

SAFETY DATA SHEET

Revision: 3.0 Date: 01.09.2017


ACCORDING TO EC-REGULATIONS 1907/2006 (REACH),
1272/2008 (CLP) & 2015/830

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SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier	
Product Name	M-Flux SS
Chemical Name	Mixture
CAS No.	Mixture
EINECS No.	Mixture
1.2 Recommended use of the chemical and restrictions on use	
Identified Use(s)	PC38 Welding and soldering products (with flux coatings or flux cores.), flux products
Uses Advised Against	Anything other than the above.
1.3 Supplier's details	
Company Identification	VISHAY MEASUREMENTS GROUP UK LTD Stroudley Road Basingstoke Hampshire RG24 8FW United Kingdom
Telephone	+44 (0) 1256 462131
Fax	+44 (0) 1256 471441
E-Mail (competent person)	mm.uk@vishaypg.com
1.4 Emergency Phone No.	(00-1) 703-527-3887 CHEMTREC

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture	
2.1.1 Regulation (EC) No. 1272/2008 (CLP)	Met. Corr. 1; H290 Acute Tox. 4; H302 Skin Corr. 1A; H314 Eye Dam. 1; H318 STOT SE 3; H335 STOT SE 2; H371 Aquatic Acute 1; H400 Aquatic Chronic 1; H410
2.2 Label elements	
Product Name	According to Regulation (EC) No. 1272/2008 (CLP) M-Flux SS
Contains:	Hydrochloric Acid, Zinc Chloride, Methanol
Hazard Pictogram(s)	
Signal Word(s)	DANGER
Hazard Statement(s)	H290: May be corrosive to metals. H302: Harmful if swallowed. H314: Causes severe skin burns and eye damage.

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H335: May cause respiratory irritation.
H371: May cause damage to organs.
H410: Very toxic to aquatic life with long lasting effects.

Precautionary Statement(s)

P280: Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331: IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P310: Immediately call a POISON CENTER/doctor.

2.3 Other hazards

None known

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

EC Classification Regulation (EC) No. 1272/2008 (CLP)

Chemical identity of the substance	%W/W	CAS No.	EC No.	REACH Registration No.	Hazard Statement(s)
Zinc Chloride	<35	7646-85-7	231-592-0	Not yet assigned in the supply chain	Acute Tox. 4; H302 Skin Corr. 1B; H314 Aquatic Acute 1; H400 Aquatic Chronic 1; H410
Hydrochloric Acid	<35	7647-01-0	231-595-7	Not yet assigned in the supply chain	Met. Corr. 1; H290 Skin Corr. 1A; H314 STOT SE 3; H335 Specific Concentration Limit Skin Irrit. 2; H315: 10 % ≤ C < 25 % Eye Irrit. 2; H319: 10 % ≤ C < 25 % Skin Corr. 1B; H314: C ≥ 25 % STOT SE 3; H335: C ≥ 10 %
Ammonium Chloride	<10	12125-02-9	235-186-4	Not yet assigned in the supply chain	Acute Tox. 4; H302 Eye Irrit. 2; H319
Methanol	<10	67-56-1	200-659-6	Not yet assigned in the supply chain	Flam. Liq. 2; H225 Acute Tox. 3; H301 Acute Tox. 3; H311 Acute Tox. 3; H331 STOT SE 1; H370 Specific Concentration Limit STOT SE 1; H370: C ≥ 10 % STOT SE 2; H371: 3 % ≤ C < 10 %

For full text of H phrases see section 16.

