

### Safety Data Sheet acc. to OSHA HCS (HazCom 2012)

Printing date 04/22/2024

Reviewed on 04/19/2024

## 1 Identification

- **Product identifier**
- **Trade name: Molybdate No.1 HR**
- **Catalogue number:** 00513061, 4513060BT, 4513061BT, 00513069BT, 513060BT, 513061BT
- **Application of the substance / the mixture:** Reagent for water analysis
- **Manufacturer/Supplier:**  
Tintometer Inc.  
6456 Parkland Drive  
Sarasota, FL 34243  
USA  
phone: (941) 756-6410  
fax: (941) 727-9654  
www.lovibond.us  
Made in Germany
- **Emergency telephone number:** + 1 866 928 0789 (English, French, Spanish)

## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS08 Health hazard

Sensitization - Respiratory 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.



GHS05 Corrosion

Eye Damage 1 H318 Causes serious eye damage.



GHS07

Sensitization - Skin 1 H317 May cause an allergic skin reaction.

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Hazard Communication Standard (HCS).
- **Hazard pictograms**



GHS05



GHS08

- **Signal word** Danger
- **Hazard-determining components of labeling:**  
sodium bisulfate  
potassium persulphate
- **Hazard statements**  
H318 Causes serious eye damage.  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H317 May cause an allergic skin reaction.
- **Precautionary statements**  
P261 Avoid breathing dust.  
P280 Wear protective gloves/protective clothing/eye protection.  
P302+P352 If on skin: Wash with plenty of soap and water.

(Contd. on page 2)

US

# Safety Data Sheet

## acc. to OSHA HCS (HazCom 2012)

Printing date 04/22/2024

Reviewed on 04/19/2024

Trade name: **Molybdate No.1 HR**

(Contd. of page 1)

- 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 doctor.
- **Other hazards** No further relevant information available.

### \* 3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture of organic and inorganic compounds
- **Composition and Information on Ingredients:**  
Percent ranges are used due to the confidential product information.

CAS: 7757-82-6 EINECS: 231-820-9	sodium sulphate	30–40%
CAS: 124-04-9 EINECS: 204-673-3 Index number: 607-144-00-9 RTECS: AU 8400000	adipic acid ⚠ Eye Irritation 2A, H319	25–35%
CAS: 7681-38-1 EINECS: 231-665-7 Index number: 016-046-00-X RTECS: VZ1860000	sodium bisulfate ⚠ Eye Damage 1, H318	10–20%
CAS: 7727-21-1 EINECS: 231-781-8 Index number: 016-061-00-1 RTECS: SE0400000	potassium persulphate ⚠ Oxidizing Solids 3, H272; ⚠ Sensitization - Respiratory 1, H334; ⚠ Acute Toxicity - Oral 4, H302; Skin Irritation 2, H315; Eye Irritation 2A, H319; Sensitization - Skin 1, H317; Specific Target Organ Toxicity - Single Exposure 3, H335	2.5–5%

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

### 4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** Supply fresh air or oxygen; call for doctor.
- **After skin contact:**  
Immediately wash with water and soap and rinse thoroughly.  
If skin irritation continues, consult a doctor.
- **After eye contact:**  
Rinse opened eye for several minutes (at least 15 min) under running water.  
Call a doctor immediately.
- **After swallowing:**  
Rinse out mouth and then drink 1-2 glasses of water.  
Seek medical treatment in case of complaints.
- **Most important symptoms and effects, both acute and delayed**  
burns  
allergic reactions  
after inhalation:  
irritations  
coughing  
breathing difficulty  
after swallowing of large amounts:  
thirst  
gastric or intestinal disorders  
sickness  
vomiting  
diarrhoea  
cardiovascular disorders
- **Danger:**  
Danger of pulmonary edema.  
risk of airways sensitization

(Contd. on page 3)

US

# Safety Data Sheet

## acc. to OSHA HCS (HazCom 2012)

Printing date 04/22/2024

Reviewed on 04/19/2024

Trade name: **Molybdate No.1 HR**

(Contd. of page 2)

