

# Safety Data Sheet

acc. to OSHA HCS

Printing date 06/06/2024

Reviewed on 06/06/2024

## 1 Identification

- **Product identifier**
- **Trade name:** 5.0 mg/L 12 Component  
Mixed Metal Working Solution
- **Article number:** SGS068
- **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 shermann@aquasolutions.org
- **Emergency telephone number:**  
Chemtrec: 800-424-9300  
Canutec: 613-996-6666



## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS08 Health hazard

Specific Target Organ Toxicity - Repeated Exposure 2 H373 May cause damage to organs through prolonged or repeated exposure.



GHS05 Corrosion

Skin Corrosion 1A

H314 Causes severe skin burns and eye damage.

Eye Damage 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:**  
Hydrochloric Acid
- **Hazard statements**  
Causes severe skin burns and eye damage.  
May cause damage to organs through prolonged or repeated exposure.
- **Precautionary statements**  
Do not breathe dusts or mists.  
Wash thoroughly after handling.

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*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).*

*Get medical advice/attention if you feel unwell.*

*Wash contaminated clothing before reuse.*

*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 = 0

Reactivity = 0

· **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: 7647-01-0	Hydrochloric Acid	2.351%
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· **Table of Nonhazardous Ingredients**

CAS: 7732-18-5	Water	96.949%
CAS: 12007-60-2	Lithium Tetraborate, Reagent	0.359%
CAS: 87-69-4	L-Tartaric Acid	0.249%
CAS: 7789-24-4	Lithium Fluoride	0.04%
CAS: 7697-37-2	Nitric Acid	0.025%
CAS: 7784-27-2	Aluminum Nitrate	0.007%
CAS: 13446-18-9	Magnesium Nitrate	0.005%
CAS: 7782-61-8	Ferric Nitrate	0.004%
CAS: 16919-19-0	Ammonium hexafluorosilicate	0.003%
CAS: 7722-76-1	Ammonium Phosphate Monobasic	0.002%
CAS: 7631-99-4	Sodium Nitrate	0.002%
CAS: 7757-79-1	Potassium Nitrate	0.001%

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CAS: 471-34-1	Calcium Carbonate	0.001%
CAS: 1314-62-1	Vanadium Pentoxide Reagent	0.001%
CAS: 10099-74-8	Lead Nitrate	0.001%
CAS: 7440-02-0	Nickel Metal	0.001%
CAS: 7440-66-6	Zinc Metal	0.001%

## 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.

## 6 Accidental release measures

### · Personal precautions, protective equipment and emergency procedures

Mount respiratory protective device.

Wear protective equipment. Keep unprotected persons away.

### · Environmental precautions: 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 section 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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**· Protective Action Criteria for Chemicals**

**· PAC-1:**

CAS: 7647-01-0	Hydrochloric Acid	1.8 ppm
CAS: 12007-60-2	Lithium Tetraborate, Reagent	4.3 mg/m <sup>3</sup>
CAS: 87-69-4	L-Tartaric Acid	1.6 mg/m <sup>3</sup>
CAS: 7789-24-4	Lithium Fluoride	10 mg/m <sup>3</sup>
CAS: 7697-37-2	Nitric Acid	0.16 ppm
CAS: 7784-27-2	Aluminum Nitrate	83 mg/m <sup>3</sup>
CAS: 13446-18-9	Magnesium Nitrate	16 mg/m <sup>3</sup>
CAS: 7782-61-8	Ferric Nitrate	22 mg/m <sup>3</sup>
CAS: 16919-19-0	Ammonium hexafluorosilicate	12 mg/m <sup>3</sup>
CAS: 7722-76-1	Ammonium Phosphate Monobasic	17 mg/m <sup>3</sup>
CAS: 7631-99-4	Sodium Nitrate	4.1 mg/m <sup>3</sup>
CAS: 7757-79-1	Potassium Nitrate	9 mg/m <sup>3</sup>
CAS: 471-34-1	Calcium Carbonate	45 mg/m <sup>3</sup>
CAS: 1314-62-1	Vanadium Pentoxide Reagent	0.64 mg/m <sup>3</sup>
CAS: 10099-74-8	Lead Nitrate	0.24 mg/m <sup>3</sup>
CAS: 7440-02-0	Nickel Metal	4.5 mg/m <sup>3</sup>
CAS: 7440-66-6	Zinc Metal	6 mg/m <sup>3</sup>