SECTION 4: FIRST AID MEASURES



4.1 Description of first aid measures

Self-protection of the first aider

Use personal protective equipment as required. Wear appropriate personal protective equipment, avoid direct contact. Ensure adequate ventilation. Do not breathe vapour. Do not ingest. If swallowed then seek immediate medical

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Inhalation	assistance. Avoid all contact. Contaminated clothing should be laundered before reuse. IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/doctor.
Skin Contact	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Continue irrigation until medical attention can be obtained. Immediately call a POISON CENTER/doctor.
Eye Contact	IF IN EYES: Flush eyes with water for at least 15 minutes while holding eyelids open. Immediately call a POISON CENTER/doctor. Continue irrigation until medical attention can be obtained. Treatment by an ophthalmologist due to possible caustic burn of the eyes may be required.
Ingestion	IF SWALLOWED: rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER/doctor. Continue irrigation until medical attention can be obtained. Do NOT induce vomiting. Immediately call a POISON CENTER/doctor.
4.2 Most important symptoms and effects, both acute and delayed	Harmful if swallowed. Causes severe burns to skin, eyes, respiratory system and gastrointestinal tract. May cause respiratory irritation. May cause damage to organs. (Optic nerve, Central nervous system)
4.3 Indication of any immediate medical attention and special treatment needed	Treat symptomatically
Notes to a physician:	IF IN EYES: Obtain prompt consultation, preferably from an ophthalmologist. IF INHALED: Initiate inhalative cortisone therapy (e.g. Auxilison, Thomae).

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media	Suitable Extinguishing media	As appropriate for surrounding fire. Extinguish with carbon dioxide, dry chemical, foam or waterspray.
	Unsuitable extinguishing media	Do not use water jet. Direct water jet may spread the fire.
5.2 Special hazards arising from the substance or mixture		May release toxic metal halide and corrosive hydrochloric acid fumes. May be corrosive to metals. Decomposes in a fire giving off toxic fumes: Carbon monoxide, Carbon dioxide, Nitrogen oxides, halogenated compounds . The vapour is heavier than air; beware of pits and confined spaces.
5.3 Advice for fire-fighters		Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Do not breathe fumes. Keep containers cool by spraying with water if exposed to fire. Avoid run off to waterways and sewers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures		Ensure adequate ventilation. Stop leak if safe to do so. Use personal protective equipment as required. Wear appropriate personal protective equipment, avoid direct contact. Do not breathe vapour. Avoid all contact. Do not ingest. If swallowed then seek immediate medical assistance. Isolate the area and allow vapours to disperse.
6.2 Environmental precautions		Avoid release to the environment. Do not allow to enter drains, sewers or watercourses. Spillages or uncontrolled discharges into watercourses must be alerted to the Environment Agency or other appropriate regulatory body.
6.3 Methods and material for containment and cleaning up		Absorb spillage to prevent material damage. Adsorb spillages onto sand, earth or any suitable adsorbent material. Transfer to a container for disposal. Dispose of this material and its container as hazardous waste.
6.4 Reference to other sections		See Section: 8, 13

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling		Avoid all contact. Do not breathe vapour. Ensure adequate ventilation. Wear appropriate personal protective equipment, avoid direct contact. Use personal protective equipment as required. See Section: 8. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work.
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- 7.2 Conditions for safe storage, including any incompatibilities**
Storage temperature
Storage life
Incompatible materials
- 7.3 Specific end use(s)**
- Contaminated clothing should be laundered before reuse. The vapour is heavier than air; beware of pits and confined spaces. Isolate the area and allow vapours to disperse. In confined spaces, sewers, etc., the vapours may collect to form explosive mixtures with air.
Store in a well-ventilated place. Keep container tightly closed. Keep away from heat and direct sunlight.
Ambient.
Stable under normal conditions.
Forms flammable and explosive hydrogen through corrosion of metals. Alkaline materials and materials containing chlorine. Nitrates. Strong oxidising agents
See Section: 1.2

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Occupational Exposure Limits

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m ³)	STEL (ppm)	STEL (mg/m ³)	Note
Zinc Chloride, fume	7646-85-7	-	1	-	2	WEL
Hydrogen chloride (gas and aerosol mists)	7647-01-0	1	2	5	8	WEL
		5	8	10	15	IOELV
Ammonium Chloride	12125-02-9	-	10	-	20	WEL
Methanol	67-56-1	200	266	250	333	WEL,Sk
		200	260	-	-	IOELV, Sk

Source: WEL: Workplace Exposure Limit (UK HSE EH40), IOELV: Indicative Occupational Exposure Limit Value

Note: Sk - Can be absorbed through skin.

