Hazard-determining components of labeling:**
Nitric Acid
· **Hazard statements**
H314 Causes severe skin burns and eye damage.
· **Precautionary statements**

P260	Do not breathe dusts or mists.
P264	Wash thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face 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.
P321	Specific treatment (see on this label).
P363	Wash contaminated clothing before reuse.
P405	Store locked up.

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Trade name: MERCURY 100 PPM A/S STANDARD

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

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

Health = 3
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 3
Fire = 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: Substances**
· **CAS No. Description**
7732-18-5 Water
· **Identification number(s)**
· **EC number:** *231-791-2*
· **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*	*5.0%*

· **Additional Components**		
7732-18-5	*Water*	*94.99%*
7439-97-6	*mercury* *Acute Tox. 2, H330* *Repr. 1B, H360; STOT RE 1, H372* *Aquatic Acute 1, H400; Aquatic Chronic 1, H410*	*0.01%*

*
4 First-aid measures

· **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.*

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Trade name: MERCURY 100 PPM A/S STANDARD

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· **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.
· **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
7439-97-6	mercury	0.15 mg/m³

· **PAC-2:**		
7697-37-2	Nitric Acid	24 ppm
7439-97-6	mercury	1.7 mg/m³

· **PAC-3:**		
7697-37-2	Nitric Acid	92 ppm
7439-97-6	mercury	8.9 mg/m³

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7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.

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Trade name: MERCURY 100 PPM A/S STANDARD

(Contd. of page 3)

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:**	
7697-37-2 Nitric Acid	
PEL	Long-term value: 5 mg/m³, 2 ppm
REL	Short-term value: 10 mg/m³, 4 ppm Long-term value: 5 mg/m³, 2 ppm
TLV	Short-term value: 10 mg/m³, 4 ppm Long-term value: 5.2 mg/m³, 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.
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.
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.

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· **Eye protection:**

Tightly sealed goggles or safety glasses

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9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	*Liquid*
Color:	*Transparent*
· **Odor:**	*Odorless*
· **Odor threshold:**	*Not determined.*
· **pH-value:**	*Not determined.*
· **Change in condition**	
Melting point/Melting range:	*0 °C (32 °F)*
Boiling point/Boiling range:	*100 °C (212 °F)*
· **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:	*Not determined.*
Upper:	*Not determined.*
· **Vapor pressure at 20 °C (68 °F):**	*23 hPa (17.3 mm Hg)*
· **Density at 20 °C (68 °F):**	*1 g/cm³ (8.345 lbs/gal)*
· **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:	*95.0 %*

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Trade name: MERCURY 100 PPM A/S STANDARD

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VOC content:	0.00 %
· **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.

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11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **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:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Corrosive
Irritant
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)**		
7439-97-6	mercury	3

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

· **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.

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Trade name: MERCURY 100 PPM A/S STANDARD

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· **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.
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.*

*
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)* *1760 CORROSIVE LIQUID, 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*
· **Label**	*8*
· **ADR**	
· **Class**	*8 (C9) Corrosive substances*

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Trade name: MERCURY 100 PPM A/S STANDARD

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· **Label**	8
· **IMDG, IATA**	
	
· **Class**	8 Corrosive substances
· **Label**	8
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	III
· **Environmental hazards:**	
· **Marine pollutant:**	No
· **Special precautions for user**	Warning: Corrosive substances
· **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.
· **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: 5 L On cargo aircraft only: 60 L
· **ADR**	
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· **IMDG**	
· **Limited quantities (LQ)**	5L
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· **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	94.99%
7697-37-2	Nitric Acid Ox. Liq. 2, H272 Skin Corr. 1A, H314	5.0%

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Trade name: MERCURY 100 PPM A/S STANDARD

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7439-97-6	mercury Acute Tox. 2, H330 Repr. 1B, H360; STOT RE 1, H372 Aquatic Acute 1, H400; Aquatic Chronic 1, H410	0.01%

· **Sara**

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

7697-37-2	Nitric Acid

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

7697-37-2	Nitric Acid
7439-97-6	mercury

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

7732-18-5	Water	ACTIVE
7697-37-2	Nitric Acid	ACTIVE
7439-97-6	mercury	ACTIVE

· **Hazardous Air Pollutants**
None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

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

7439-97-6	mercury

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**

7439-97-6	mercury	D

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

7439-97-6	mercury	A4

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

· **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.

