

Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 07/26/2017

Reviewed on 07/26/2017

* 1 Identification

- **Product Identifier**
- **Trade name: Spade Drill, H.S.S. Cutting Tools**
- **Relevant identified uses of the substance or mixture and uses advised against:**
Use with coolant or enclosed machine with ventilation
- **Product Description** Cutting Tool
- **Application of the substance / the mixture:** Cutting tool used to drill a hole or similar into a work piece
- **Details of the Supplier of the Safety Data Sheet:**
- **Manufacturer/Supplier:**
Allied Machine & Engineering Corp.
120 Deeds Drive
Dover, Ohio 44622-0036
Phone: 330-343-4283
Fax: 330-602-3400
www.alliedmachine.com
- **Emergency telephone number:** Ron Sundall 330-343-4283

2 Hazard(s) Identification

- **Classification of the substance or mixture:**



GHS08 Health hazard

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Carc. 2 H351 Suspected of causing cancer.
STOT RE 1 H372 Causes damage to organs through prolonged or repeated exposure.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.
Skin Sens. 1 H317 May cause an allergic skin reaction.
Eye Irrit. 2B H320 Causes eye irritation.

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



GHS08

- **Signal word:** Danger
- **Hazard-determining components of labeling:**
Cobalt
Nickel
- **Hazard statements:**
H315+H320 Causes skin and eye irritation.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

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- H317 May cause an allergic skin reaction.
- H351 Suspected of causing cancer.
- H372 Causes damage to organs through prolonged or repeated exposure.

Precautionary statements:

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P260 Do not breathe dust/fume/gas/mist/vapors/spray.
- P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
- P264 Wash thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P272 Contaminated work clothing must not be allowed out of the workplace.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P284 [In case of inadequate ventilation] wear respiratory protection.
- P302+P352 IF ON SKIN: Wash with plenty of water.
- P304+P341 If inhaled: If breathing is difficult, 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.
- P308+P313 IF exposed or concerned: Get medical advice/attention.
- P314 Get medical advice/attention if you feel unwell.
- P321 Specific treatment (see supplementary first aid instructions on this Safety Data Sheet).
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
- P337+P313 If eye irritation persists: Get medical advice/attention.
- P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
- P362+P364 Take off contaminated clothing and wash it before reuse.
- P363 Wash contaminated clothing before reuse.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Unknown acute toxicity:

40 % of the mixture consists of component(s) of unknown toxicity.

Classification system:

NFPA ratings (scale 0 - 4)



HMIS-ratings (scale 0 - 4)

HEALTH	*1	Health = *1
FIRE	0	Fire = 0
REACTIVITY	0	Physical Hazard = 0

Hazard(s) not otherwise classified (HNOC): None known

3 Composition/Information on Ingredients

Non-hazardous components:

CAS: 7440-62-2	Vanadium
RTECS: YW 1355000	

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Trade name: Spade Drill, H.S.S. Cutting Tools

CAS: 7439-98-7 RTECS: QA 4680000	Molybdenum
CAS: 7440-44-0 RTECS: FF 5250100	Carbon

· **Chemical characterization: Mixtures**

· **Description:** Mixture of substances listed below with non-hazardous additions.

· **Dangerous Components:**

CAS: 7439-96-5 RTECS: OO 9275000	Manganese ⚠ Water-react. 1, H260
CAS: 7440-21-3	Silicon ⚠ Flam. Sol. 2, H228; ⚠ Acute Tox. 4, H302; Eye Irrit. 2B, H320
CAS: 7440-02-0	Nickel ⚠ Carc. 2, H351; STOT RE 1, H372; ⚠ Skin Sens. 1, H317
CAS: 7440-47-3 RTECS: GB 4200000	Chromium
CAS: 7440-48-4 RTECS: GF 8750000	Cobalt ⚠ Resp. Sens. 1, H334; Carc. 2, H351; ⚠ Skin Sens. 1, H317; Aquatic Chronic 4, H413; Combustible Dust
CAS: 7439-89-6 RTECS: NO 4565500	Iron ⚠ Flam. Sol. 2, H228; ⚠ Skin Irrit. 2, H315; STOT SE 3, H335; Eye Irrit. 2B, H320; Combustible Dust

· **Additional information:**

In order for this product to constitute a physical hazard or a health hazard it would have to be subjected to subsequent operations such as heating to above 2600° F, cutting and/or grinding which may cause some of the ingredients to change to a form, which could affect exposed workers.