· **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**  
The product is not combustible.  
Formation of toxic gases is possible during heating or in case of fire.  
In case of fire, the following can be released:  
Sulfur oxides (SO<sub>x</sub>)  
Nitrogen oxides (NO<sub>x</sub>)  
Sodium oxide  
Carbon monoxide (CO) and carbon dioxide (CO<sub>2</sub>)
- **Advice for firefighters**
- **Protective equipment:**  
Wear self-contained respiratory protective device.  
Wear fully protective suit.
- **Additional information**  
Collect contaminated fire fighting water separately. It must not enter the sewage system.  
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.  
Ambient fire may liberate hazardous vapours.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
- **Advice for non-emergency personnel:**  
Wear protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation  
Avoid breathing dust.
- **Advice for emergency responders:** Protective equipment: see section 8
- **Environmental precautions:** Do not allow product to reach sewage system or any water course.
- **Methods and material for containment and cleaning up:**  
Ensure adequate ventilation.  
Pick up mechanically.  
Dispose contaminated material as waste according to section 13.
- **Reference to other sections**  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

### \* 7 Handling and storage

- **Precautions for safe handling**
- **Advice on safe handling:** No special precautions are necessary if used correctly.
- **Hygiene measures:**  
Do not inhale dust / smoke / mist.  
Avoid contact with the skin.  
Avoid contact with the eyes.  
Take off immediately all contaminated clothing.  
Wash hands before breaks and at the end of work.  
Do not eat, drink or smoke when using this product.
- **Conditions for safe storage, including any incompatibilities**
- **Requirements to be met by storerooms and receptacles:**  
Store in a cool location.  
Unsuitable material for receptacle: steel.
- **Information about storage in one common storage facility:** Store away from oxidizing agents.
- **Further information about storage conditions:**  
Protect from heat and direct sunlight.  
Store in cool, dry conditions in well sealed receptacles.  
Protect from exposure to the light.  
Protect from humidity and water.

(Contd. on page 4)

— US —

# Safety Data Sheet

## acc. to OSHA HCS (HazCom 2012)

Printing date 04/22/2024

Reviewed on 04/19/2024

Trade name: **Molybdate No.1 HR**

(Contd. of page 3)

- This product is hygroscopic.
- **Recommended storage temperature:** 20°C +/- 5°C (approx. 68°F)
- **Specific end use(s)** No further relevant information available.

### \* 8 Exposure controls/personal protection

- **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.

<b>CAS: 7757-82-6 sodium sulphate</b>	
TLV (USA)	Short-term value: NIC-0.2 mg/m <sup>3</sup> thoracic fraction of aerosol
<b>CAS: 124-04-9 adipic acid</b>	
TLV (USA)	Long-term value: 5 mg/m <sup>3</sup>
EL (Canada)	Long-term value: 5 mg/m <sup>3</sup>
EV (Canada)	Long-term value: 5 mg/m <sup>3</sup>
<b>CAS: 7727-21-1 potassium persulphate</b>	
TLV (USA)	Long-term value: 0.1 mg/m <sup>3</sup> as persulfate
EL (Canada)	Long-term value: 0.1 mg/m <sup>3</sup> as persulfate
EV (Canada)	Long-term value: 0.1 mg/m <sup>3</sup>

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Engineering measures:**  
Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. See item 7.
- **Personal protective equipment:**  
Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled.
- **Breathing equipment:** Use respiratory protective device against the effects of fume/dust/aerosol.
- **Recommended filter device for short term use:** Filter P2
- **Protection of hands:**  
Protective gloves  
Preventive skin protection by use of skin-protecting agents is recommended.  
After use of gloves apply skin-cleaning agents and skin cosmetics.
- **Material of gloves**  
Nitrile rubber, NBR  
Recommended thickness of the material:  $\geq 0.11$  mm
- **Penetration time of glove material**  
Value for the permeation: Level  $\leq 1$  (10 min)  
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
- **Limitation and supervision of exposure into the environment:**  
Do not allow product to reach sewage system or any water course.