8.1.2 Biological limit value

Not established.

8.1.3 PNECs and DNELs

Not established.

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Ensure adequate ventilation. or Use appropriate containment. Atmospheric levels should be controlled in compliance with the occupational exposure limit. A washing facility/water for eye and skin cleaning purposes should be present.

8.2.2 Individual protection measures, such as personal protective equipment (PPE)

General hygiene measures for the handling of chemicals are applicable. Avoid all contact. Do not breathe vapour. Wash hands before breaks and after work. Keep work clothes separately. Contaminated clothing should be laundered before reuse. Do not eat, drink or smoke at the work place.

Eye/ face protection



Wear goggles giving complete protection to eyes to protect against liquid splashes (EN166). Do not wear contact lenses when working with this material.

Skin protection



Hand protection:

Wear impervious gloves (EN374). Gloves should be changed regularly to avoid permeation problems. Breakthrough time of the glove material: refer to the information provided by the gloves' producer. Protective index 6, corresponding > 480 minutes of permeation time according to EN 374

Suitable materials:

Nitrile rubber (Minimum thickness: 0.11 mm; breakthrough time: > 480 min)

Polyvinyl chloride - PVC (Minimum thickness: 1.2 mm; breakthrough time: > 480 min)

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min)
Butyl rubber (Minimum thickness: 0.7 mm; breakthrough time: > 480 min)

Body protection:

Wear impervious protective clothing, including boots, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection



Normally no personal respiratory protection is necessary. In case of inadequate ventilation wear respiratory protection. A suitable mask with filter type A (EN141 or EN405) may be appropriate.

Thermal hazards

Full protective equipment should be used in braze/welding operations to prevent any contact.

8.2.3 Environmental Exposure Controls

Avoid release to the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Clear, Milky white Liquid
Odour	No odour.
Odour threshold	Not available.
pH	Not established.
Melting point/freezing point	Not established.
Initial boiling point and boiling range	108°C (Mixture)
Flash point	Non-flammable.
Evaporation rate	<1 (BuAc = 1)
Flammability (solid, gas)	Non-flammable
Upper/lower flammability or explosive limits	Not available.
Vapour pressure	Not established.
Vapour density	0.48 (Air = 1)
Relative density	1.35 g/cm ³ (H ₂ O = 1)
Solubility(ies)	100% (Water)
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Not available.
Decomposition Temperature	Not available.
Viscosity	Not available.
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.

9.2 Other information

Volatile Organic Compound Content <15 Percent Volatile by volume (%)

SECTION 10: STABILITY AND REACTIVITY

10.1	Reactivity	Stable under normal conditions.
10.2	Chemical stability	Reacts with metals.
10.3	Possibility of hazardous reactions	May release toxic metal halide and corrosive hydrochloric acid fumes. May be corrosive to metals.
10.4	Conditions to avoid	In contact with hot metals like iron, explosive hydrogen gas may evolve.
10.5	Incompatible materials	May be corrosive to metals.
10.6	Hazardous decomposition product(s)	Hydrogen chloride, Zinc oxide, Ammonia. Carbon oxides may be formed. Formaldehyde Combustion products: Alkaline materials and materials containing chlorine. Nitrates. Strong oxidising agents

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SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity - Ingestion

Zinc Chloride:

Hydrochloric Acid:

Ammonium Chloride:

Methanol:

Acute toxicity - Inhalation

Zinc Chloride:

Hydrochloric Acid:

Ammonium Chloride:

Methanol:

Acute toxicity - Skin Contact

Zinc Chloride:

Hydrochloric Acid:

Ammonium Chloride:

Methanol:

Skin corrosion/irritation

Zinc Chloride:

Hydrochloric Acid:

Ammonium Chloride:

Methanol:

Serious eye damage/irritation

Zinc Chloride:

Hydrochloric Acid:

Ammonium Chloride:

All test data taken from existing ECHA registrations for the substances mentioned.

