

Safety Data Sheet

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Version: 5.01

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

1.1. Product identifier

Product Name Step Hi-Mag
Product Code: 44860120DB
Pure substance/mixture Mixture.

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Fertilizer (PC12). Restricted to professional users.
Uses Advised Against: Consumer use [SU 21].

1.3. Details of the supplier of the safety data sheet

Everris International B.V. Nijverheidsweg 1-5; 6422 PD Heerlen (NL); Tel: +31 (0)45-5609100; Fax: +31 (0)45-5609190.

For further information, please contact: INFO-MSDS@EVERRIS.COM.

1.4. Emergency telephone number: IN CASE OF AN EMERGENCY CALL: +44 1235 239 670 (24h).

Section 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Mixture

Regulation (EC) No 1272/2008 (CLP)

Acute toxicity - Oral	Category 4 - (H302)
Eye Irritation	Category 2 - (H319)
Specific Target Organ Toxicity (Repeated Exposure)	Category 2 - (H373)
Chronic aquatic toxicity	Category 2 - (H411)

2.2. Label elements



Signal Word: Warning

Hazard Statements:

H319 - Causes serious eye irritation
 H411 - Toxic to aquatic life with long lasting effects
 H373 - May cause damage to organs through prolonged or repeated exposure
 H302 - Harmful if swallowed

Contains Iron sulphate; $FeSO_4 \cdot 1H_2O$, Manganese sulphate; $MnSO_4 \cdot 1H_2O$, Zinc sulfate anhydrous; $ZnSO_4$, Copper (I) oxide; Cu_2O

Precautionary Statements:

P280 - Wear protective gloves/protective clothing/eye protection/face protection
 P337 + P313 - If eye irritation persists: Get medical advice/attention
 P391 - Collect spillage
 P260 - Do not breathe dust/fume/gas/mist/vapors/spray
 P264 - Wash skin thoroughly after handling
 P270 - Do not eat, drink or smoke when using this product
 P273 - Avoid release to the environment
 P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P314 - Get medical advice/attention if you feel unwell

P330 - Rinse mouth

P501 - Dispose of container in accordance with local regulation

Other hazards (UN-GHS)

H316 - Causes mild skin irritation

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Chemical Name	EC-No.	CAS No	Weight %	Classification according Regulation (EC) 1272/2008 [CLP]	REACH registration number
Manganese sulphate; MnSO ₄ +1H ₂ O	232-08-99	7785-87-7	5 - 10%	STOT RE 2 (H373) Eye Dam. 1 (H318) Aquatic Chronic 2 (H411)	01-2119456624-35
Iron sulphate; FeSO ₄ +1H ₂ O	231-753-5	7720-78-7	5 - 10%	Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) Acute Tox. 4 (H302)	01-2119513203-57
Zinc oxide; ZnO	1314-13-2	1314-13-2	1 - 5%	Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	01-2119463881-32
Copper oxide; CuO	215-269-1	1317-38-0	0.1 - 1%	Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	01-2119502447-44
Zinc sulphate mono hydrate; ZnSO ₄ +1H ₂ O	231-793-3	7446-19-7	0.1 - 1%	Acute Tox. 4 (H302) Eye Dam. 1 (H318) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	01-2119474684-27
Copper sulphate anhydrous; CuSO ₄	231-847-6	7758-98-7	< 0.1%	Eye Dam. 1 (H318) Acute Tox. 4 (H302) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	01-2119520566-40

Full text of H- and EUH-phrases: see section 16.

Section 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice: First aid measures should be executed by trained personnel only.

Inhalation If not breathing, give artificial respiration.

Skin Contact: If a person feels unwell or symptoms of skin irritation appear, consult a physician.

Eye Contact: If eye irritation persists, consult a specialist.

Ingestion: In case of ingestion, the stomach should be emptied by gastric lavage under qualified medical supervision. If swallowed, seek medical advice immediately and show this container or label.

4.2. Most important symptoms and effects, both acute and delayed

None under normal processing

4.3. Indication of any immediate medical attention and special treatment needed

None under normal processing.

Section 5: FIRE FIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media:

Coordinate fire extinguishing measures to fire in surrounding area. Use dry chemical, CO₂, water spray or "alcohol" foam.

Unsuitable Extinguishing Media:

High volume water jet.

5.2. Special hazards arising from the substance or mixture

The product itself does not burn. Thermal decomposition can lead to release of irritating and toxic gases and vapors.

5.3. Advice for firefighters

Use extinguishing agent suitable for type of surrounding fire. In the event of fire and/or explosion do not breathe fumes. Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Personal Precautions: Avoid dust formation. Avoid contact with skin, eyes and clothing. Wear personal protective equipment.

