

Safety Data Sheet

acc. to OSHA HCS

Printing date 10/04/2017

Reviewed on 10/04/2017

1 Identification

- **Product identifier**
- **Trade name:** Multi Element Std.
100 ppm Each, Soln.
- **Article number:** AM281
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Aqua Solutions, Inc.
6913 Highway 225
DEER PARK, TX 77536
USA
800-256-2586
- **Information department:**
Technical Coordinator
Sherman Nelson sherman@aquasolutions.org
- **Emergency telephone number:**
Chemtrec: 800-424-9300
Canutec: 613-996-6666



2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS03 Flame over circle

Ox. Liq. 2 H272 May intensify fire; oxidizer.



GHS08 Health hazard

Carc. 2 H351 Suspected of causing cancer.

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



GHS05 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**



GHS03



GHS05



GHS08

- **Signal word** Danger

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

Nitric Acid

Lead Nitrate

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- **Hazard statements**

May intensify fire; oxidizer.
Causes severe skin burns and eye damage.
Suspected of causing cancer.
May damage fertility or the unborn child.

- **Precautionary statements**

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat.
Keep/Store away from clothing/combustible materials.
Take any precaution to avoid mixing with combustibles.
Do not breathe dusts or mists.
Wash thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.
If swallowed: Rinse mouth. Do NOT induce vomiting.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Get medical advice/attention.
Immediately call a POISON CENTER/doctor.
Specific treatment (see on this label).
Wash contaminated clothing before reuse.
In case of fire: Use for extinction: CO2, powder or water spray.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Classification system:**

- **NFPA ratings (scale 0 - 4)**



Health = 3
Fire = 3
Reactivity = 0

The substance possesses oxidizing properties.

- **HMIS-ratings (scale 0 - 4)**



Health = 3
Fire = 0
Reactivity = 0

- **Other hazards**

- **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.

- **Dangerous components:**

CAS: 7697-37-2	Nitric Acid	9.45%
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CAS: 10099-74-8	Lead Nitrate	0.1%
· Table of Nonhazardous Ingredients		
CAS: 16919-19-0	Ammonium hexafluorosilicate	0.123%
CAS: 1310-58-3	Potassium Hydroxide	0.054%
CAS: 13446-18-9	Magnesium Nitrate	0.053%
CAS: 28300-74-5	Antimony Potassium Tartrate Sesquihydrate	0.053%
CAS: 1327-53-3	Arsenic Trioxide	0.013%
CAS: 7789-02-8	Chromium Nitrate Nonahydrate	0.007%
CAS: 7782-61-8	Ferric Nitrate	0.007%
CAS: 471-34-1	Calcium Carbonate	0.006%
CAS: 10196-18-6	Zinc Nitrate, Reagent Grade	0.004%
CAS: 19004-19-4	Cupric Nitrate Hydrate	0.004%
CAS: 7631-99-4	Sodium Nitrate	0.004%
CAS: 13478-00-7	Nickel Nitrate, Reagent Grade, Crystal	0.001%
CAS: 7732-18-5	Water	90.121%

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.
- **Information for 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:**
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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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:**

CAS: 7697-37-2	Nitric Acid	0.16 ppm
CAS: 16919-19-0	Ammonium hexafluorosilicate	12 mg/m ³
CAS: 10099-74-8	Lead Nitrate	0.24 mg/m ³
CAS: 1310-58-3	Potassium Hydroxide	0.18 mg/m ³
CAS: 13446-18-9	Magnesium Nitrate	16 mg/m ³
CAS: 28300-74-5	Antimony Potassium Tartrate Sesquihydrate	4.1 mg/m ³
CAS: 1327-53-3	Arsenic Trioxide	0.27 mg/m ³
CAS: 7782-61-8	Ferric Nitrate	22 mg/m ³
CAS: 471-34-1	Calcium Carbonate	45 mg/m ³
CAS: 10196-18-6	Zinc Nitrate, Reagent Grade	27 mg/m ³
CAS: 19004-19-4	Cupric Nitrate Hydrate	42 mg/m ³
CAS: 7631-99-4	Sodium Nitrate	4.1 mg/m ³
CAS: 13478-00-7	Nickel Nitrate, Reagent Grade, Crystal	1.5 mg/m ³

- **PAC-2:**

CAS: 7697-37-2	Nitric Acid	24 ppm
CAS: 16919-19-0	Ammonium hexafluorosilicate	130 mg/m ³
CAS: 10099-74-8	Lead Nitrate	180 mg/m ³
CAS: 1310-58-3	Potassium Hydroxide	2 mg/m ³
CAS: 13446-18-9	Magnesium Nitrate	180 mg/m ³
CAS: 28300-74-5	Antimony Potassium Tartrate Sesquihydrate	37 mg/m ³
CAS: 1327-53-3	Arsenic Trioxide	3.0 mg/m ³
CAS: 7782-61-8	Ferric Nitrate	110 mg/m ³
CAS: 471-34-1	Calcium Carbonate	210 mg/m ³
CAS: 10196-18-6	Zinc Nitrate, Reagent Grade	300 mg/m ³
CAS: 19004-19-4	Cupric Nitrate Hydrate	150 mg/m ³
CAS: 7631-99-4	Sodium Nitrate	45 mg/m ³
CAS: 13478-00-7	Nickel Nitrate, Reagent Grade, Crystal	53 mg/m ³