Acute Tox. 4; Harmful if swallowed.

Acute Toxicity Estimate Mixture Calculation: LD50 >1200 mg/kg bw/day.

Acute Tox. 4; H302 Harmonised Classification

LD50 (oral, rat) mg/kg: 1100 (OECD 401)

Not classified.

Substance is either gas or corrosive aqueous solution. Testing for acute systemic toxicity of the corrosive substance by oral or dermal route is not appropriate.

Acute Tox. 4; H302 Harmonised Classification

LD50 (oral, rat) mg/kg: 1410 (Unnamed, 1983)

Acute Tox. 3; H301 Harmonised Classification

No data

Based upon the available data, the classification criteria are not met.

Acute Toxicity Estimate Mixture Calculation: LC50 > 20.0 mg/l.

Not classified

LC50 (Inhalation, (rat)) mg/m³ 2000 (Karlsson N et al, 1986)

Not classified

LC50 (inhalation, rat) mg/l/4h: 45.6 (Unnamed, 1974)

Not classified

No data

Acute Tox. 3; H331 Harmonised Classification.

No data

Based upon the available data, the classification criteria are not met.

Acute Toxicity Estimate Mixture Calculation: LD50 > 2000 mg/kg bw/day.

Not classified

LD50 (skin, rat) mg/kg: >2000 (OECD 402)

Not classified

Substance is either gas or corrosive aqueous solution. Testing for acute systemic toxicity of the corrosive substance by oral or dermal route is not appropriate.

Not classified

LD50 (skin, rat) mg/kg: >2000 (EU Method B.3)

Acute Tox. 3; H311 Harmonised Classification.

No data

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

Skin Corr. 1B; H314 Harmonised Classification.

Corrosive (mouse) (Unnamed, 1991)

Skin Corr. 1A; H314 Harmonised Classification.

Corrosive (In vitro) (OECD 431)

Not classified.

No data

Not classified.

Not irritating to skin (rabbit) (Unnamed, 1975)

Eye Dam. 1; Causes serious eye damage.

Not classified.

No data

Not classified.

No data

Eye Irrit. 2; H319

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Methanol:	No data Not classified. Not irritating to eyes (rabbit) (Unnamed, 1975) Based upon the available data, the classification criteria are not met.
Respiratory or skin sensitization Zinc Chloride:	Not classified Skin sensitization: Sensitisation (guinea pig) - Negative (OECD 406) Respiratory sensitization: No data.
Hydrochloric Acid:	Not classified Skin sensitization: Sensitisation (guinea pig) - Negative (OECD 406) Respiratory sensitization: No data.
Ammonium Chloride:	Not classified Skin sensitization: Sensitisation (guinea pig) - Negative (EPA 540/9-82-025) Respiratory sensitization: No data.
Methanol:	Not classified Skin sensitization: Sensitisation (guinea pig) - Negative (OECD 406) Respiratory sensitization: No data.
Germ cell mutagenicity Zinc Chloride:	Based upon the available data, the classification criteria are not met. Not classified In vitro: Negative (Bacteria) (OECD 471) In vivo: Negative (mouse) (Gocke E et al, 1981)
Hydrochloric Acid:	Not classified In vitro: Negative (Bacteria) (Unnamed, 1988) In vivo: No data
Ammonium Chloride:	Not classified In vitro: Negative (Bacteria) (OECD 471) In vivo: Negative (mouse) (OECD 478)
Methanol:	Not classified In vitro: Negative (Bacteria) (OECD 471) In vivo: Negative (mouse) (Hayashi M et al., 1988)
Carcinogenicity Zinc Chloride:	Based upon the available data, the classification criteria are not met. Not classified. Negative (mouse) (Walters M & Roe FJC, 1965)
Hydrochloric Acid:	Not classified. Hydrochloric acid did not evoke a carcinogenic response in treated rats. (Unnamed, 1985)
Ammonium Chloride:	Not classified.
Methanol:	No data Not classified. Negative NOAEL \geq 1.3 mg/L air (mouse) > 3000 mg/kg (OECD 453)
Reproductive toxicity Zinc Chloride:	Based upon the available data, the classification criteria are not met. Not classified. Reproductive toxicity: Although effects were seen at 7.5 mg/kg/d, these were

