SAFETY DATA SHEET

INCONEL 625 Metal Powder

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830 AS AMENDED BY UK REACH REGULATIONS SI 2019/758

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

1.1 Product identifier

Product name	INCONEL 625 Metal Powder
Product code	2010

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

Identified Use(s)	Additive manufacturing, hot isostatic pressing, thermal spray, metal injection Moulding, binder jetting
Uses advised against	Anything other than the above.

1.3 Details of the supplier of the safety data sheet

Company Identification	Liberty Powder Metals Ltd. Materials Processing Institute, Eston Road, Middlesbrough, TS6 6US
Telephone	+44(0)164 238 200
E-mail (competent person)	powders@libertysteelgroup.com

1.4 Emergency telephone number

Emergency Phone No.		
National Poisons Information Service (United Kingdom)	+44 (0) 3448 920111	24 hours emercency phone number Healthcare Professionals ONLY
NHS 24	111	Members of Public
Languages spoken	English	

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

2.1.1 The retained CLP Regulation (EU) No 1272/2008, as amended for Great Britain

Acute Tox. 2; H330
Skin Sens. 1; H317
Resp. Sens. 1; H334
Muta. 2; H341
Carc. 1B; H350
Repr. 1B; H360Fd
STOT RE 1; H372
Aquatic Chronic 3; H412

2.2 Label elements

According to the retained CLP Regulation (EU) No 1272/2008, as amended for Great Britain

Product name: INCONEL 625 Metal Powder
Contains:
Nickel
Cobalt

Hazard Pictogram(s)

Signal Word(s): Danger

Hazard Statement(s)

H317: May cause an allergic skin reaction.
H330: Fatal if inhaled.
H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341: Suspected of causing genetic defects.

H350: May cause cancer.
H360Fd: May damage fertility. Suspected of damaging the unborn child.
H372: Causes damage to organs through prolonged or repeated exposure.
H412: Harmful to aquatic life with long lasting effects.

Precautionary Statement(s)

P201: Obtain special instructions before use.
P260: Do not breathe dust/fume/gas/mist/vapours/spray.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P313: IF exposed or concerned: Get medical advice/attention.
P342+P311: If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

Supplemental information: none

2.3 Other hazards

Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation Risk of burns from molten product.
The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

not applicable

3.2 Mixtures

Classification: The retained CLP Regulation (EU) No 1272/2008, as amended for Great Britain

Chemical identity of the substance	%W/W	CAS No.	EC No.	UK-REACH Registration No.	Hazard classification
Nickel	50 - < 60	7440-02-0	231-11-4	-	Skin Sens. 1; H317 Carc. 2; H351 STOT RE 1; H372 Aquatic Chronic 3; H412
Cobalt	1 - < 2	7440-48-4	231-158-0	-	Acute Tox. 4; H302 Acute Tox. 1; H330 Eye Irrit. 2; H319 Skin Sens. 1; H317 Resp. Sens. 1B; H334 Muta. 2; H341 Carc. 1B; H350 Repr. 1B; H360Fd Aquatic Acute 1; H400 Aquatic Chronic 1; H410
Manganese	0,5 - < 1	7439-96-5	231-105-1	-	Aquatic Chronic 2; H411
Copper	0,5 - < 1	7440-50-8	231-159-6	-	Aquatic Acute 1; H400 Aquatic Chronic 2; H411

Specific concentration limit (SCL) & M-factor

Chemical identity of the substance	CAS No.	EC No.	Specific concentration limit (SCL)	M-factor
Cobalt	7440-48-4	231-158-0	-	M-factor (acute): 10
Copper	7440-50-8	231-159-6	-	M-factor (acute): 1

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	Obtain special instructions before use. No action should be taken involving personal risk. Use personal protective equipment as required. Wear appropriate personal protective equipment, avoid direct contact. Ensure adequate ventilation. Do not breathe dust. Avoid contact with skin and eyes.
Inhalation	IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention immediately.
Skin contact	IF ON SKIN: Gently wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Remove contaminated clothing and wash clothing before reuse.
Hot/molten product:	In case of burns immediately cool affected skin as long as possible with cold water. Do not peel solidified product off the skin. Burns caused by molten material must be treated clinically.
Eye contact	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation develops and persists, get medical attention.
Ingestion	IF SWALLOWED: Rinse mouth. Give plenty of water to drink. Do NOT induce vomiting. Never give anything by mouth to an unconscious person or a person with cramps. Seek medical treatment.