4 First-Aid Measures

· **Description of first aid measures:**

· **After inhalation:** Supply fresh air; consult doctor if symptoms persist.

· **After skin contact:**

Wash with soap and water.

If skin irritation occurs, consult a doctor.

· **After eye contact:**

Rinse opened eye for at least 15 minutes under running water. If symptoms persist, consult a doctor.

· **After swallowing:**

Seek medical attention if large quantities of material have been ingested. (Ingestion of significant amounts of metal is unlikely).

· **Information for doctor:**

· **Most important symptoms and effects, both acute and delayed:**

Excessive inhalation of metallic fumes and dust may be irritating to respiratory passages. Excessive inhalation of fumes from many metals can produce an acute reaction known as "metal fume fever." Symptoms consist of chills and fever, a metallic taste in the mouth, and dryness and irritation of the throat. The symptoms come on a few hours after excessive exposures and usually last from 12 to 48 hours. Long-term effects from metal fume fever have not been noted. Iron oxide, copper and manganese have been associated with causing metal fume fever.

· **Indication of any immediate medical attention and special treatment needed:**

No further relevant information available.

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5 Fire-Fighting Measures

- **Extinguishing media:**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture:**
Solid tool steel product is not a fire hazard. Dust generated from grinding operations may ignite if allowed to accumulate, and subjected to an ignition source.
- **Advice for firefighters:**
- **Protective equipment:**
As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent) and full protective gear to prevent contact with skin and eyes.

* 6 Accidental Release Measures

- **Personal precautions, protective equipment and emergency procedures:** Not required.
- **Environmental precautions:** No special measures required.
- **Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to section 13.
- **Reference to other sections:**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**

- **PAC-1:**

7440-44-0	Carbon	6 mg/m3
7439-96-5	Manganese	3 mg/m3
7440-21-3	Silicon	45 mg/m3
7440-02-0	Nickel	4.5 mg/m3
7440-47-3	Chromium	1.5 mg/m3
7440-62-2	Vanadium	3 mg/m3
7439-98-7	Molybdenum	30 mg/m3
7440-48-4	Cobalt	0.18 mg/m3
7439-89-6	Iron	3.2 mg/m3

- **PAC-2:**

7440-44-0	Carbon	330 mg/m3
7439-96-5	Manganese	5 mg/m3
7440-21-3	Silicon	100 mg/m3
7440-02-0	Nickel	50 mg/m3
7440-47-3	Chromium	17 mg/m3
7440-62-2	Vanadium	5.8 mg/m3
7439-98-7	Molybdenum	330 mg/m3
7440-48-4	Cobalt	2 mg/m3
7439-89-6	Iron	35 mg/m3

- **PAC-3:**

7440-44-0	Carbon	2,000 mg/m3
7439-96-5	Manganese	1,800 mg/m3

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7440-21-3	Silicon	630 mg/m3
7440-02-0	Nickel	99 mg/m3
7440-47-3	Chromium	99 mg/m3
7440-62-2	Vanadium	35 mg/m3
7439-98-7	Molybdenum	2,000 mg/m3
7440-48-4	Cobalt	20 mg/m3
7439-89-6	Iron	150 mg/m3

7 Handling and Storage

- **Handling**
- **Precautions for safe handling:**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of dust.
- **Information about protection against explosions and fires:** Protect against electrostatic charges.
- **Conditions for safe storage, including any incompatibilities:**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** Store in the original container.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** None.
- **Specific end use(s):** No further relevant information available.