For Emergency Responders: Use personal protection recommended in Section 8.

6.2. Environmental precautions

Keep away from living quarters. Do not allow material to contaminate ground water system. Prevent product from entering drains.

6.3. Methods and material for containment and cleaning up

Methods for Containment: Prevent further leakage or spillage if safe to do so.

Methods for Cleanup: Shovel or sweep up.

6.4. Reference to other sections

§ 8, 12, 13.

Section 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

General hygiene considerations:

Handle in accordance with good industrial hygiene and safety practice. Use personal protection recommended in Section 8. When using, do not eat, drink or smoke.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures/storage conditions:

For quality reasons: Keep out of reach of direct sunlight, store under dry conditions, partly used packaging should be closed well. Keep at temperatures between 0 °C and 40 °C.

Packaging Materials:

LGK (Germany)

Store in original container. Store in a closed container.

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7.3. Specific end use(s)

Specific use(s)

Exposure scenario

Fertilizer; www.everris.com; Read and follow label instructions
Mixture. Not required.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Manganese sulphate; MnSO₄·1H₂O

Austria	STEL 2 mg/m ³ TWA: 0.5 mg/m ³
Australia	0.2 mg/m ³
Belgium - 8 Hr TWA	0.2 mg/m ³
Denmark	TWA: 0.2 mg/m ³
Finland	TWA: 0.02 mg/m ³ TWA: 0.2 mg/m ³
Ireland	TWA: 0.2 mg/m ³

	STEL: 0.6 mg/m ³
Japan	0.2 mg/m ³ OEL Mn
NL MAC - TWA:	STEL: 0.05 mg/m ³ TWA: 0.2 mg/m ³
Norway	TWA: 0.1 mg/m ³ STEL: 0.1 ppm
Poland	TWA: 0.05 mg/m ³
Portugal	TWA: 0.2 mg/m ³
Spain - Valores Limite Ambientales - VLE	TWA: 0.2 mg/m ³ TWA: 0.05 mg/m ³
Switzerland	TWA: 0.5 mg/m ³
UK EH40 WEL (8h)	5 mg/m ³
<i>Iron sulphate: FeSO₄·1H₂O</i>	
Belgium - 8 Hr TWA	1 mg/m ³
Denmark	TWA: 1 mg/m ³
Finland	TWA: 1 mg/m ³
Ireland	TWA: 1 mg/m ³ STEL: 2 mg/m ³
Norway	TWA: 1 mg/m ³ STEL: 2 mg/m ³
Portugal	TWA: 1 mg/m ³
Spain - Valores Limite Ambientales - VLE	TWA: 1 mg/m ³
Switzerland	TWA: 1 mg/m ³
UK EH40 WEL (8h)	LTEL (8 hr TWA) 1 mg/m ³ STEL (15 min) 2mg/m ³
<i>Zinc oxide: ZnO</i>	
Austria	TWA: 5 mg/m ³
Australia	5 mg/m ³ TWA
Belgium - 8 Hr TWA	10 mg/m ³ TWA
Bulgaria - OEL- TWAs	5.0 mg/m ³ TWA (as Zn)
Croatia - OEL - STELs (KGVIs)	10 mg/m ³ STEL [KGVl]
Czech Republic OEL	2 mg/m ³ TWA (as Zn)
Denmark	TWA: 4 mg/m ³
Finland	TWA: 2 mg/m ³ STEL: 10 mg/m ³
FR - OEL - 8h VMEs	TWA: 5 mg/m ³ TWA: 10 mg/m ³
greece OEL 15 minute	10 mg/m ³ STEL
Hungary - OEL - TWAs	5 mg/m ³ TWA
Iceland - OEL - 8 Hour	4 mg/m ³ TWA Zn
Ireland	TWA: 2 mg/m ³ STEL: 10 mg/m ³
Japan	1 mg/m ³ OEL
Korea - ISHA - OEL - TWAs	2 mg/m ³ TWA (dust, respirable fraction, Serial No. 280); 5 mg/m ³ TWA (fume, Serial No. 281)
Latvia - OEL - TWAs	0.5 mg/m ³ TWA
Malaysia	5 mg/m ³ TWA (fume); 10 mg/m ³ TWA (dust)
Norway	TWA: 5 mg/m ³ STEL: 10 mg/m ³
Poland	STEL: 10 mg/m ³ TWA: 5 mg/m ³
Portugal	STEL: 10 mg/m ³ TWA: 2 mg/m ³
Romania - OEL - TWAs	5 mg/m ³ TWA (fume)
Russia TWA	0.5 mg/m ³ TWA 2360
Slovenia - OEL - TWAs	5 mg/m ³ TWA (respirable fraction, fume)
Spain - Valores Limite Ambientales - VLE	STEL: 10 mg/m ³ TWA: 2 mg/m ³
Singapore - OEL:PELs	5 mg/m ³ PEL 10 mg/m ³ PEL
Switzerland	STEL: 3 mg/m ³ TWA: 3 mg/m ³
UK EH40 WEL (8h)	5 mg/m ³ TWA
<i>Copper oxide: CuO</i>	
Austria	STEL 0.4 mg/m ³ TWA: 0.1 mg/m ³
Finland	TWA: 0.02 mg/m ³
Poland	TWA: 0.2 mg/m ³