### 9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **Appearance:**
- **Form / Physical state:** Tablets
- **Color:** White
- **Odor:** Odorless
- **Odor threshold:** Not applicable.
- **pH-value (10 g/l) at 20°C (68°F):** 2.4
- **Melting point/freezing point:** Not determined.
- **Initial boiling point and boiling range:** Not determined.

(Contd. on page 5)

— US —

# Safety Data Sheet

## acc. to OSHA HCS (HazCom 2012)

Printing date 04/22/2024

Reviewed on 04/19/2024

Trade name: Molybdate No.1 HR

(Contd. of page 4)

· <b>Flash point:</b>	Not applicable.
· <b>Flammability (solid, gas):</b>	The product is not combustible.
· <b>Auto igniting:</b>	Not applicable (solid).
· <b>Decomposition temperature:</b>	Not determined.
· <b>Auto-ignition temperature:</b>	Product is not self-igniting.
· <b>Danger of explosion:</b>	As the product is supplied it is not capable of dust explosion; however enrichment with fine dust causes risk of dust explosion.
· <b>Flammability or explosive limits:</b>	
<b>Lower:</b>	Not determined.
<b>Upper:</b>	Not determined.
· <b>Oxidizing properties:</b>	none
· <b>Vapor Pressure:</b>	Not applicable.
· <b>Density at 20°C (68°F):</b>	2 g/cm <sup>3</sup> (16.69 lbs/gal)
· <b>Relative density:</b>	Not determined.
· <b>Vapor density:</b>	Not applicable.
· <b>Evaporation rate:</b>	Not applicable.
· <b>Solubility(ies)</b>	
· <b>Water:</b>	Partially insoluble.
· <b>Partition coefficient (n-octanol/water):</b>	Not applicable (mixture).
· <b>Viscosity:</b>	Not applicable.
· <b>Kinematic:</b>	Not applicable (solid).
· <b>Other information</b>	
· <b>Solids content:</b>	100.0 %

## 10 Stability and reactivity

- **Reactivity** Dust can combine with air to form an explosive mixture.
- **Chemical stability** Stable at ambient temperature (room temperature).
- **Possibility of hazardous reactions**  
Aqueous solution reacts with metals.  
Forms hydrogen in aqueous solution with metals (Danger of explosion!).  
Reacts with reducing agents.  
Liberates acid in contact with water or alcohol.  
Reacts with strong alkalis and oxidizing agents.
- **Conditions to avoid** Strong heating (decomposition)
- **Incompatible materials:**  
metals  
aluminum  
steel
- **Hazardous decomposition products:**  
oxygen  
see section 5

## \*11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:** Based on available data, the classification criteria are not met.

### · LD/LC50 values that are relevant for classification:

#### CAS: 7757-82-6 sodium sulphate

Oral	LD50.	>2000 mg/kg (rat) (OECD 423) (Registrant, ECHA, limit test)
Dermal	LD50.	>2000 mg/kg (rat)
Inhalative	LC50.	>2.4 mg/l4h (rat) (OECD 436) highest concentration that can be produced

#### CAS: 124-04-9 adipic acid

Oral	LD50	5700 mg/kg (rat) (MERCK)
Dermal	LD50	>7940 mg/kg (rabbit) (Registrant, ECHA: no deaths occurred)

(Contd. on page 6)

US

# Safety Data Sheet

## acc. to OSHA HCS (HazCom 2012)

Printing date 04/22/2024

Reviewed on 04/19/2024

Trade name: **Molybdate No.1 HR**

(Contd. of page 5)

CAS: 7681-38-1 sodium bisulfate		
Oral	LD50	2490 mg/kg (rat) (IUCLID)
Dermal	LD50	>2000 mg/kg (rabbit)
CAS: 7727-21-1 potassium persulfate		
Oral	LD50	742 mg/kg (rat) (EPA OPPTS 870.1100)
Dermal	LD50	>2000 mg/kg (rabbit) (EPA OPP 81-2) Limit test: There were no deaths.
Inhalative	LC50	>2.95 mg/l4h (rat) (EPA OPP 81-3) All animals survived to termination of the study (14d). The administered concentration was considered the maximum attainable concentration.