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	considered to be toxicologically non significant. (OECD 416) Developmental toxicity: NOAEL 88 mg/kg bw/day. No clearly discernible effects on maternal survival, body weight gains, number of corpora lutea, implantations and resorptions were observed. (Unnamed, 1973)
Hydrochloric Acid:	Not classified. Weight of evidence approach. The available data give no indication that HCl is toxic for reproduction. In contact with water it dissociates completely to give eventually hydronium and chloride ions which being physiologically abundantly present in organisms, are unlikely to lead to a hazard towards reproduction or development. (ECHA Registration Endpoint summary)
Ammonium Chloride:	Not classified. NOAEL 1500 mg/kg bw/day for Reproductive / Developmental Toxicity (OECD 422)
Methanol:	Not classified. Reproductive toxicity: Negative NOAEL < 1000 mg/kg (mouse) (Ward, J. B. et al, 1984) Developmental toxicity: Negative NOAEL 945 mg/kg bw/day (rat) (OECD 414)
STOT - single exposure Zinc Chloride:	STOT SE 3; May cause respiratory irritation. Not classified Weight of evidence approach. Based upon the available data, the classification criteria are not met.
Hydrochloric Acid:	STOT SE 3; H335 Exposure by inhalation to aerosol from aqueous solutions will be limited. Effects are localised in nature and depend on the aqueous concentration of HCl in the aerosol. Being a corrosive substance classification the current harmonised classification to STOT SE 3, H335 (May cause respiratory irritation), is appropriate. (ECHA Registration Endpoint summary)
Ammonium Chloride:	Not classified Weight of evidence approach. Based upon the available data, the classification criteria are not met.
Methanol:	STOT SE. 1; H370 Harmonised Classification STOT SE 2; H371: 3 % ≤ C < 10 % Harmonised Classification Based upon the available data, the classification criteria are not met.
STOT - repeated exposure Zinc Chloride:	Not classified. Oral: NOEL 3000 ppm. No effects observed (rat) (OECD 408) Inhalation: No data Dermal: No data
Hydrochloric Acid:	Not classified. Oral: No data Inhalation: NOAEL 20ppm (rat). Based on the lack of effects on body weight and the lack of pathological findings except for effects of site-of-contact local irritation. (OECD 413) Dermal: No data
Ammonium Chloride:	Not classified. Oral: NOAEL 206 mg/kg bw/day (Crookshank, H.R., 1973) Inhalation: No data