Switzerland	STEL: 0.2 mg/m ³ TWA: 0.1 mg/m ³
UK EH40 WEL (8h)	1 mg/m ³ TWA (total)
<i>Copper sulphate anhydrous; CuSO₄</i>	
Austria	STEL 4 mg/m ³ TWA: 1 mg/m ³
Australia	N.A.
Finland	TWA: 0.02 mg/m ³
Poland	TWA: 0.2 mg/m ³
Russia TWA	0.5 mg/m ³ TWA 1258
Switzerland	STEL: 0.2 mg/m ³ TWA: 0.1 mg/m ³

Derived No Effect Level (DNEL)

Component	Oral	Dermal	Inhalation
Manganese sulphate; MnSO ₄ +1H ₂ O 7785-87-7 (5 - 10%)	37.6 mg/m ³	0.004 mg/kg bw/day	0.2 mg/m ³
Zinc sulphate mono hydrate; ZnSO ₄ +1H ₂ O 7446-19-7 (0.1 - 1%)		8.3 mg/kg bw/day	1 mg/m ³

Predicted No Effect Concentration (PNEC)

No data available

Component	Fresh Water	Freshwater sediment	Sea Water	Sea sediment	Soil	Impact on Sewage Treatment
Manganese sulphate; MnSO ₄ +1H ₂ O 7785-87-7 (5 - 10%)	0.013 mg/l	0.011 mg/kg	0 mg/l	0.001 mg/kg	25.1 mg/kg	25.1 mg/kg
Zinc sulphate mono hydrate; ZnSO ₄ +1H ₂ O 7446-19-7 (0.1 - 1%)	20.6 µg/l		6.1 µg/l	56.5 mg/kg	35.6 mg/kg	100 µg/l
Copper sulphate anhydrous; CuSO ₄ 7758-98-7 (< 0.1%)	7.8 µg/l	87 mg/kg	5.2 µg/l	676 mg/kg	65 mg/kg	230 µg/l

8.2. Exposure controls**Personal protective equipment****Eye/Face Protection**

Wear eye/face protection

Hand protection

Gloves. Nitrile rubber (0.26 mm). Break through time. > 8 h.

Respiratory Protection

Not required; except in case of aerosol formation. In case of mist, spray or aerosol exposure wear suitable personal respiratory protection and protective suit

Skin and body protection:

Lightweight protective clothing

Hygiene Measures:

When using, do not eat, drink or smoke. Keep away from food, drink and animal feeding stuffs.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES**9.1. Information on basic physical and chemical properties****Physical State:**

Solid

Appearance:

granulate

Color:

grey, brown.

Odor:

None

Bulk density:+/- 1350 kg/m³**Melting Point/Freezing Point:**

No data available

Boiling Point/Range:

Solid. Not applicable.

Flash Point:

Solid. Not applicable.

Evaporation Rate:

Solid. Not applicable.

Flammability (solid, gas):

Not flammable

Vapor Pressure:	Solid. Not applicable.
Vapour density	Solid. Not applicable.
Relative density	No data available
Water Solubility:	No data available
Solubility(ies)	No data available
Partition Coefficient:	Solid. Not applicable.
Autoignition Temperature:	No data available
Decomposition temperature:	No data available
Explosive Properties:	Doesn't present explosion hazard.
9.2. Other information	
VOC Content (%):	Solid. Not applicable.

Section 10: STABILITY AND REACTIVITY

10.1. Reactivity

Not reactive.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

None under normal processing. Thermal decomposition can lead to release of irritating and toxic gases and vapors.

10.4. Conditions to avoid

Burning produces obnoxious and toxic fumes.

10.5. Incompatible materials

Keep away from catalysts like derivatives of hexavalent chromium and metal halides. Keep away from flammable products (fuels) like charcoal, wood, flour, soot etc.