4.2 Most important symptoms and effects, both acute and delayed

Fatal if inhaled. May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Suspected of causing genetic defects. May cause cancer. May damage fertility. Suspected of damaging the unborn child. Causes damage to organs through prolonged or repeated exposure. Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation Risk of burns from molten product.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.
Symptoms may develop several hours following exposure; medical observation therefore necessary for at least 48 hours.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media	Sand; Earth; Dry extinguishing powder; D-powder
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

Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.. In case of fire may be liberated: Carbon monoxide; Carbon dioxide; Nickel carbonyl gas; Gases/vapours, toxic; Metal oxide smoke, toxic

5.3 Advice for firefighters

Fight fire with normal precautions from a reasonable distance. Evacuate area. Remove persons to safety. Move undamaged containers from immediate hazard area if it can be done safely. Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Use water spray jet to protect personnel and to cool endangered containers. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Provide adequate ventilation. Remove all ignition sources. Ensure operatives are trained to minimise exposures. No action should be taken involving personal risk. Avoid dust generation Avoid contact with skin, eyes and clothes. Do not breathe dust/fume/gas/mist/vapours/spray. Use personal protection equipment.

6.2	**Environmental precautions**	Avoid release to the environment. Do not allow to enter drains, sewers or watercourses. Do not allow to enter into soil/subsoil.
6.3	**Methods and material for containment and cleaning up**	Take up mechanically, placing in appropriate containers for disposal. Treat the recovered material as prescribed in the section on waste disposal.
6.4	**Reference to other sections**	See Section: 8,13.

SECTION 7: HANDLING AND STORAGE

7.1	**Precautions for safe handling**	Obtain special instructions before use. Provide adequate ventilation when using the material and follow the principles of good occupational hygiene to control personal exposures. Avoid dust generation Avoid contact with skin, eyes and clothes. Do not breathe dust/fume/gas/mist/vapours/spray. Use personal protection equipment. Do not eat, drink or smoke when using this product. Remove contaminated clothing and wash clothing before reuse. Wash hands and face before breaks and after work and take a shower if necessary. Keep away from sources of heat (e.g. hot surfaces), sparks and open flames. Usual measures for fire prevention.
7.2	**Conditions for safe storage, including any incompatibilities**	Keep only in original packaging. Keep container tightly closed and in a well-ventilated place. Keep in a cool, dry place. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
	storage temperature	Ambient temperatures.
	Incompatible materials	Keep away from acids, strong oxidising agents.
7.3	**Specific end use(s)**	See Section: 1.2.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Occupational exposure limits

The UK HSE (EH40) recommends the following limits for dusts: 10 mg/m^3 (8hr TWA) total inhalable dust; 4 mg/m^3 (8hr TWA) total respirable dust.

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m³)	STEL (ppm)	STEL (mg/m³)	Note
Nickel and water - insoluble nickel compounds (as Ni)	-	-	0.5	-	-	Sk, Carc (nickel oxides and sulphides) Sen (nickel sulphate)
Chromium	7440-47-3	-	0,5	-	-	-
Cobalt and Cobalt compounds (as Co)	-	-	0.1	-	-	Carc (cobalt dichloride and sulphate), Sen
Aluminium metal inhalable dust respirable dust	7429-90-5	- -	10 4	- -	- -	-
Manganese and it inorganic compounds (as Mn)	-	- -	0.2 0.05	- -	- -	Inhalable fraction Respirable fraction
Silicon inhalable dust respirable dust	7440-21-3	- -	10 4	- -	- -	-
Copper fume (as Cu)	7440-50-8	-	0.1	-	-	-
Copper and compounds: dust and mists (as Cu)	-	-	1	-	2	-
Tantalum	7440-25-7	-	5	-	10	-

Source:Workplace Exposure Limit (UK HSE EH40).