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Methanol:	Dermal: No data Not classified. Oral: LOAEL > 2300 mg/kg bw/day (Rhesus Monkey) (Rao, K.R. et al., 1977) Inhalation: NOAEC 2.65 mg/L Air (Cameron, A.M. et al., 1984)
Aspiration hazard	Dermal: No data. Not applicable
11.2 Other information	None known.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity	Aquatic Acute 1; Very toxic to aquatic life. Aquatic Chronic 1; Very toxic to aquatic life with long lasting effects. Estimated LC50 (Fish) \leq 1 mg/l (96 hour)
Zinc Chloride:	Aquatic Acute 1; H400 Acute toxicity: LC50 (fish) mg/l 0.315 (Buhl K. and Hamilton S., 1990) Aquatic Chronic 1; H410
Hydrochloric Acid:	Chronic Toxicity: NOEC (Fish) mg/l 0.199 (OECD 215) Not classified Acute toxicity: LC50 (fish) mg/l 3.5 – 3.6 (Unnamed, 1959) Aquatic Chronic 1; H410 Chronic Toxicity: For hydrochloric acid, it is not relevant to determine chronic toxicity in terms of mg/L due to the varying buffering capacity of different test systems and different aquatic ecosystems.
Ammonium Chloride:	Not classified Acute toxicity: LC50 (fish) mg/l 209 (E03-05:APHA, AWWA & WPCF) Aquatic Chronic 1; H410
Methanol:	Chronic Toxicity: NOEC (Fish) mg/l 11.8 (Mayes M.A. et al, 1986) Not classified Acute toxicity: LC50 (fish) mg/l 15400 (EPA-660/3-75-009, 1975) Chronic Toxicity: EC50 (Fish) mg/l 14536 (González-Doncel, M. et al., 2008)
12.2 Persistence and degradability	No data for the mixture as a whole.
Zinc Chloride:	Not applicable for inorganic substances
Hydrochloric Acid:	Not applicable for inorganic substances
Ammonium Chloride:	Not applicable for inorganic substances
Methanol:	Degradation of methanol was higher under aerobic than anaerobic conditions..
12.3 Bioaccumulative potential	No data for the mixture as a whole.
Zinc Chloride:	Bioconcentration is not a relevant parameter for this substance.
Hydrochloric Acid:	Bioconcentration is not a relevant parameter for this substance.
Ammonium Chloride:	Bioconcentration is not a relevant parameter for this substance.
Methanol:	The substance has low potential for bioaccumulation. Bioconcentration factor (BCF) : 1
12.4 Mobility in soil	The product is predicted to have high mobility in soil. Soluble in water.
Zinc Chloride:	The substance is predicted to have high mobility in soil. Soluble in water.
Hydrochloric Acid:	The substance is predicted to have high mobility in soil. Soluble in water.
Ammonium Chloride:	The substance is predicted to have high mobility in soil. Soluble in water.
Methanol:	The substance has high mobility in soil. Miscible with water.
12.5 Results of PBT and vPvB assessment	Not classified as PBT or vPvB.
12.6 Other adverse effects	None known.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods	Dispose of this material and its container as hazardous waste. Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point. Disposal should be in accordance with local, state or national legislation.
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13.2 Additional Information

Dispose of contents in accordance with local, state or national legislation.

SECTION 14: TRANSPORT INFORMATION

	ADR/RID	IMDG	IATA
14.1 UN number	UN 1760	UN 1760	UN 1760
14.2 UN proper shipping name	CORROSIVE LIQUID, N.O.S (Zinc Chloride, Hydrochloric Acid)	CORROSIVE LIQUID, N.O.S (Zinc Chloride, Hydrochloric Acid)	CORROSIVE LIQUID, N.O.S (Zinc Chloride, Hydrochloric Acid)
14.3 Transport hazard class(es)	8	8	8
14.4 Packing group	II	II	II
14.5 Environmental hazards	Environmentally hazardous substance	Classified as a Marine Pollutant.	Environmentally hazardous substance
14.6 Special precautions for user	EmS; F-A, SB		
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.		
14.8 Additional Information	None.		

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture	
15.1.1 EU regulations	
Authorisations and/or Restrictions On Use	Not restricted
CoRAP Substance Evaluation	Methanol (CAS No. 67-56-1): Substance evaluated in 2012; evaluating Member State has proposed to ask the registrants to provide further information
15.1.2 National regulations	
Germany	Water hazard class: 3
15.2 Chemical Safety Assessment	A chemical safety assessment is not required under REACH.

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: Updated substance / mixture classification. New SDS Regulation 2015/830 format, all sections have been updated to include new information. Please review SDS with care.