· **Primary irritant effect:**

· **on the skin:** Based on available data, the classification criteria are not met.

· **on the eye:**

Causes serious eye damage.

Risk of corneal clouding.

· **Information on components:**

CAS 7727-21-1: chronic: dermatitis

CAS: 7757-82-6 sodium sulphate		
Irritation of skin	OECD 404	(rabbit: no irritation)
Irritation of eyes	OECD 492	(rabbit: slight irritation)
CAS: 124-04-9 adipic acid		
Irritation of skin	OECD 404	(rabbit: no irritation)
Irritation of eyes	OECD 492	(rabbit: severe irritations)
CAS: 7681-38-1 sodium bisulfate		
Irritation of skin	OECD 404	(rabbit: no irritation)
Irritation of eyes	OECD 492	(rabbit: severe irritations)
CAS: 7727-21-1 potassium persulfate		
Irritation of skin	OECD 404	(rabbit: slight irritation) (ECHA: read-across CAS 7727-54-0 Diammonium persulfate)
Irritation of eyes	OECD 492	(rabbit: slight irritation) (ECHA: read-across CAS 7727-54-0 Diammonium persulfate)

· **Sensitization:**

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause an allergic skin reaction.

· **Information on components:**

CAS: 7757-82-6 sodium sulphate		
Sensitization	OECD 406	(guinea pig: negative)
CAS: 124-04-9 adipic acid		
Sensitization	OECD 406	(guinea pig: negative) (IUCLID)

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

CAS: 999-99-9	one or more ingredient(s) Group 3: Not classifiable as to carcinogenicity to humans	3
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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.

· **Other information:** see section 8 / 15

· **Synergistic Products:** None

· **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction):** The following statements refer to the mixture:

· **Germ cell mutagenicity** Based on available data, the classification criteria are not met.

· **Carcinogenicity** Based on available data, the classification criteria are not met.

(Contd. on page 7)

# Safety Data Sheet

## acc. to OSHA HCS (HazCom 2012)

Printing date 04/22/2024

Reviewed on 04/19/2024

Trade name: **Molybdate No.1 HR**

(Contd. of page 6)

- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT (specific target organ toxicity) -single exposure** Based on available data, the classification criteria are not met.
- **STOT (specific target organ toxicity) -repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

<b>Information on components:</b>	
<b>CAS: 7757-82-6 sodium sulphate</b>	
OECD 471	(negative) (Bacterial Reverse Mutation Test - Ames test) ECHA: Salmonella typhimurium
OECD 476	(negative) (Mammalian Chromosomal Aberration Test)
OECD 473	(negative) (Mammalian Chromosomal Aberration Test)
<b>CAS: 124-04-9 adipic acid</b>	
OECD 471	(negative) (Bacterial Reverse Mutation Test - Ames test) (IUCLID)
OECD 474	(negative) (Mammalian Erythrocyte Micronucleus Test)
<b>Additional toxicological information:</b>	
<b>CAS: 7727-21-1 potassium persulphate</b>	
. (source: GESTIS) acute: sensitizing effect, danger of acute hypersensitivity reactions. chronic: allergic skin and respiratory diseases [GESTIS].	