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Trade name: MERCURY 100 PPM A/S STANDARD

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

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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 Corr. 1B: Skin corrosion/irritation – Category 1B
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
· *** Data compared to the previous version altered.**

acc. to OSHA HCS

Printing date 10/09/2020 *Review date 10/09/2020*

*
1 Identification

· **Product identifier**

· **Trade name: FIVE ELEMENT A/S STD INTRER CHK**
· **Article number** N9300208
· **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**

Corrosion

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

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

· **Hazard-determining components of labeling:**
Nitric Acid
· **Hazard statements**
H314 Causes severe skin burns and eye damage.
· **Precautionary statements**

P260	Do not breathe dusts or mists.
P264	Wash thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face 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.
P321	Specific treatment (see on this label).
P363	Wash contaminated clothing before reuse.
P405	Store locked up.

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Trade name: FIVE ELEMENT A/S STD INTRER CHK

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

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**

Health = 3
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 3
Fire = 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: Substances**

· **CAS No. Description**

7732-18-5 Water

· **Identification number(s)**

· **EC number:** *231-791-2*

· **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*	*5.0%*
7439-89-6	*iron*	*Acute Tox. 2, H300*	*0.5%*

· **Additional Components**		
7732-18-5	*Water*	*93.38%*
7440-70-2	*calcium* *Water-react. 2, H261*	*0.6%*
7439-95-4	*magnesium* *Pyr. Sol. 1, H250; Water-react. 1, H260*	*0.3%*
7429-90-5	*aluminium*	*0.12%*
7440-23-5	*sodium* *Water-react. 1, H260* *Skin Corr. 1B, H314*	*0.1%*

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Trade name: FIVE ELEMENT A/S STD INTRER CHK

(Contd. of page 2)

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4 First-aid measures

· **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 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.
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).
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/m³
7439-95-4	magnesium	18 mg/m³
7440-23-5	sodium	13 mg/m³

· **PAC-2:**		
7697-37-2	Nitric Acid	24 ppm

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7439-89-6	iron	35 mg/m³
7439-95-4	magnesium	200 mg/m³
7440-23-5	sodium	140 mg/m³

· **PAC-3:**		
7697-37-2	Nitric Acid	92 ppm
7439-89-6	iron	150 mg/m³
7439-95-4	magnesium	1,200 mg/m³
7440-23-5	sodium	870 mg/m³

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7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
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 constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.
At this time, the remaining constituent has no known exposure limits.

7697-37-2 Nitric Acid	
PEL	Long-term value: 5 mg/m³, 2 ppm
REL	Short-term value: 10 mg/m³, 4 ppm Long-term value: 5 mg/m³, 2 ppm
TLV	Short-term value: 10 mg/m³, 4 ppm Long-term value: 5.2 mg/m³, 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.

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Wash hands before breaks and at the end of work.
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.
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

· **Body protection:** *Apron*

*

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	*Liquid*
Color:	*Transparent*
· **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:	*100 °C (212 °F)*
· **Flash point:**	*Not applicable.*
· **Flammability (solid, gaseous):**	*Not applicable.*
· **Decomposition temperature:**	*Not determined.*

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Trade name: FIVE ELEMENT A/S STD INTRER CHK

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· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard. Not determined.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17.3 mm Hg)
· **Density at 20 °C (68 °F):**	1 g/cm³ (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:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Water:	93.4 %
VOC content:	0.00 %
Solids content:	1.6 %
· **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:** Caustic effect on skin and mucous membranes.
· **on the eye:**
Strong caustic effect.
Strong irritant with the danger of severe eye injury.

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Trade name: FIVE ELEMENT A/S STD INTRER CHK

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· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Corrosive
Irritant
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)**
None of the ingredients is listed.

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

· **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.
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.
· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

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Trade name: FIVE ELEMENT A/S STD INTRER CHK

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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
· **Label**	8
· **ADR**	
· **Class**	8 (C1) Corrosive substances
· **Label**	8
· **IMDG, IATA**	
· **Class**	8 Corrosive substances
· **Label**	8
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	III
· **Environmental hazards:**	
· **Marine pollutant:**	No
· **Special precautions for user**	Warning: Corrosive substances
· **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.

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Trade name: FIVE ELEMENT A/S STD INTRER CHK

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· **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: 5 L On cargo aircraft only: 60 L
· **ADR**	
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· **IMDG**	
· **Limited quantities (LQ)**	5L
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· **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		93.38%
7697-37-2	Nitric Acid	Ox. Liq. 2, H272 Skin Corr. 1A, H314	5.0%
7440-70-2	calcium	Water-react. 2, H261	0.6%

· **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

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

7732-18-5	Water	ACTIVE
7697-37-2	Nitric Acid	ACTIVE
7440-70-2	calcium	ACTIVE
7439-89-6	iron	ACTIVE
7439-95-4	magnesium	ACTIVE
7429-90-5	aluminium	ACTIVE
7440-23-5	sodium	ACTIVE

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Trade name: FIVE ELEMENT A/S STD INTRER CHK

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· **Hazardous Air Pollutants**
None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**
None of the ingredients is listed.

