

Printing date 01/11/2019 Reviewed on 01/11/2019

1 Identification

· Product identifier

· Trade name: <u>ICP-SSWS</u> · Article number: ICP-SSWS

Details of the supplier of the safety data sheet

· Manufacturer/Supplier: High-Purity Standards P.O. Box 41727

Charleston, SC 29423 Telephone: (843) 767-7900 FAX: (843) 767-7906

· Information department: Product safety department

· Emergency telephone number:

INFOTRAC

Emergency telephone numbers 1-800-535-5053 Other emergency telephone numbers 1-352-323-3500

2 Hazard(s) identification

· Classification of the substance or mixture



GHS05 Corrosion

Met. Corr.1 H290 May be corrosive to metals.

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

Eye Dam. 1 H318 Causes serious eye damage.



Acute Tox. 4 H312 Harmful in contact with skin.

- · Label elements
- · GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms





GHS05 GHS07

- · Signal word Danger
- · Hazard-determining components of labeling:

nitric acid

Hydrofluoric acid

· Hazard statements

H290 May be corrosive to metals.

H312 Harmful in contact with skin.

H314 Causes severe skin burns and eye damage.

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· Precautionary statements

Keep only in original container.

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.

Immediately call a poison center/doctor.

Specific treatment (see on this label).

Take off contaminated clothing and wash it before reuse.

Wash contaminated clothing before reuse.

Absorb spillage to prevent material damage.

Store locked up.

Store in corrosive resistant container with a resistant inner liner.

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

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



Health = 3Fire = 0Reactivity = 0

· HMIS-ratings (scale 0 - 4)



Fire = 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: | |
|------------|--|----------------|
| 7697-37-2 | nitric acid | 2.0% |
| Chemical i | dentification of the substance/preparation | |
| 7664-39-3 | Hydrofluoric acid | 0.49% |
| 7782-49-2 | selenium | 0.02% |
| 7440-38-2 | arsenic | 0.02% |
| 7440-39-3 | barium | 0.02% |
| 7440-28-0 | thallium | 0.02% |
| | (Con | td. on page 3) |



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|---|-----------------|
| 7429-90-5 <i>aluminium</i> | 0.02% |
| 7439-89-6 iron | 0.01% |
| 7440-48-4 cobalt | 0.005% |
| 7440-02-0 nickel | 0.005% |
| 7439-92-1 lead | 0.005% |
| 7440-36-0 antimony | 0.005% |
| 7803-55-6 Ammonium Vanadate | 0.005% |
| 7440-66-6 zinc | 0.005% |
| 7439-96-5 manganese | 0.005% |
| 7440-50-8 copper | 0.0025% |
| 7440-47-3 chromium | 0.002% |
| 7440-22-4 silver | 0.0005% |
| 7440-43-9 cadmium (non-pyrophoric) | 0.0005% |
| 7440-41-7 beryllium | 0.0005% |
| 7732-18-5 water, distilled, conductivity or of similar purity | 97.359% |

4 First-aid measures

- · Description of first aid measures
- · General information:

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

- · 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

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: Do not allow to enter sewers/ surface or ground water.
- · Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

| 7697-37-2 | nitric acid | 0.16 ppm |
|-----------|--------------------------|-----------------------|
| 7664-39-3 | Hydrofluoric acid | 1.0 ppm |
| 7782-49-2 | selenium | 0.6 mg/m^3 |
| 7440-38-2 | arsenic | 1.5 mg/m^3 |
| 7440-39-3 | barium | 1.5 mg/m^3 |
| 7440-28-0 | thallium | 0.06 mg/m^3 |
| 7439-89-6 | iron | 3.2 mg/m^3 |
| 7440-48-4 | cobalt | 0.18 mg/m^3 |
| 7440-02-0 | nickel | 4.5 mg/m^3 |
| 7439-92-1 | lead | 0.15 mg/m^3 |
| 7440-36-0 | antimony | 1.5 mg/m^3 |
| 7803-55-6 | Ammonium Vanadate | 0.01 mg/m^3 |
| 7440-66-6 | zinc | 6 mg/m³ |
| 7439-96-5 | manganese | $3 mg/m^3$ |
| 7440-50-8 | copper | $3 mg/m^3$ |
| 7440-47-3 | chromium | 1.5 mg/m^3 |
| 7440-22-4 | silver | 0.3 mg/m^3 |
| 7440-43-9 | cadmium (non-pyrophoric) | 0.10 mg/m^3 |
| 7440-41-7 | beryllium | 0.0023 mg/m |
| PAC-2: | | |
| 7697-37-2 | nitric acid | 24 ppm |
| 7664-39-3 | Hydrofluoric acid | 24 ppm |
| 7782-49-2 | | 6.6 mg/m^3 |
| 7440-38-2 | arsenic | 17 mg/m³ |
| 7440-39-3 | barium | 180 mg/m³ |
| 7440-28-0 | thallium | 3.3 mg/m^3 |