* 8 Exposure Controls/Personal Protection

- **Additional information about design of technical systems:** No further data; see section 7.
- **Control parameters:**
- **Components with occupational exposure limits:**
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.
At this time, the remaining constituent has no known exposure limits.

7439-96-5 Manganese	
PEL	Ceiling limit value: 5 mg/m ³ as Mn
REL	Short-term value: 3 mg/m ³ Long-term value: 1 mg/m ³ fume, as Mn
TLV	Long-term value: 0.02* 0.1** mg/m ³ as Mn; *respirable **inhalable fraction
7440-21-3 Silicon	
PEL	Long-term value: 15* 5** mg/m ³ *total dust **respirable fraction
REL	Long-term value: 10* 5** mg/m ³ *total dust **respirable fraction
TLV	TLV withdrawn
7440-02-0 Nickel	
PEL	Long-term value: 1 mg/m ³

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REL	Long-term value: 0.015 mg/m ³ as Ni; See Pocket Guide App. A
TLV	Long-term value: 1.5* mg/m ³ elemental, *inhalable fraction
7440-47-3 Chromium	
PEL	Long-term value: 1 mg/m ³
REL	Long-term value: 0.5* mg/m ³ *metal+inorg.compds.as Cr; See Pocket Guide App. C
TLV	Long-term value: (0.5) 0.5* mg/m ³ *inhalable fraction, as Cr(0)
7439-98-7 Molybdenum	
PEL	Long-term value: 15* mg/m ³ *Total dust, as Mo
TLV	Long-term value: 10* 3** mg/m ³ as Mo; *inhalable fraction ** respirable fraction
7440-48-4 Cobalt	
PEL	Long-term value: 0.1* mg/m ³ as Co; *for metal dust and fume
REL	Long-term value: 0.05 mg/m ³ as Co; metal dust & fume
TLV	Long-term value: (0.02) NIC-0.02* mg/m ³ *inh. fraction; NIC-Skin, DSEN, RSEN (BEI)
· Ingredients with biological limit values:	
7440-48-4 Cobalt	
BEI	15 µg/L urine end of shift at end of workweek Cobalt (background)
BEI	1 µg/L blood end of shift at end of workweek Cobalt (background, semi-quantitative)

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

· **Exposure controls:**

Ventilation must be adequate to maintain the ambient workplace atmosphere below the exposure limit(s) outlined in the SDS. Where acceptable concentrations cannot be maintained by general mechanical ventilation, local exhaust ventilation is recommended.

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.

· **Breathing equipment:**



NIOSH/OSHA or EN approved respiratory protection is recommended for use in airborne concentrations exceeding exposure limits.

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Trade name: Spade Drill, H.S.S. Cutting Tools
· Protection of hands:


Protective gloves

· Penetration time of glove material:

The exact break-through time has to be determined and observed by the manufacturer of the protective gloves.

· Eye protection:


Safety glasses

9 Physical and Chemical Properties

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

Form: Solid

Color: Grey

· Odor: Odorless

· Odor threshold: Not determined.

· pH-value: Not applicable.

· Change in condition

Melting point/Melting range: Not determined.

Boiling point/Boiling range: Not determined.

· Flash point: None

· Flammability (solid, gaseous): Not determined.

· Ignition temperature:

Decomposition temperature: Not determined.

· Auto igniting: Product is not self-igniting.

· Danger of explosion: Product does not present an explosion hazard.

· Explosion limits:

Lower: Not determined.

Upper: Not determined.

· Vapor pressure: Not applicable.

· Density:

Relative density: Not determined.

Vapor density: Not applicable.

Evaporation rate: Not applicable.

· Solubility in / Miscibility with:

Water: Insoluble.