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

7429-90-5	aluminium	A4

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

· **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.

· **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)

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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
Acute Tox. 2: Acute toxicity – 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.***

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*
1 Identification

· **Product identifier**

· **Trade name: ANTIMONY 1000 PPM A/S STANDARD**
· **Article number** N9300207
· **Application of the substance / the mixture** Laboratory chemicals

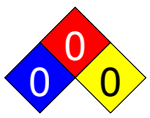
· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**

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**
The product is not classified, according to the Globally Harmonized System (GHS).

· **Label elements**
· **GHS label elements** Void
· **Hazard pictograms** Void
· **Signal word** Void
· **Hazard statements** Void
· **Classification system:**
· **NFPA ratings (scale 0 - 4)**



Health = 0
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

HEALTH	0
FIRE	0
REACTIVITY	0

Health = 0
Fire = 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.

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Trade name: ANTIMONY 1000 PPM A/S STANDARD

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*
3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.
· **Hazardous components:** Void

· **Additional Components**		
7732-18-5	Water	98.9%
147-71-7	(-)-tartaric acid Skin Irrit. 2, H315	0.6%
7697-37-2	Nitric Acid Ox. Liq. 2, H272 Skin Corr. 1A, H314	0.4%
7440-36-0	antimony Acute Tox. 3, H311; Acute Tox. 3, H331	0.1%

*
4 First-aid measures

· **Description of first aid measures**
· **General information:** No special measures required.
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:** Generally the product does not irritate the skin.
· **After eye contact:** Rinse opened eye for several minutes under running water.
· **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.
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).

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Trade name: ANTIMONY 1000 PPM A/S STANDARD

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· **Reference to other sections**
No dangerous substances are released.
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
7440-36-0	antimony	1.5 mg/m³

· **PAC-2:**		
7697-37-2	Nitric Acid	24 ppm
7440-36-0	antimony	13 mg/m³

· **PAC-3:**		
7697-37-2	Nitric Acid	92 ppm
7440-36-0	antimony	80 mg/m³

*
7 Handling and storage

· **Handling:**
· **Precautions for safe handling** *No special measures required.*
· **Information about protection against explosions and fires:** *No special measures required.*

· **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:** *None.*
· **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 product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
· **Additional information:** *The lists that were valid during the creation were used as basis.*

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
· **Breathing equipment:** *Not required.*
· **Protection of hands:**
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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Trade name: ANTIMONY 1000 PPM A/S STANDARD

(Contd. of page 3)

· **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:** Goggles recommended during refilling.

*

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Color:	Transparent
· **Odor:**	Odorless
· **Odor threshold:**	Not determined.
· **pH-value at 20 °C (68 °F):**	<4
· **Change in condition**	
Melting point/Melting range:	0 °C (32 °F)
Boiling point/Boiling range:	100 °C (212 °F)
· **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:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17.3 mm Hg)
· **Density at 20 °C (68 °F):**	1 g/cm³ (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:**	
Dynamic:	Not determined.

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Trade name: ANTIMONY 1000 PPM A/S STANDARD

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Kinematic:	Not determined.
· **Solvent content:**	
Water:	98.9 %
VOC content:	0.00 %
Solids content:	0.7 %
· **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:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product is not subject to classification according to internally approved calculation methods for preparations:
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**
None of the ingredients is listed.

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

· **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.

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Trade name: ANTIMONY 1000 PPM A/S STANDARD

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· **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.
· **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:** Smaller quantities can be disposed of with household waste.

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.
· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

*
14 Transport information

· **UN-Number** · **DOT, ADR, ADN, IMDG, IATA**	Void
· **UN proper shipping name** · **DOT, ADR, ADN, IMDG, IATA**	Void
· **Transport hazard class(es)** · **DOT, ADR, ADN, IMDG, IATA** · **Class**	Void
· **Packing group** · **DOT, ADR, IMDG, IATA**	Void
· **Environmental hazards:** · **Marine pollutant:**	No
· **Special precautions for user**	Not applicable.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **UN "Model Regulation":**	Non regulated according to above specifications. Void

*
15 Regulatory information

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

7732-18-5	Water		98.9%

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Trade name: ANTIMONY 1000 PPM A/S STANDARD

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147-71-7	(-)-tartaric acid	Skin Irrit. 2, H315	0.6%
7697-37-2	Nitric Acid	Ox. Liq. 2, H272 Skin Corr. 1A, H314	0.4%

· **Sara**

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

7697-37-2	Nitric Acid

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

7697-37-2	Nitric Acid
7440-36-0	antimony

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

7732-18-5	Water	ACTIVE
147-71-7	(-)-tartaric acid	ACTIVE
7697-37-2	Nitric Acid	ACTIVE
7440-36-0	antimony	ACTIVE

· **Hazardous Air Pollutants**
None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**
None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**
None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

· **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.