Notes:

LTEL: Long-term exposure limit
STEL: Short-term exposure limit
TWA: Time Weighted Average
Carc: Capable of causing cancer and/or heritable genetic damage
Sen: Capable of causing occupational asthma
Sk: Can be aborbed through the skin. The assigned substances ae those for which there are concerns that dermal absorption will lead to systemic toxicity.

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 Guarantee that the eye flushing systems and safety showers are located close to the working place. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment).

8.2.2 Individual protection measures, such as personal protective equipment — Obtain special instructions before use. Keep good industrial hygiene. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke at the work place. Avoid dust generation Do not breathe dust/fume/gas/mist/vapours/spray.

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

Eye/ face protection

Wear eye protection with side protection. Recommended: EN166. Eyewash bottles should be available.

Skin protection

Hand protection:
Wear suitable gloves tested to EN374. Protective index 6, corresponding > 480 minutes of permeation time according to EN 374

Unsuitable material: Natural fibres (e.g. cotton); Leather

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. Breakthrough times and swelling properties of the material must be taken into consideration. Check the tightness of the gloves before each re-use. Replace when worn.

Body protection:
Wear suitable protective clothing. When handling with chemical substances, protective clothing with CE-labels including the four control digits must be worn.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

Thermal hazards — Not applicable.

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	Solid (Powder; grey)
Odour	Odourless
Odour threshold	Not applicable
pH	Not applicable
Melting point/freezing point	No information available.
Initial boiling point and boiling range	No information available.
Flash point	Not applicable - solid
Evaporation rate	Not applicable - solid
Flammability (solid, gas)	Not flammable (Expert judgement)
Upper/lower flammability or explosive limits	Not applicable - solid
Vapour pressure	No information available.
Vapour density	Not applicable - solid
Relative density	8.44 g/cm³
Solubility(ies)	Insoluble in water
Partition coefficient: n-octanol/water	Not applicable - Mixture
Auto-ignition temperature	Not applicable - solid
Decomposition temperature	No information available.
Viscosity	not applicable - solid
Explosive properties	Not explosive Dust: Non-combustible. (BS EN ISO 80079-20-2)
Oxidising properties	Not oxidising.

9.2 Other information

Particle size	< 22 µm
Moisture content	0,0 %W/W
Layer ignition temperature (LIT)	> 400 °C (23 °C; 5 mm Layer Density: 4242 kg/m³) 325 °C (LIT Value minus 75 °C safety factor) (BS EN ISO / IEC 80079-20-2 / BS EN 50281-2-1 Part 2-1: Method A)

SECTION 10: STABILITY AND REACTIVITY

10.1	**Reactivity**	Stable under normal conditions.
10.2	**Chemical stability**	Stable under normal conditions.
10.3	**Possibility of hazardous reactions**	Hazardous polymerisation will not occur. May form combustible dust concentrations in air.
10.4	**Conditions to avoid**	Hydrogen gas can be liberated when nickel or its alloys react with acids. In reduced atmospheres nickel can react with carbon monoxide to form Ni(CO)4, which is an extremely toxic gas.
10.5	**Incompatible materials**	acids; strong oxidising agents.
10.6	**Hazardous decomposition products**	Hydrogen (Reaction with: acids) Nickel carbonyl gas (Reaction with: Carbon monoxide) In case of fire may be liberated: Carbon monoxide; Carbon dioxide; Nickel carbonyl gas; Gases/vapours, toxic; Metal oxide smoke, toxic

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity - Ingestion		Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: > 2000 mg/kg bw
Acute toxicity - Inhalation		Mixture: Acute Tox. 2; H330: Fatal if inhaled. Acute Toxicity Estimate Mixture Calculation (dust/mist): 0.5 mg/L
	Cobalt	Acute Tox. 1; H330: Fatal if inhaled. Result: LC50 (dust/mist): < 0.05 mg/L (Rat; 4 hours; OECD 436) Source: ECHA registration dossier