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| 7.420 00 6 | (Contd. of page |
|------------------------------------|-----------------------|
| 7439-89-6 iron | 35 mg/m^3 |
| 7440-48-4 cobalt | $2 mg/m^3$ |
| 7440-02-0 nickel | 50 mg/m³ |
| 7439-92-1 lead | 120 mg/m^3 |
| 7440-36-0 antimony | 13 mg/m³ |
| 7803-55-6 Ammonium Vanadate | 0.11 mg/m^3 |
| 7440-66-6 zinc | 21 mg/m³ |
| 7439-96-5 manganese | 5 mg/m ³ |
| 7440-50-8 copper | 33 mg/m³ |
| 7440-47-3 chromium | 17 mg/m³ |
| 7440-22-4 silver | 170 mg/m^3 |
| 7440-43-9 cadmium (non-pyrophoric) | 0.76 mg/m^3 |
| 7440-41-7 beryllium | 0.025 mg/m |
| PAC-3: | ' |
| 7697-37-2 nitric acid | 92 ppm |
| 7664-39-3 Hydrofluoric acid | 44 ppm |
| 7782-49-2 selenium | 40 mg/m ³ |
| 7440-38-2 arsenic | 100 mg/m^3 |
| 7440-39-3 barium | 1,100 mg/n |
| 7440-28-0 thallium | 20 mg/m³ |
| 7439-89-6 iron | 150 mg/m³ |
| 7440-48-4 cobalt | 20 mg/m³ |
| 7440-02-0 nickel | 99 mg/m³ |
| 7439-92-1 lead | 700 mg/m³ |
| 7440-36-0 antimony | 80 mg/m³ |
| 7803-55-6 Ammonium Vanadate | 80 mg/m³ |
| 7440-66-6 zinc | 120 mg/m³ |
| 7439-96-5 manganese | 1,800 mg/m |
| 7440-50-8 copper | 200 mg/m^3 |
| 7440-47-3 chromium | 99 mg/m³ |
| 7440-22-4 silver | 990 mg/m³ |
| 7440-43-9 cadmium (non-pyrophoric) | 4.7 mg/m^3 |
| 7440-41-7 beryllium | 0.1 mg/m^3 |

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.

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- · 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.

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.

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· Eye protection:



Tightly sealed goggles

| Physical and chemical proper | ties |
|--------------------------------------|---|
| Information on basic physical and c | chemical properties |
| General Information | FF |
| Appearance: | |
| Form: | Liquid |
| Color: | Colorless |
| 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. |
| 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): | 1.01224 g/cm³ (8.44714 lbs/gal) |
| Bulk density: | 1,011 kg/m³ |
| 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/wat | er): Not determined. |
| Viscosity: | |
| Dynamic: | Not determined. |
| Kinematic: | Not determined. |

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| | | (Contd. of page |
|---------------------|--|-----------------|
| · Solvent content: | | |
| Water: | 97.4 % | |
| VOC content: | 0.00 % | |
| | 0.0 g/l / 0.00 lb/gal | |
| 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:

| · LD/LC50 | values that | are relevant | for classi | fication: |
|-----------|-------------|--------------|------------|-----------|
|-----------|-------------|--------------|------------|-----------|

7664-39-3 Hydrofluoric acid

Oral LD50 1,276 mg/kg (rat)

- 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: Harmful

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 (Inte | rnational Agency for Research on Cancer) | |
|--------------|--|-------|
| 7782-49-2 | selenium | 3 |
| 7440-38-2 | | 1 |
| 7440-48-4 | cobalt | 2B |
| 7440-02-0 | nickel | 2B |
| 7439-92-1 | lead | 2B |
| | (Contd. on p | age 9 |



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|---|-----------------|
| 7440-47-3 chromium | 3 |
| 7440-43-9 cadmium (non-pyrophoric) | 1 |
| 7440-41-7 beryllium | 1 |
| · NTP (National Toxicology Program) | |
| 7440-38-2 arsenic | K |
| 7440-48-4 cobalt | R |
| 7440-02-0 nickel | R |
| 7439-92-1 lead | R |
| 7440-43-9 cadmium (non-pyrophoric) | K |
| 7440-41-7 beryllium | K |
| OSHA-Ca (Occupational Safety & Health Administration) | |
| 7440-38-2 arsenic | |
| 7440-43-9 cadmium (non-pyrophoric) | |

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 1 (Self-assessment): slightly hazardous for water

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:

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.