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Trade name: ANTIMONY 1000 PPM A/S STANDARD

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

*

16 Other information

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

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Printing date 10/09/2020 *Review date 10/09/2020*

*
1 Identification

· **Product identifier**

· **Trade name: STD NITRIC ACID BLANK 5% HNO3 500 ML**
· **Article number** N9308571
· **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**

Corrosion

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

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

· **Hazard-determining components of labeling:**
Nitric Acid
· **Hazard statements**
H314 Causes severe skin burns and eye damage.
· **Precautionary statements**

P260	Do not breathe dusts or mists.
P264	Wash thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face 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.
P321	Specific treatment (see on this label).
P363	Wash contaminated clothing before reuse.
P405	Store locked up.

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Trade name: STD NITRIC ACID BLANK 5% HNO3 500 ML

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

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

Health = 3
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 3
Fire = 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	5.0%

· **Additional Components**		
7732-18-5	Water	95.0%

4 First-aid measures

· **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 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.

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Trade name: STD NITRIC ACID BLANK 5% HNO3 500 ML

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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.

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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.
· **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

· **PAC-2:**		
7697-37-2	Nitric Acid	24 ppm

· **PAC-3:**		
7697-37-2	Nitric Acid	92 ppm

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7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
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.

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Trade name: STD NITRIC ACID BLANK 5% HNO3 500 ML

(Contd. of page 3)

· **Specific end use(s)** No further relevant information available.

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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/m³, 2 ppm
REL	Short-term value: 10 mg/m³, 4 ppm Long-term value: 5 mg/m³, 2 ppm
TLV	Short-term value: 10 mg/m³, 4 ppm Long-term value: 5.2 mg/m³, 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.
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.
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.

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Trade name: STD NITRIC ACID BLANK 5% HNO3 500 ML

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· **Eye protection:**

Tightly sealed goggles or safety glasses

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9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	*Liquid*
Color:	*Clear*
· **Odor:**	*Characteristic*
· **Odor threshold:**	*Not determined.*
· **pH-value:**	*Not determined.*
· **Change in condition**	
Melting point/Melting range:	*Undetermined.*
Boiling point/Boiling range:	*100 °C (212 °F)*
· **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:	*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:	*95.0 %*

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Trade name: STD NITRIC ACID BLANK 5% HNO3 500 ML

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VOC content:	0.00 %
· **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:** Caustic effect on skin and mucous membranes.
· **on the eye:**
Strong caustic effect.
Strong irritant with the danger of severe eye injury.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Corrosive
Irritant
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)**
None of the ingredients is listed.

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

· **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.

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Trade name: STD NITRIC ACID BLANK 5% HNO3 500 ML

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· **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.
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.

*

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
· **Label**	8
· **ADR**	

· **Class**	8 (C1) Corrosive substances

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Trade name: STD NITRIC ACID BLANK 5% HNO3 500 ML

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· **Label**	8
· **IMDG, IATA**	
	
· **Class**	8 Corrosive substances
· **Label**	8
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	III
· **Environmental hazards:**	
· **Marine pollutant:**	No
· **Special precautions for user**	Warning: Corrosive substances
· **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.
· **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: 5 L On cargo aircraft only: 60 L
· **ADR**	
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· **IMDG**	
· **Limited quantities (LQ)**	5L
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· **UN "Model Regulation":**	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

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15 Regulatory information

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

7732-18-5	Water		95.0%
7697-37-2	Nitric Acid	Ox. Liq. 2, H272 Skin Corr. 1A, H314	5.0%

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Trade name: STD NITRIC ACID BLANK 5% HNO3 500 ML

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· **Sara**

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

7697-37-2	Nitric Acid

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

7697-37-2	Nitric Acid

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

7732-18-5	Water	ACTIVE
7697-37-2	Nitric Acid	ACTIVE

· **Hazardous Air Pollutants**
None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**
None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**
None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

· **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

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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:**
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 Corr. 1B: Skin corrosion/irritation – Category 1B
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
· **** Data compared to the previous version altered.***

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*
1 Identification

· **Product identifier**

· **Trade name: STD HYDROCHLORIC ACID BLANK 5% HCL 500 ML**
· **Article number** N9308572
· **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**

Corrosion

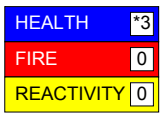
Eye Dam. 1 H318 Causes serious eye damage.