10.6. Hazardous decomposition products

None under normal processing. Thermal decomposition can lead to release of irritating and toxic gases and vapors.

Section 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Product Information

If this product is a mixture, the classification is not based on toxicology studies for this product, but is based solely on toxicology studies for ingredients found within this product. More detailed substance and/or ingredient information may be provided in the other sections of this SDS

Information on the Likely Routes of Exposure (inhalation, ingestion, skin and eye contact):

Inhalation Inhalation of dust in high concentration may cause irritation of respiratory system.

Eye contact May cause slight irritation.

Skin Contact May cause irritation.

Ingestion May cause gastrointestinal discomfort if consumed in large amounts.

Information on Toxicological Effects

None known

Acute Toxicity

The following values are calculated based on chapter 3.1 of the GHS document:

ATEmix (oral): 4,527.00 mg/kg

Unknown Acute Toxicity: 0% of the mixture consists of ingredient(s) of unknown toxicity.

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Manganese sulphate; MnSO ₄ +1H ₂ O	= 2125 mg/kg (Rat)		> 4.98 mg/L (Rat) 4h
Iron sulphate; FeSO ₄ +1H ₂ O	= 500 mg/kg (Rat)	= 155 mg/kg (Rat)	

Zinc oxide; ZnO	> 5000 mg/kg (Rat)		
Copper sulphate anhydrous; CuSO ₄	= 300 mg/kg (Rat)	= 1000 mg/kg (Rabbit)	

Delayed and Immediate Effects as well as Chronic Effects from Short and Long-Term Exposure:

If this product is a mixture, the classification is not based on toxicology studies for this product, but is based solely on toxicology studies for ingredients found within this product. More detailed substance and/or ingredient information may be provided in the other sections of this SDS

Serious eye damage/eye irritation	Classification based on individual ingredients of the mixture.
Respiratory or skin sensitization	Classification based on individual ingredients of the mixture.
Germ Cell Mutagenicity	Classification based on individual ingredients of the mixture.
Carcinogenicity	Classification based on individual ingredients of the mixture.
Reproductive Toxicity	Classification based on individual ingredients of the mixture.
STOT - Single Exposure	Classification based on individual ingredients of the mixture.
STOT - Repeated Exposure	Classification based on individual ingredients of the mixture.
Aspiration Hazard	Classification based on individual ingredients of the mixture.

Section 12: ECOLOGICAL INFORMATION

12.1. Toxicity**Ecotoxicity****Unknown Aquatic Toxicity**

Should not be released into the environment
0% of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Chemical Name	Algae/aquatic plants	Fish	Toxicity to Microorganisms	Crustacea
Iron sulphate; FeSO ₄ ·1H ₂ O	-	925: 96 h Poecilia reticulata mg/L LC50 static 0.56: 96 h Cyprinus carpio mg/L LC50 semi-static	-	152: 48 h Daphnia magna mg/L EC50 6.15 - 9.26: 48 h Daphnia magna mg/L EC50 Static
Copper sulphate anhydrous; CuSO ₄	-	0.1: 96 h Oncorhynchus mykiss mg/L LC50	-	0.024: 48 h Daphnia magna mg/L EC50

12.2. Persistence and degradability**Persistence and Degradability:**

No persistent or cumulative effects were observed.

12.3. Bioaccumulative potential**Bioaccumulation:**

Does not bioaccumulate.

12.4. Mobility in soil

No data available.

12.5. PBT and vPvB assessment

No data available.

12.6. Other adverse effects

No data available.

Section 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods**Disposal of Wastes:**

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging:

Do not reuse container.

Other Information Use up product completely. Packaging material is industrial waste.

Section 14: TRANSPORT INFORMATION

IMO / IMDG

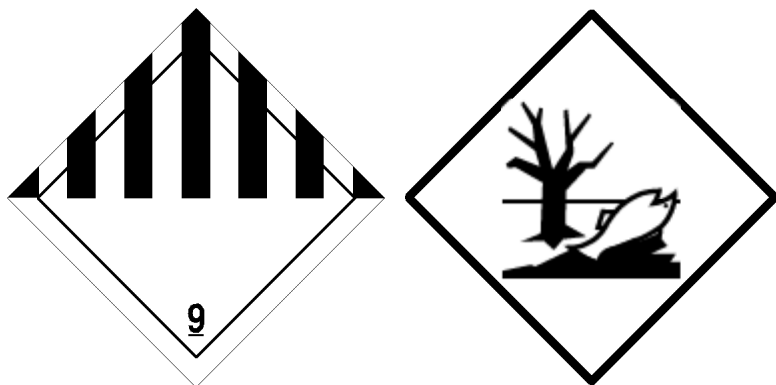
14.1	
UN-No:	3077
14.2	
Proper shipping name:	Environmentally Hazardous Substance Solid N.O.S. (Dicopper oxide, Zinc oxide)
14.3	
Hazard Class:	9
14.4	
Packing group:	III
Limited Quantity	5 kg
14.5	
Chemical Name	IMDG - Marine Pollutants
Copper sulphate anhydrous; CuSO ₄ 7758-98-7 (< 0.1%)	IMDG regulated marine pollutant (Listed in the index, listed under Copper sulphate, anhydrous, hydrates and solution)
Marine Pollutant:	This material meets the definition of a marine pollutant
Environmental Hazard	Yes
14.6	
EmS:	F-A / S-F
Special Provisions	274, 335, 966, 967
14.7	
Bulk transport according Annex II of MARPOL and IBC Code	No data available