Acute toxicity - Skin contact		Based upon the available data, the classification criteria are not met.
Skin corrosion/irritation		Based upon the available data, the classification criteria are not met.
Serious eye damage/irritation		Based upon the available data, the classification criteria are not met.
Respiratory or skin sensitisation		Mixture: Skin Sens. 1; H317: May cause an allergic skin reaction. Resp. Sens. 1; H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
	Nickel	Skin Sens. 1; H317: May cause an allergic skin reaction. Result: Skin sensitization Source: ECHA Registration Endpoint summary
	Cobalt	Skin Sens. 1; H317: May cause an allergic skin reaction. Resp. Sens. 1; H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled. Result: Skin sensitization; Respiratory sensitization Source: ECHA Registration Endpoint summary
Germ cell mutagenicity		Mixture: Muta. 2; H341: Suspected of causing genetic defects.
	Cobalt	Muta. 2; H341: Suspected of causing genetic defects. Source: Mandatory classification and labelling list
Carcinogenicity		Mixture: Carc. 1B; H350: May cause cancer.
	Cobalt	Carc. 1B; H350: May cause cancer. Result: carcinogenic Source: ECHA Registration Endpoint summary
	Nickel	Carc. 2; H351: Suspected of causing cancer. Source: ECHA Registration Endpoint summary
Reproductive toxicity		Mixture: Repr. 1B; H360Fd: May damage fertility. Suspected of damaging the unborn child.
	Cobalt	Repr. 1B; H360Fd: May damage fertility. Suspected of damaging the unborn child. Result: Toxicity for reproduction; Adverse effects on developmental toxicity Source: ECHA Registration Endpoint summary
STOT - single exposure		Based upon the available data, the classification criteria are not met.
STOT - repeated exposure		Mixture: STOT RE 1; H373: May cause damage to organs through prolonged or repeated exposure.
	Nickel	STOT RE 1; H373: May cause damage to organs through prolonged or repeated exposure. Result: Adverse effects observed LOAEC (inhalation; Aerosol): 0.1 mg/m³ (Rat; OECD 413) Source: ECHA registration dossier
Aspiration hazard		Based upon the available data, the classification criteria are not met.

11.2 Other information

Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation Risk of burns from molten product.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

	Mixture: Aquatic Chronic 3; H412: Harmful to aquatic life with long lasting effects.
Nickel	Aquatic Chronic 3; H412: Harmful to aquatic life with long lasting effects. LC50: 15.3 mg/L (Oncorhynchus mykiss (Rainbow trout); 96 hours) Source: ECHA registration dossier
Cobalt	Aquatic Acute 1; H400: Very toxic to aquatic life. Aquatic Chronic 1; H410: Very toxic to aquatic life with long lasting effects. EC50: >0.89 mg/L (Daphnia magna (Big water flea); 48 hours; OECD 202) EC50: 0,144 mg/L (Pseudokirchneriella subcapitata; 72 hours; OECD 201) Source: ECHA registration dossier
Manganese	Aquatic Chronic 2; H411: Toxic to aquatic life with long lasting effects.

			EC50: 4,5 mg/L (Desmodesmus subspicatus; 72 hours; OECD 201) Source: ECHA registration dossier
		Copper	Aquatic Acute 1; H400: Very toxic to aquatic life. Aquatic Chronic 2; H411: Toxic to aquatic life with long lasting effects. LC50: 0,193 mg/L (Pimephales promelas (fathead minnow); 96 hours) EC50.0,333 mg/L (Chlorella vulgaris; 72 hours; OECD 201) NOEC: 0,164 mg/L (Raphidocelis subcapitata; 72 hours; OECD 201) Source: ECHA registration dossier
12.2	**Persistence and degradability**		No data for the mixture as a whole.
		Nickel	The methods for determining the biological degradability are not applicable to inorganic substances.
		Cobalt	The methods for determining the biological degradability are not applicable to inorganic substances.
		Manganese	The methods for determining the biological degradability are not applicable to inorganic substances.
		Copper	The methods for determining the biological degradability are not applicable to inorganic substances.
12.3	**Bioaccumulative potential**		No data for the mixture as a whole.
		Nickel	Will bioaccumulate. Bioconcentration factor (BCF): 1631 L/kg (Cerastoderma edule) Source: ECHA registration dossier
		Cobalt	Will bioaccumulate. Bioconcentration factor (BCF): 265 (Daphnia magna (Big water flea)) < 1 – 7 (Oncorhynchus mykiss (Rainbow trout)) Source: ECHA registration dossier
		Manganese	Will bioaccumulate. Bioconcentration factor (BCF): 300 – 5500 (Marine Algae) 35 – 930 (Fish) Source: ECHA registration dossier
		Copper	Will bioaccumulate. Source: ECHA registration dossier
12.4	**Mobility in soil**		No data for the mixture as a whole.
		Nickel	log Kp: 3.37 L/kg Source: ECHA registration dossier
		Cobalt	log Kp: 2.94 – 4.59 L/kg Source: ECHA registration dossier
		Manganese	log Kp: 3 L/kg Source: ECHA registration dossier
		Copper	Kp 2120 – 131826 L/kg Source: ECHA registration dossier
12.5	**Results of PBT and vPvB assessment**		The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.
12.6	**Other adverse effects**		None Known