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

· **Hazard-determining components of labeling:**
Hydrochloric Acid
· **Hazard statements**
H318 Causes serious eye damage.
· **Precautionary statements**
P280 Wear eye protection / face protection.
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.
· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 3
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = *3
Fire = 0
Reactivity = 0

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Trade name: STD HYDROCHLORIC ACID BLANK 5% HCL 500 ML

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· **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; Eye Dam. 1, H318 Acute Tox. 4, H302; STOT SE 3, H335	5.0%

· **Additional Components**		
7732-18-5	Water	95.0%

*
4 First-aid measures

· **Description of first aid measures**
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:** Generally the product does not irritate the skin.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then 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**
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Dilute with plenty of water.

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Trade name: STD HYDROCHLORIC ACID BLANK 5% HCL 500 ML

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· **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.
· **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

· **PAC-2:**		
7647-01-0	Hydrochloric Acid	22 ppm

· **PAC-3:**		
7647-01-0	Hydrochloric Acid	100 ppm

*
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.

· **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/m³, 5 ppm
REL	Ceiling limit value: 7 mg/m³, 5 ppm
TLV	Ceiling limit value: 2.98 mg/m³, 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.

(Contd. on page 4)

(Contd. of page 3)

Avoid contact with the eyes.
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 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:	Liquid
Color:	Clear
· **Odor:**	Characteristic
· **Odor threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· **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.

(Contd. on page 5)

(Contd. of page 4)

· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17.3 mm Hg)
· **Density at 20 °C (68 °F):**	1.0075 g/cm³ (8.40759 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:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Water:	95.0 %
VOC content:	0.00 %
· **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:** No irritant effect.
· **on the eye:** Strong irritant with the danger of severe eye injury.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

(Contd. on page 6)

(Contd. of page 5)

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**		
7647-01-0	Hydrochloric Acid	3

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

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

None of the ingredients is listed.

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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:**
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.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

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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.

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14 Transport information

· **UN-Number**	
· **DOT, ADR, IMDG, IATA**	UN1789
· **UN proper shipping name**	
· **DOT**	Hydrochloric acid solution
· **ADR**	1789 HYDROCHLORIC ACID solution
· **IMDG, IATA**	HYDROCHLORIC ACID solution

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acc. to OSHA HCS

Printing date 10/09/2020 *Review date 10/09/2020*

Trade name: STD HYDROCHLORIC ACID BLANK 5% HCL 500 ML

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· **Transport hazard class(es)**

· **DOT**

· **Class**	8 Corrosive substances
· **Label**	8

· **ADR**

· **Class**	8 (C1) Corrosive substances
· **Label**	8

· **IMDG, IATA**

· **Class**	8 Corrosive substances
· **Label**	8
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	II
· **Environmental hazards:**	
· **Marine pollutant:**	No
· **Special precautions for user**	Warning: Corrosive substances
· **Hazard identification number (Kemler code):**	80
· **EMS Number:**	F-A,S-B
· **Segregation groups**	Strong acids
· **Stowage Category**	C
· **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

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acc. to OSHA HCS

Printing date 10/09/2020 *Review date 10/09/2020*

Trade name: STD HYDROCHLORIC ACID BLANK 5% HCL 500 ML

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· **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 1789 HYDROCHLORIC ACID SOLUTION, 8, II

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15 Regulatory information

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

7732-18-5	Water	95.0%
7647-01-0	Hydrochloric Acid Skin Corr. 1B, H314; Eye Dam. 1, H318 Acute Tox. 4, H302; STOT SE 3, H335	5.0%

· **Sara**

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

7647-01-0	Hydrochloric Acid

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

7647-01-0	Hydrochloric Acid

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

7732-18-5	Water	ACTIVE
7647-01-0	Hydrochloric Acid	ACTIVE

· **Hazardous Air Pollutants**

7647-01-0	Hydrochloric Acid

· **Proposition 65**

· **Chemicals known to cause cancer:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**
None of the ingredients is listed.

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

7647-01-0	Hydrochloric Acid	A4

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Trade name: STD HYDROCHLORIC ACID BLANK 5% HCL 500 ML

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

None of the ingredients is listed.

· **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.

· **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:**
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
Acute Tox. 4: Acute toxicity – Category 4
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
· ***** Data compared to the previous version altered.**