· Partition coefficient (n-octanol/water): Not determined.

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- **Viscosity:**
 - Dynamic:** Not applicable.
 - Kinematic:** Not applicable.
- **Other information:** No further relevant information available.

10 Stability and Reactivity

- **Reactivity:** No further relevant information available.
- **Chemical stability:** Stable under normal conditions.
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions:** No known hazardous reactions
- **Conditions to avoid:** Avoid exposure to generated dust and/or fumes.
- **Incompatible materials:** Reacts with strong acids to generate hydrogen gas.
- **Hazardous decomposition products:** Metallic Oxides

* 11 Toxicological Information

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

- **LD/LC50 values that are relevant for classification:**

7439-96-5 Manganese

Oral	LD50	9,000 mg/kg (Rat)
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7440-21-3 Silicon

Oral	LD50	3,160 mg/kg (Rat)
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7440-47-3 Chromium

Inhalative	LC50/96 hours	14.3 mg/l (Cyprinus carpio)
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7440-48-4 Cobalt

Oral	LD50	6,170 mg/kg (Rat)
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7439-89-6 Iron

Oral	LD50	7,500 mg/kg (Rat)
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- **Primary irritant effect:**

- **On the skin:**

Irritant to skin and mucous membranes.
May cause an allergic skin reaction.

- **On the eye:**

Irritating effect.
Causes serious eye irritation.

- **Sensitization:**

Sensitization possible through inhalation.
Sensitization possible through skin contact.

- **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Harmful
Irritant

- **Carcinogenic categories:**

- **IARC (International Agency for Research on Cancer):**

7440-02-0	Nickel	
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7440-47-3	Chromium	3
7440-48-4	Cobalt	2B
· NTP (National Toxicology Program):		
7440-02-0	Nickel	R
7440-48-4	Cobalt	R
· OSHA-Ca (Occupational Safety & Health Administration):		
None of the ingredients are listed.		

* 12 Ecological Information

· **Toxicity:**

· **Aquatic toxicity:**

7439-96-5 Manganese

EC50 40 mg/l (Water flea)

7440-02-0 Nickel

EC50 1 mg/l (Water flea)

7440-47-3 Chromium

EC50 0.07 mg/l (Water flea)

· **Persistence and degradability:** No further relevant information available.

· **Behavior in environmental systems:**

· **Bioaccumulative potential:** No further relevant information available.

· **Mobility in soil:** No further relevant information available.

· **Additional ecological information:**

· **General notes:**

Do not allow product to reach ground water, water course or sewage system.

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.

13 Disposal Considerations

· **Waste treatment methods:**

· **Recommendation:**

Observe all federal, state and local environmental regulations when disposing of this material.

· **Uncleaned packagings**

· **Recommendation:** Disposal must be made according to official regulations.

14 Transport Information

· **UN-Number:**

· **DOT, ADR/ADN, ADN, IMDG, IATA**

Non-Regulated Material

· **UN proper shipping name:**

· **DOT, ADR/ADN, ADN, IMDG, IATA**

Non-Regulated Material

· **Transport hazard class(es):**

· **DOT, ADR/ADN, ADN, IMDG, IATA**

· **Class:**

Non-Regulated Material

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- **Packing group:**
- **DOT, ADR/ADN, IMDG, IATA** Non-Regulated Material
- **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":** Non-Regulated Material

* 15 Regulatory Information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture:**
- **SARA (Superfund Amendments and Reauthorization):**

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

None of the ingredients are listed.

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

7439-96-5	Manganese
7440-02-0	Nickel
7440-47-3	Chromium
7440-62-2	Vanadium
7440-48-4	Cobalt

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

All ingredients are listed or exempt from listing.

· **California Proposition 65:**

· **Chemicals known to cause cancer:**

7440-02-0	Nickel
7440-48-4	Cobalt

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

None of the ingredients are listed.

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

None of the ingredients are listed.