## \*12 Ecological information

### · Toxicity

<b>Aquatic toxicity:</b>	
<b>CAS: 7757-82-6 sodium sulphate</b>	
EC50	1766 mg/l/48h (Daphnia magna) US-EPA
NOEC	8 mg/l /37 d (activated sludge) ECHA
LC50	120 mg/l/96h (mosquitofish) (IUCLID) 7960 mg/l/96h (fathead minnow) US-EPA
<b>CAS: 124-04-9 adipic acid</b>	
LC50	511 mg/l/48h (gold orfe)
EC50	86 mg/l/48h (Daphnia magna) (OECD 202)
IC50	31 mg/l/72h (Desmodesmus subspicatus) (IUCLID)
LC50	97 mg/l/96h (fathead minnow) (ECOTOX)
<b>CAS: 7681-38-1 sodium bisulfate</b>	
EC50	190 mg/l/48h (Daphnia magna) (IUCLID)
<b>CAS: 7727-21-1 potassium persulphate</b>	
EC50	120 mg/l/48h (Daphnia magna)
LC50	76.3 mg/l/96h (rainbow trout)
<b>Bacterial toxicity:</b> sulfates toxic > 2.5 g/l	
<b>CAS: 7757-82-6 sodium sulphate</b>	
EC10	>1000 mg/l (Pseudomonas putida) (16h) (IUCLID)
<b>CAS: 124-04-9 adipic acid</b>	
EC50	92 mg/l (Pseudomonas putida) (DIN 38412) (IUCLID)

(Contd. on page 8)

US

# Safety Data Sheet

## acc. to OSHA HCS (HazCom 2012)

Printing date 04/22/2024

Reviewed on 04/19/2024

Trade name: **Molybdate No.1 HR**

(Contd. of page 7)

<b>CAS: 7681-38-1 sodium bisulfate</b>	
EC10	>1000 mg/l (Pseudomonas putida) (16 h)
<b>CAS: 7727-21-1 potassium persulfate</b>	
EC50	136 mg/l (Phaeodactylum tricornutum) (OECD 201)
· <b>Other information:</b> Toxic for fish: Sulfates > 7 g/l	
· <b>Persistence and degradability</b>	
<b>CAS: 124-04-9 adipic acid</b>	
OECD 301 B	100 % / 28 d (readily biodegradable) (CO2 Evolution Test)
· <b>Bioaccumulative potential</b> Pow = n-octanol/wasser partition coefficient log Pow < 1 = Does not accumulate in organisms.	
<b>CAS: 124-04-9 adipic acid</b>	
log Pow	0.081 (.) (25°C, OECD 107)
· <b>Mobility in soil</b> No further relevant information available.	
· <b>Other adverse effects</b> Reacts with water to form toxic decomposition products. Avoid transfer into the environment.	

### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.  
Hand over to hazardous waste disposers.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

### \* 14 Transport information

· <b>UN-Number</b>	
· <b>DOT, IMDG, IATA</b>	none
· <b>UN proper shipping name</b>	
· <b>DOT, IMDG, IATA</b>	none
· <b>Transport hazard class(es)</b>	
· <b>DOT, IMDG, IATA</b>	
· <b>Class</b>	none
· <b>Packing group</b>	
· <b>DOT, IMDG, IATA</b>	none
· <b>Environmental hazards:</b>	Not applicable.
· <b>Special precautions for user</b>	Not applicable.
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
· <b>Transport/Additional information:</b>	Not dangerous according to the above specifications.

### \* 15 Regulatory information

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

· <b>Section 355 (Extremely hazardous substances):</b>
None of the ingredients is listed.

(Contd. on page 9)

US



# Safety Data Sheet

## acc. to OSHA HCS (HazCom 2012)

Printing date 04/22/2024

Reviewed on 04/19/2024

Trade name: **Molybdate No.1 HR**

(Contd. of page 8)