- **PAC-3:**

CAS: 7697-37-2	Nitric Acid	92 ppm
CAS: 16919-19-0	Ammonium hexafluorosilicate	780 mg/m ³
CAS: 10099-74-8	Lead Nitrate	1,100 mg/m ³
CAS: 1310-58-3	Potassium Hydroxide	54 mg/m ³
CAS: 13446-18-9	Magnesium Nitrate	1,100 mg/m ³
CAS: 28300-74-5	Antimony Potassium Tartrate Sesquihydrate	220 mg/m ³
CAS: 1327-53-3	Arsenic Trioxide	9.1 mg/m ³

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**Trade name: Multi Element Std.
100 ppm Each, Soln.**

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CAS: 7782-61-8	Ferric Nitrate	640 mg/m ³
CAS: 471-34-1	Calcium Carbonate	1,300 mg/m ³
CAS: 10196-18-6	Zinc Nitrate, Reagent Grade	1,800 mg/m ³
CAS: 19004-19-4	Cupric Nitrate Hydrate	240 mg/m ³
CAS: 7631-99-4	Sodium Nitrate	270 mg/m ³
CAS: 13478-00-7	Nickel Nitrate, Reagent Grade, Crystal	320 mg/m ³

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:**

CAS: 7697-37-2 Nitric Acid

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

CAS: 10099-74-8 Lead Nitrate

PEL	Long-term value: 0.05 mg/m ³ as Pb; See 29 CFR 1910.1025
REL	Long-term value: 0.05* mg/m ³ as Pb; *8-hr TWA; See Pocket Guide App. C
TLV	Long-term value: 0.05 mg/m ³ as Pb; BEI

- **Ingredients with biological limit values:**

CAS: 10099-74-8 Lead Nitrate

BEI	30 µg/100 ml LD50 Intraperitoneal: blood Time: not critical LD50: Lead
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- **Additional information:** The lists that were valid during the creation were used as basis.

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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.
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.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

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

- **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:**



Tightly sealed goggles

- **Body protection:** Protective work clothing

9 Physical and chemical properties

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

- **General Information**

- **Appearance:**

Form:	Liquid
Color:	Clear Blue
Odor:	Odorless
Odor threshold:	Not determined.

- **pH-value at 20 °C (68 °F):** <2

- **Change in condition**

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	83 °C (181 °F)

- **Flash point:** Not applicable.

- **Flammability (solid, gaseous):** Not applicable.

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100 ppm Each, Soln.**

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· Ignition temperature:	
· Decomposition temperature:	Not determined.
· Auto igniting:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
· Vapor pressure at 20 °C (68 °F):	23 hPa (17 mm Hg)
· Density at 20 °C (68 °F):	1.03377 g/cm ³ (8.627 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:	
Organic solvents:	0.0 %
Water:	90.1 %
VOC content:	0.0 g/l / 0.00 lb/gl
Solids content:	0.4 %
· Other information	No further relevant information available.

10 Stability and reactivity

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

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· LD/LC50 values that are relevant for classification:		
ATE (Acute Toxicity Estimate)		
Oral	LD50	81500 mg/kg
Dermal	LD50	244499 mg/kg

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Inhalative	LC50/4 h	2445 mg/l
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- **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)**

CAS: 10099-74-8	Lead Nitrate	2A
CAS: 1327-53-3	Arsenic Trioxide	I
CAS: 13478-00-7	Nickel Nitrate, Reagent Grade, Crystal	I

- **NTP (National Toxicology Program)**

CAS: 10099-74-8	Lead Nitrate	R
CAS: 1327-53-3	Arsenic Trioxide	K
CAS: 13478-00-7	Nickel Nitrate, Reagent Grade, Crystal	K

- **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:**

- Water hazard class 2 (Self-assessment): hazardous for water

- 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.