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

None of the ingredients are listed.

· **New Jersey Right-to-Know List:**

7439-96-5	Manganese
7440-21-3	Silicon
7440-02-0	Nickel
7440-47-3	Chromium
7440-62-2	Vanadium
7439-98-7	Molybdenum
7440-48-4	Cobalt

· **New Jersey Special Hazardous Substance List:**

7439-96-5	Manganese	F3, R1
7440-21-3	Silicon	F3
7440-02-0	Nickel	CA

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7440-47-3	Chromium	F3
7440-48-4	Cobalt	CA, F3

· Pennsylvania Right-to-Know List:

7439-96-5	Manganese	
7440-21-3	Silicon	
7440-02-0	Nickel	
7440-47-3	Chromium	
7440-62-2	Vanadium	
7439-98-7	Molybdenum	
7440-48-4	Cobalt	

· Pennsylvania Special Hazardous Substance List:

7439-96-5	Manganese	E
7440-02-0	Nickel	ES
7440-47-3	Chromium	ES
7440-62-2	Vanadium	E
7440-48-4	Cobalt	E

· Carcinogenic categories:
· EPA (Environmental Protection Agency):

7439-96-5	Manganese	D
7440-47-3	Chromium	D

· TLV (Threshold Limit Value established by ACGIH):

7440-02-0	Nickel	A5
7440-47-3	Chromium	A4
7439-98-7	Molybdenum	A3
7440-48-4	Cobalt	A3

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

7440-02-0	Nickel	
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· GHS label elements

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

· Hazard pictograms:


GHS08

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

Cobalt
Nickel

· Hazard statements:

H315+H320 Causes skin and eye irritation.
 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 H317 May cause an allergic skin reaction.
 H351 Suspected of causing cancer.

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Trade name: Spade Drill, H.S.S. Cutting Tools

H372 Causes damage to organs through prolonged or repeated exposure.

Precautionary statements:

- P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P272 Contaminated work clothing must not be allowed out of the workplace.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P284 [In case of inadequate ventilation] wear respiratory protection.
P302+P352 IF ON SKIN: Wash with plenty of water.
P304+P341 If inhaled: If breathing is difficult, 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.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P314 Get medical advice/attention if you feel unwell.
P321 Specific treatment (see supplementary first aid instructions on this Safety Data Sheet).
P332+P313 If skin irritation occurs: Get medical advice/attention.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P337+P313 If eye irritation persists: Get medical advice/attention.
P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
P362+P364 Take off contaminated clothing and wash it before reuse.
P363 Wash contaminated clothing before reuse.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

National regulations:

None of the ingredients are listed.

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

16 Other Information

The information and recommendations in this safety data sheet are, to the best of our knowledge, accurate as of the date of issue. Nothing herein shall be deemed to create warranty, expressed or implied, and shall not establish a legally valid contractual relationship. It is the responsibility of the user to determine applicability of this information and the suitability of the material or product for any particular purpose.

Date of preparation / last revision: 07/26/2017 / 3**Abbreviations and acronyms:**

ADR: The European Agreement concerning the International Carriage of Dangerous Goods by Road
ADN: The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
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)
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 and Health

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OSHA: Occupational Safety & Health Administration

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

BEI: Biological Exposure Limit

Flam. Sol. 2: Flammable solids – Category 2

Water-react. 1: Substances and mixtures which in contact with water emit flammable gases – Category 1

Acute Tox. 4: Acute toxicity – Category 4

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2B: Serious eye damage/eye irritation – Category 2B

Resp. Sens. 1: Respiratory sensitisation – Category 1

Skin Sens. 1: Skin sensitisation – Category 1

Carc. 2: Carcinogenicity – Category 2

Carc. 2: Carcinogenicity – Category 2

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1

Aquatic Chronic 4: Hazardous to the aquatic environment - long-term aquatic hazard – Category 4

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

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