<b>· Section 313 (Specific toxic chemical listings):</b>		
None of the ingredients is listed.		
<b>· TSCA (Toxic Substances Control Act):</b>		
All components have the value ACTIVE.		
<b>· Hazardous Air Pollutants</b>		
None of the ingredients is listed.		
<b>· Proposition 65</b>		
<b>· Chemicals known to cause cancer:</b>		
None of the ingredients is listed.		
<b>· Chemicals known to cause reproductive toxicity for females:</b>		
None of the ingredients is listed.		
<b>· Chemicals known to cause reproductive toxicity for males:</b>		
None of the ingredients is listed.		
<b>· Chemicals known to cause developmental toxicity:</b>		
None of the ingredients is listed.		
<b>· New Jersey Right-to-Know List:</b>		
CAS: 124-04-9	adipic acid	
CAS: 7727-21-1	potassium persulphate	
<b>· New Jersey Special Hazardous Substance List:</b>		
None of the ingredients is listed.		
<b>· Pennsylvania Right-to-Know List:</b>		
CAS: 7757-82-6	sodium sulphate	
CAS: 124-04-9	adipic acid	
CAS: 7727-21-1	potassium persulphate	
<b>· Pennsylvania Special Hazardous Substance List:</b>		
CAS: 7757-82-6	sodium sulphate	E
CAS: 124-04-9	adipic acid	E
<b>· EPA (Environmental Protection Agency)</b>		
None of the ingredients is listed.		
<b>· NIOSH-Ca (National Institute for Occupational Safety and Health)</b>		
None of the ingredients is listed.		
<b>· Information about limitation of use:</b>		
Observe national regulations where applicable: Employment restrictions concerning young persons must be observed.		
<b>· Chemical safety assessment:</b> 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.

### · Relevant phrases

H272 May intensify fire; oxidizer.  
H302 Harmful if swallowed.  
H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H318 Causes serious eye damage.  
H319 Causes serious eye irritation.  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H335 May cause respiratory irritation.

· **Version number / date of revision:** 14 / 04/19/2024

### · Abbreviations and acronyms:

OECD: Organisation for Economic Co-operation and Development  
STOT: specific target organ toxicity  
SE: single exposure  
RE: repeated exposure

(Contd. on page 10)

US

# Safety Data Sheet

## acc. to OSHA HCS (HazCom 2012)

Printing date 04/22/2024

Reviewed on 04/19/2024

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**Trade name: Molybdate No.1 HR**


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(Contd. of page 9)

EC50: half maximal effective concentration  
 IC50: half maximal inhibitory concentration  
 NOEL or NOEC: No Observed Effect Level or Concentration  
 ACGIH<sup>®</sup> - American Conference of Governmental Industrial Hygienists  
 •A1 - Confirmed human carcinogen  
 •A2 - Suspected human carcinogen  
 •A3 - Confirmed animal carcinogen with unknown relevance to humans  
 •A4 - Not classifiable as a human carcinogen  
 •A5 - Not suspected as a human carcinogen  
 IARC - International Agency for Research on Cancer  
 •Group 1 - Carcinogenic to humans  
 •Group 2A - Probably carcinogenic to humans  
 •Group 2B - Possibly carcinogenic to humans  
 •Group 3 - Not classifiable as to carcinogenicity to humans  
 •Group 4 - Probably not carcinogenic to humans  
 NTP - National Toxicology Program, U.S. Department of Health and Human Services  
 •Group K - Known to be Human Carcinogens  
 •Group R - Reasonably Anticipated to be Human Carcinogens  
 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)  
 LC50: Lethal concentration, 50 percent  
 LD50: Lethal dose, 50 percent  
 NIOSH: National Institute for Occupational Safety  
 OSHA: Occupational Safety & Health  
 TLV: Threshold Limit Value  
 PEL: Permissible Exposure Limit  
 REL: Recommended Exposure Limit  
 Oxidizing Solids 3: Oxidizing solids – Category 3  
 Acute Toxicity - Oral 4: Acute toxicity – Category 4  
 Skin Irritation 2: Skin corrosion/irritation – Category 2  
 Eye Damage 1: Serious eye damage/eye irritation – Category 1  
 Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A  
 Sensitization - Respiratory 1: Respiratory sensitisation – Category 1  
 Sensitization - Skin 1: Skin sensitisation – Category 1  
 Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3

· **Sources**

Data arise from safety data sheets, reference works and literature.

ECHA: European CHemicals Agency <http://echa.europa.eu>

IUCLID (International Uniform Chemical Information Database)

ECOTOX Database

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

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