**· PAC-2:**

CAS: 7647-01-0	Hydrochloric Acid	22 ppm
CAS: 12007-60-2	Lithium Tetraborate, Reagent	47 mg/m <sup>3</sup>
CAS: 87-69-4	L-Tartaric Acid	17 mg/m <sup>3</sup>
CAS: 7789-24-4	Lithium Fluoride	110 mg/m <sup>3</sup>
CAS: 7697-37-2	Nitric Acid	24 ppm
CAS: 7784-27-2	Aluminum Nitrate	920 mg/m <sup>3</sup>
CAS: 13446-18-9	Magnesium Nitrate	180 mg/m <sup>3</sup>
CAS: 7782-61-8	Ferric Nitrate	110 mg/m <sup>3</sup>
CAS: 16919-19-0	Ammonium hexafluorosilicate	130 mg/m <sup>3</sup>
CAS: 7722-76-1	Ammonium Phosphate Monobasic	190 mg/m <sup>3</sup>
CAS: 7631-99-4	Sodium Nitrate	45 mg/m <sup>3</sup>
CAS: 7757-79-1	Potassium Nitrate	100 mg/m <sup>3</sup>
CAS: 471-34-1	Calcium Carbonate	210 mg/m <sup>3</sup>
CAS: 1314-62-1	Vanadium Pentoxide Reagent	7 mg/m <sup>3</sup>
CAS: 10099-74-8	Lead Nitrate	180 mg/m <sup>3</sup>
CAS: 7440-02-0	Nickel Metal	50 mg/m <sup>3</sup>
CAS: 7440-66-6	Zinc Metal	21 mg/m <sup>3</sup>

**· PAC-3:**

CAS: 7647-01-0	Hydrochloric Acid	100 ppm
CAS: 12007-60-2	Lithium Tetraborate, Reagent	280 mg/m <sup>3</sup>
CAS: 87-69-4	L-Tartaric Acid	100 mg/m <sup>3</sup>
CAS: 7789-24-4	Lithium Fluoride	680 mg/m <sup>3</sup>

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CAS: 7697-37-2	Nitric Acid	92 ppm
CAS: 7784-27-2	Aluminum Nitrate	5,500 mg/m <sup>3</sup>
CAS: 13446-18-9	Magnesium Nitrate	1,100 mg/m <sup>3</sup>
CAS: 7782-61-8	Ferric Nitrate	640 mg/m <sup>3</sup>
CAS: 16919-19-0	Ammonium hexafluorosilicate	780 mg/m <sup>3</sup>
CAS: 7722-76-1	Ammonium Phosphate Monobasic	1,100 mg/m <sup>3</sup>
CAS: 7631-99-4	Sodium Nitrate	270 mg/m <sup>3</sup>
CAS: 7757-79-1	Potassium Nitrate	600 mg/m <sup>3</sup>
CAS: 471-34-1	Calcium Carbonate	1,300 mg/m <sup>3</sup>
CAS: 1314-62-1	Vanadium Pentoxide Reagent	70 mg/m <sup>3</sup>
CAS: 10099-74-8	Lead Nitrate	1,100 mg/m <sup>3</sup>
CAS: 7440-02-0	Nickel Metal	99 mg/m <sup>3</sup>
CAS: 7440-66-6	Zinc Metal	120 mg/m <sup>3</sup>

## 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 section 7.
- **Control parameters**

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

**CAS: 7647-01-0 Hydrochloric Acid**

NIOSH RECOMENDED EXP LIM	Ceiling limit value: 7.0 mg/m <sup>3</sup> mg/m <sup>3</sup>
PEL	Ceiling limit value: 7 mg/m <sup>3</sup> , 5 ppm
REL	Ceiling limit value: 7 mg/m <sup>3</sup> , 5 ppm
TLV	Ceiling limit value: 2 ppm
	A4

- **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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**Trade name: 5.0 mg/L 12 Component  
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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.

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 to pale green
Odor:	Odorless
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:	100 °C (212 °F)

· **Flash point:** Not applicable.

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

· **Decomposition temperature:** Not determined.

· **Ignition temperature:** Product is not selfigniting.

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· <b>Danger of explosion:</b>	Product does not present an explosion hazard.
· <b>Explosion limits:</b>	
<b>Lower:</b>	Not determined.
<b>Upper:</b>	Not determined.
· <b>Vapor pressure at 20 °C (68 °F):</b>	23 hPa (17.3 mm Hg)
· <b>Density at 20 °C (68 °F):</b>	1.00382 g/cm <sup>3</sup> (8.37688 lbs/gal)
· <b>Relative density</b>	Not determined.
· <b>Vapor density</b>	Not determined.
· <b>Evaporation rate</b>	Not determined.
· <b>Solubility in / Miscibility with     Water:</b>	Fully miscible.
· <b>Partition coefficient (n-octanol/water):</b>	Not determined.
· <b>Viscosity:</b>	
<b>Dynamic:</b>	Not determined.
<b>Kinematic:</b>	Not determined.
· <b>Solvent content:</b>	
<b>Water:</b>	96.9 %
<b>VOC content:</b>	0.00 %
	0.0 g/l / 0.00 lb/gal
<b>Solids content:</b>	0.6 %
· <b>Other information</b>	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:** 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

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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)

CAS: 7789-24-4	Lithium Fluoride	3
CAS: 1314-62-1	Vanadium Pentoxide Reagent	2B
CAS: 10099-74-8	Lead Nitrate	2A
CAS: 7440-02-0	Nickel Metal	2B

### · NTP (National Toxicology Program)

CAS: 10099-74-8	Lead Nitrate	R
CAS: 7440-02-0	Nickel Metal	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:

Not hazardous for water.