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

14 Transport information

<ul style="list-style-type: none"> · UN-Number · DOT, IMDG, IATA 	<p style="margin-left: 20px;">UN1760</p>
<ul style="list-style-type: none"> · UN proper shipping name · DOT · IMDG, IATA 	<p style="margin-left: 20px;">Corrosive liquids, n.o.s. (Nitric acid) CORROSIVE LIQUID, N.O.S. (NITRIC ACID)</p>
<ul style="list-style-type: none"> · Transport hazard class(es) · DOT 	<div style="text-align: center;">  <p>CORROSIVE 8</p> </div>
<ul style="list-style-type: none"> · Class · Label 	<p style="margin-left: 20px;">8 Corrosive substances 8</p>
<ul style="list-style-type: none"> · IMDG, IATA 	<div style="text-align: center;">  <p>CORROSIVE 8</p> </div>
<ul style="list-style-type: none"> · Class · Label 	<p style="margin-left: 20px;">8 Corrosive substances 8</p>
<ul style="list-style-type: none"> · Packing group · DOT, IMDG, IATA 	<p style="margin-left: 20px;">II</p>
<ul style="list-style-type: none"> · Environmental hazards: · Marine pollutant: 	<p style="margin-left: 20px;">No</p>
<ul style="list-style-type: none"> · Special precautions for user · Danger code (Kemler): · EMS Number: · Segregation groups 	<p style="margin-left: 20px;">Warning: Corrosive substances 80 F-A,S-B Acids, heavy metals and their salts (including their organometallic compounds)</p>
<ul style="list-style-type: none"> · Stowage Category · Stowage Code 	<p style="margin-left: 20px;">B SW2 Clear of living quarters.</p>
<ul style="list-style-type: none"> · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code 	<p style="margin-left: 20px;">Not applicable.</p>

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· Transport/Additional information:

· DOT

· Quantity limitations

On passenger aircraft/rail: 1 L

On cargo aircraft only: 30 L

· 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 1760 CORROSIVE LIQUIDS, N.O.S. (NITRIC ACID), 8, II

15 Regulatory information

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

· Sara

· Section 355 (extremely hazardous substances):

CAS: 7697-37-2	Nitric Acid
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CAS: 1327-53-3	Arsenic Trioxide
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· Section 313 (Specific toxic chemical listings):

CAS: 7697-37-2	Nitric Acid
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CAS: 10099-74-8	Lead Nitrate
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CAS: 13446-18-9	Magnesium Nitrate
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CAS: 28300-74-5	Antimony Potassium Tartrate Sesquihydrate
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CAS: 1327-53-3	Arsenic Trioxide
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CAS: 7789-02-8	Chromium Nitrate Nonahydrate
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CAS: 7782-61-8	Ferric Nitrate
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CAS: 10196-18-6	Zinc Nitrate, Reagent Grade
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CAS: 13478-00-7	Nickel Nitrate, Reagent Grade, Crystal
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· TSCA (Toxic Substances Control Act):

CAS: 7697-37-2	Nitric Acid
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CAS: 16919-19-0	Ammonium hexafluorosilicate
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CAS: 10099-74-8	Lead Nitrate
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CAS: 1310-58-3	Potassium Hydroxide
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CAS: 1327-53-3	Arsenic Trioxide
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CAS: 471-34-1	Calcium Carbonate
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CAS: 7631-99-4	Sodium Nitrate
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CAS: 7732-18-5	Water
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· Proposition 65

· Chemicals known to cause cancer:

CAS: 10099-74-8	Lead Nitrate
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CAS: 1327-53-3	Arsenic Trioxide
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CAS: 13478-00-7	Nickel Nitrate, Reagent Grade, Crystal
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· **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:**

CAS: 1327-53-3 Arsenic Trioxide

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

CAS: 10099-74-8 Lead Nitrate

B2

CAS: 1327-53-3 Arsenic Trioxide

A

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

CAS: 10099-74-8 Lead Nitrate

A3

CAS: 1327-53-3 Arsenic Trioxide

A1

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

None of the ingredients is listed.

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS03

GHS05

GHS08

· **Signal word** Danger

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

Nitric Acid

Lead Nitrate

· **Hazard statements**

May intensify fire; oxidizer.

Causes severe skin burns and eye damage.

Suspected of causing cancer.

May damage fertility or the unborn child.

· **Precautionary statements**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Keep away from heat.

Keep/Store away from clothing/combustible materials.

Take any precaution to avoid mixing with combustibles.

Do not breathe dusts or mists.

Wash thoroughly after handling.

Wear protective gloves/protective clothing/eye protection/face protection.

If swallowed: Rinse mouth. Do NOT induce vomiting.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF exposed or concerned: Get medical advice/attention.

Immediately call a POISON CENTER/doctor.

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Specific treatment (see on this label).

Wash contaminated clothing before reuse.

In case of fire: Use for extinction: CO₂, powder or water spray.

Store locked up.

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

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

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Environment protection department.

· **Contact:**

· **Date of preparation / last revision**

10-04-2017: review SDS for accuracy. STN

Revision 0.0, 06-08-2015: Creation Date for SDS. STN

10/04/2017 / -

· **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)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

BEI: Biological Exposure Limit

Ox. Liq. 2: Oxidizing liquids – Category 2

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

Carc. 2: Carcinogenicity – Category 2

Repr. 1: Reproductive toxicity – Category 1