ADR/RID

14.1	
UN-No:	3077
14.2	
Proper shipping name:	Environmentally Hazardous Substance Solid N.O.S. (Dicopper oxide, Zinc oxide)
14.3	
Hazard Class:	9
14.4	
Packing group:	III
14.5	
Environmental Hazard	Yes
14.6	
Special Provisions	274
Tunnel restriction code	E
Limited Quantity	5 kg
Environmental Hazard	Yes
Environmental Hazard	Yes

IATA

14.1	
UN-No:	3077
14.2	
Proper shipping name:	Environmentally Hazardous Substance Solid N.O.S. (Dicopper oxide, Zinc oxide)
14.3	
Hazard Class:	9
14.4	
Packing group:	III
14.5	
Environmental Hazard	Yes
14.6	
Special Provisions	A97, A158



Section 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Belgium

Denmark

Denmark

No data available

France

ICPE

Classified installation: article 4511

Germany

LGK (Germany)

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Water Endangering Class (WGK):

1 (Everris classification)

Gefahrstoffverordnung (Germany) TRGS 511

Not regulated

Component	German WGK Section
Manganese sulphate; $MnSO_4 \cdot 1H_2O$ 7785-87-7 (5 - 10%)	2
Iron sulphate; $FeSO_4 \cdot 1H_2O$ 7720-78-7 (5 - 10%)	1
Zinc oxide; ZnO 1314-13-2 (1 - 5%)	class 2
Copper oxide; CuO 1317-38-0 (0.1 - 1%)	class 1
Zinc sulphate mono hydrate; $ZnSO_4 \cdot 1H_2O$ 7446-19-7 (0.1 - 1%)	3
Copper sulphate anhydrous; $CuSO_4$ 7758-98-7 (< 0.1%)	2

15.2 Chemical safety assessment

Substance(s) usage is covered according to Reach regulation 1907/2006

Take note of Dir. 98/24/EC on the protection of the health and safety of workers from risks related to chemical agents at work

Section 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3

- H400 - Very toxic to aquatic life
- H410 - Very toxic to aquatic life with long lasting effects
- H302 - Harmful if swallowed
- H332 - Harmful if inhaled
- H318 - Causes serious eye damage

- H315 - Causes skin irritation
- H319 - Causes serious eye irritation
- H373 - May cause damage to the kidneys/ liver/ eyes/ brain/ digestive system/ central nervous system through prolonged or repeated exposure if swallowed
- H411 - Toxic to aquatic life with long lasting effects
- H316 - Causes mild skin irritation

Key or legend to abbreviations and acronyms used in the safety data sheet

RID: Regulations Concerning the International Transport of Dangerous Goods by Rail

ICAO: International Civil Aviation Organization

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labeling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

PNEC: Predicted No Effect Concentration

DNEL: Derived No-Effect Level

REACH: Registration, Evaluation, Authorization of Chemicals

CLP: EU-GHS; Classification, Labelling and Packaging

OEL: Occupational Exposure Limit

TWA: Time Weighted Average

ATE: Acute Toxicity Estimate

EUH phrase: CLP (EU) specific hazard statement

LD50: Lethal dose, 50%.

LC50: Lethal concentration, 50%.

SVHC: Substance of Very High Concern.

Classification procedure

- Calculation method
- Expert judgment and weight of evidence determination

Key literature references and sources for data

According to EC Regulation 1907/2006 (Reach), Regulation EU No. 2015/830. Regulation (EC) No 1272/2008 (CLP).

Prepared by

Regulatory Affairs Department (INFO-MSDS@EVERRIS.COM)

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Restrictions on use

Restricted to professional users

Reason for revision

*** Indicates changes since the last revision. This version replaces all previous versions

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