Must not reach bodies of water or drainage ditch undiluted or unneutralized.

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.

## 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.

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## 14 Transport information

· UN-Number	
· DOT, IMDG, IATA	Not regulated
· UN proper shipping name	
· DOT, IMDG, IATA	Not regulated
· Transport hazard class(es)	
· DOT, ADN, IMDG, IATA	
· Class	Not regulated
· Packing group	
· DOT, IMDG, IATA	Not regulated
· Environmental hazards:	Not applicable.
· 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":	Not regulated

## 15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture  
No further relevant information available.
- Sara

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

CAS: 7697-37-2	Nitric Acid
CAS: 1314-62-1	Vanadium Pentoxide Reagent

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

CAS: 7697-37-2	Nitric Acid
CAS: 7784-27-2	Aluminum Nitrate
CAS: 13446-18-9	Magnesium Nitrate
CAS: 7782-61-8	Ferric Nitrate
CAS: 7757-79-1	Potassium Nitrate
CAS: 1314-62-1	Vanadium Pentoxide Reagent
CAS: 10099-74-8	Lead Nitrate
CAS: 7440-02-0	Nickel Metal
CAS: 7440-66-6	Zinc Metal

### · TSCA (Toxic Substances Control Act):

Water	ACTIVE
Hydrochloric Acid	ACTIVE
Lithium Tetraborate, Reagent	ACTIVE
L-Tartaric Acid	ACTIVE
Lithium Fluoride	ACTIVE
Nitric Acid	ACTIVE

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Ammonium hexafluorosilicate	ACTIVE
Ammonium Phosphate Monobasic	ACTIVE
Sodium Nitrate	ACTIVE
Potassium Nitrate	ACTIVE
Calcium Carbonate	ACTIVE
Vanadium Pentoxide Reagent	ACTIVE
Lead Nitrate	ACTIVE
Nickel Metal	ACTIVE
Zinc Metal	ACTIVE

· **Hazardous Air Pollutants**

CAS: 7647-01-0	Hydrochloric Acid
CAS: 10099-74-8	Lead Nitrate

· **Proposition 65**

· **Chemicals known to cause cancer:**

CAS: 1314-62-1	Vanadium Pentoxide Reagent
CAS: 10099-74-8	Lead Nitrate
CAS: 7440-02-0	Nickel Metal

· **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.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

CAS: 12007-60-2	Lithium Tetraborate, Reagent	I (oral)
CAS: 10099-74-8	Lead Nitrate	B2
CAS: 7440-66-6	Zinc Metal	D, I, II

· **TLV (Threshold Limit Value)**

CAS: 7789-24-4	Lithium Fluoride	A4
CAS: 1314-62-1	Vanadium Pentoxide Reagent	A3
CAS: 10099-74-8	Lead Nitrate	A3
CAS: 7440-02-0	Nickel Metal	A5

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

CAS: 7440-02-0	Nickel Metal
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· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



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- **Signal word** *Danger*
- **Hazard-determining components of labeling:**  
*Hydrochloric Acid*
- **Hazard statements**  
*Causes severe skin burns and eye damage.*  
*May cause damage to organs through prolonged or repeated exposure.*
- **Precautionary statements**  
*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).*  
*Get medical advice/attention if you feel unwell.*  
*Wash contaminated clothing before reuse.*  
*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:*
- **Date of preparation / last revision**  
*Revision 1.2, 06/05/2024: Reviewed SDS for accuracy. MH/STN*  
*Revision 0.0, 05-29-2024: Creation date for SDS. STN*  
*06/06/2024*
- **Abbreviations and acronyms:**  
*IMDG: International Maritime Code for Dangerous Goods*  
*DOT: US Department of Transportation*  
*IATA: International Air Transport Association*  
*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*  
*Skin Corrosion 1A: Skin corrosion/irritation – Category 1A*  
*Eye Damage 1: Serious eye damage/eye irritation – Category 1*  
*Specific Target Organ Toxicity - Repeated Exposure 2: Specific target organ toxicity (repeated exposure) – Category 2*
- **\* Data compared to the previous version altered.**