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| UN-Number DOT, ADR, IMDG, IATA | UN3264 |
|--|---|
| UN proper shipping name | |
| DOT | Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid, Hydrog |
| | fluoride) |
| ADR | 3264 Corrosive liquid, acidic, inorganic, n.o.s. (Nitric ac |
| IMDC LATA | Hydrogen fluoride) |
| IMDG, IATA | CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITR ACID, HYDROGEN FLUORIDE) |
| Transport hazard class(es) | · · · · · · · · · · · · · · · · · · · |
| DOT | |
| <u> </u> | |
| | |
| CORROSIVE | |
| 8 | |
| Class | 8 Corrosive substances |
| Label | 8 |
| Class | 8 Corrosive substances |
| Label | 8 |
| Packing group | |
| DOT, ADR, IMDG, IATA | III |
| Environmental hazards: | Not applicable. |
| | |
| Special precautions for user Danger code (Kemler): | Warning: Corrosive substances 80 |
| EMS Number: | 60 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 | |
| DOT Quantity limitations | On passenger aircraft/rail: 5 L |



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| · 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. (NITRIC ACID, HYDROGEN FLUORIDE), 8, III |

15 Regulatory information

All ingredients are listed.

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

| | 5 (extremely hazardous substances): nitric acid |
|-------------|---|
| | |
| | Hydrofluoric acid |
| Section 31. | 3 (Specific toxic chemical listings): |
| 7697-37-2 | nitric acid |
| 7664-39-3 | Hydrofluoric acid |
| 7782-49-2 | selenium |
| 7440-38-2 | arsenic |
| 7440-39-3 | barium |
| 7440-28-0 | thallium |
| 7429-90-5 | aluminium |
| 7440-48-4 | cobalt |
| 7440-02-0 | nickel |
| 7439-92-1 | lead |
| 7440-36-0 | antimony |
| 7803-55-6 | Ammonium Vanadate |
| 7440-66-6 | zinc |
| | manganese |
| 7440-50-8 | copper |
| 7440-47-3 | chromium |
| 7440-22-4 | silver |
| 7440-43-9 | cadmium (non-pyrophoric) |
| 7440-41-7 | bervllium |

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(Contd. of page 11) · Proposition 65 · Chemicals known to cause cancer: 7440-38-2 arsenic 7440-48-4 cobalt 7440-02-0 nickel 7439-92-1 lead 7440-43-9 cadmium (non-pyrophoric) 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 (non-pyrophoric) · Chemicals known to cause developmental toxicity: 7439-92-1 lead 7440-43-9 cadmium (non-pyrophoric) Carcinogenic categories · EPA (Environmental Protection Agency) (Substances not listed) 7697-37-2 nitric acid 7664-39-3 Hydrofluoric acid 7440-28-0 thallium 7429-90-5 aluminium 7439-89-6 iron 7440-48-4 cobalt 7440-02-0 nickel 7440-36-0 antimony 7803-55-6 Ammonium Vanadate 7732-18-5 water, distilled, conductivity or of similar purity · TLV (Threshold Limit Value established by ACGIH) 7440-38-2 arsenic A17440-39-3 barium A47429-90-5 aluminium A47440-48-4 cobalt A37440-02-0 nickel A57439-92-1 lead A3 7440-47-3 chromium A47440-43-9 cadmium (non-pyrophoric) A27440-41-7 beryllium AI· NIOSH-Ca (National Institute for Occupational Safety and Health) 7440-38-2 arsenic

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| | (Conta. of page 12) |
|-----------|--------------------------|
| 7440-02-0 | nickel |
| 7440-43-9 | cadmium (non-pyrophoric) |
| 7440-41-7 | beryllium |

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

· Hazard pictograms





GHS05 GHS07

- · Signal word Danger
- · Hazard-determining components of labeling:

nitric acid

Hydrofluoric acid

· Hazard statements

H290 May be corrosive to metals.

H312 Harmful in contact with skin.

H314 Causes severe skin burns and eye damage.

· Precautionary statements

Keep only in original container.

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.

Immediately call a poison center/doctor.

Specific treatment (see on this label).

Take off contaminated clothing and wash it before reuse.

Wash contaminated clothing before reuse.

Absorb spillage to prevent material damage.

Store locked up.

Store in corrosive resistant container with a resistant inner liner.

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:

High-Purity Standards Tel: 843-767-7900 Fax: 843-767-7906

· Date of preparation / last revision 01/11/2019 / -

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· 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

Met. Corr.1: Corrosive to metals - Category 1

Acute Tox. 4: Acute toxicity - Category 4

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

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

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