References: Existing Safety Data Sheet (SDS) Existing ECHA registration(s) for and Harmonised Classification(s) for Zinc Chloride (CAS No. 7646-85-7), Ammonium Chloride (CAS No. 12125-02-9), Hydrochloric Acid (CAS No. 7647-01-0), Methanol (CAS No. 67-56-1)

Literature References:

1. Karlsson N, Cassel G, Fangmark I & Bergman F, 1986, A comparative study of the acute inhalation toxicity of smoke from TiO₂-hexachloroethane and Zn-hexachloroethane pyrotechnic mixtures, Arch. Toxicol. 59(3): 160-166.
2. Gocke E, King M-T, Eckhardt K & Wild D, 1981, Mutagenicity of Cosmetics Ingredients Licensed by the European Communities, Mutat. Res. 90: 91-109
3. Hayashi M et al., 1988, Micronucleus test in mice on 39 food additives and eight miscellaneous chemicals., Fd. Chem. Toxic., 26, 487-500, (1988)
4. Walters M & Roe FJC, 1965, A Study of the Effects of Zinc and Tin Administered Orally to Mice Over a Prolonged Period, Fd. Cosmet. Toxicol. 3: 271-276
5. Ward, J. B. et al, 1984, Sperm count, morphology, and fluorescent body frequency in autopsy service workers exposed to formaldehyde., Mutat Res 130: 417-424
6. Crookshank, H.R., 1973, Ammonium Chloride and Ammonium Sulfate in Cattle Feedlot Finishing Rations, J. of Animal Sci., 36(6), 1007-1009 (1973)
7. Rao, K.R. et al., 1977, Biochemical changes in brain in methanol poisoning--an experimental study., Indian J Med Res 65(2): 285-292.
8. Cameron, A.M. et al., 1984, Circulating concentrations of testosterone, luteinizing hormone and follicle stimulating hormone in male rats after inhalation of methanol., Arch Toxicol Suppl 7: 441-443
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EU Classification: This Safety Data Sheet was prepared in accordance with EC Regulation (EC) 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830.

Classification of the substance or mixture According to Regulation (EC) No. 1272/2008 (CLP)	Classification Procedure
Met. Corr. 1; H290	Self classification: / Expert judgement
Acute Tox. 4; H312	Acute Toxicity Estimate Mixture Calculation
Skin Corr. 1A; H314	Threshold Calculation
Eye Dam. 1; H318	Threshold Calculation
STOT SE 3; H335	Threshold Calculation
STOT SE 2; H371	Threshold Calculation
Aquatic Acute 1; H400	Threshold Calculation
Aquatic Chronic 1; H410	Threshold Calculation

LEGEND

LTEL	Long Term Exposure Limit
STEL	Short Term Exposure Limit
DNEL	Derived No Effect Level
PNEC	Predicted No Effect Concentration
PBT	PBT: Persistent, Bioaccumulative and Toxic
vPvB	vPvT: very Persistent and very Toxic

Hazard classification / Classification code:

Flam. Liq. 2; Flammable Liquid, Category 2
Met. Corr. 1; Corrosive to: Metal
Acute Tox. 3; Acute toxicity, Category 3

Acute Tox. 4; Acute toxicity, Category 4
Skin Corr. 1A/B ; Skin corrosion/irritation, Category 1A/B
Skin Irrit. 2; Skin corrosion/irritation, Category 2
Eye Dam. 1; Eye damage, category 1
Eye Irrit. 2; Eye Irritation Category 2
STOT SE 3; Specific target organ toxicity — single exposure, Category 3
STOT SE 1; Specific target organ toxicity — single exposure, Category 1
STOT SE 2; Specific target organ toxicity — single exposure, Category 2
Aquatic Acute 1; Hazardous to the aquatic environment, Acute, Category 1
Aquatic Chronic 1; Hazardous to the aquatic environment, Chronic , Category 1

Hazard Statement(s)

H225: Highly flammable liquid and vapour.
H290: May be corrosive to metals.
H301: Toxic if swallowed.
H311: Toxic in contact with skin.
H331: Toxic if inhaled.
H302: Harmful if swallowed.
H314: Causes severe skin burns and eye damage.
H315: Causes skin irritation.
H318: Causes serious eye damage.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.
H370: Causes damage to organs.
H371: May cause damage to organs.
H400: Very toxic to aquatic life.
H410: Very toxic to aquatic life with long lasting effects.

Training advice: Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.

Disclaimers

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Annex to the extended Safety Data Sheet (eSDS)

Not applicable