SECTION 13: DISPOSAL CONSIDERATIONS

13.1	**Waste treatment methods**	Do not allow to enter drains, sewers or watercourses. Dispose of this material and its container as hazardous waste. Disposal should be in accordance with local, state or national legislation.
	Waste classification according to Directive 2008/98/EC (Waste Framework Directive)	HP 5 Specific Target Organ Toxicity (STOT)/Aspiration Toxicity HP 6 Acute toxicity HP 7 carcinogenic HP 10 Toxic for reproduction HP 13 Sensitising HP 14 Ecotoxic

SECTION 14: TRANSPORT INFORMATION

		ADR/RID	ADN	IMDG	IATA/ICAO
14.1	**UN number**	UN 3288	UN 3288	UN 3288	UN 3288
14.2	**UN proper shipping name**	TOXIC SOLID, INORGANIC, N.O.S. (Cobalt)			
14.3	**Transport hazard class(es)**	6.1	6.1	6.1	6.1
14.4	**Packing group**	II	II	II	II
14.5	**Environmental hazards**	Not classified	Not classified	Not classified as a Marine Pollutant.	Not classified
14.6	**Special precautions for user**	See Section: 2			
14.7	**Transport in bulk according to Annex II of Marpol and the IBC Code**	not applicable			

SECTION 15: REGULATORY INFORMATION

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

15.1.1 EU regulations

Use restriction according to REACH annex XVII, no.:	27
Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances [Seveso-III-Directive]	H2; 11
Directive 2010/75/EU on industrial emissions	This substance/mixture does not contain any volatile organic compounds in the sense of Directive 2010/75/EU.
Restrictions of occupation:	Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.
To follow:	Directive 2004/37/EC of the European Parliament and of the Council of 29 April 2004 on the protection of workers from the risks related to exposure to carcinogens or mutagens at work. Directive 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work

15.1.2 National regulations

United Kingdom

UK – GB CLP Mandatory classification and labelling list	Nickel: listed Cobalt: listed Copper: listed Manganese: Not listed
UK REACH – Annex XVII	Nickel: listed (Number: 27; 75) Cobalt: listed (Number: 28; 30; 75) Manganese: Not listed Copper: Not listed
UK REACH – Grandfathered registrations notified substance list	Nickel: listed Cobalt: listed Manganese: listed Copper: listed
UK – GB Biocidal Products Regulation (BPR) – List of Active Substances	Copper: listed Nickel: Not listed Cobalt: Not listed Manganese: Not listed

Germany

Water hazard class (WGK)	strongly hazardous to water (WGK 3)

15.2 Chemical Safety Assessment Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: not applicable – V1.0

References:
Existing ECHA registration for Nickel (CAS No.: 7440-02-0); Cobalt (CAS No.: 7440-48-4); Manganese (CAS No.: 7439-96-5) and Copper (CAS No.: 7440-50-8)

Classification: This Safety Data Sheet was prepared in accordance with EC Regulation (EC) 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830. Compiled in accordance with REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

Classification of the substance or mixture. The retained CLP Regulation (EU) No 1272/2008, as amended for Great Britain	**Classification procedure**
Acute Tox. 2; H330	Acute Toxicity Estimate Mixture Calculation
Skin Sens. 1; H317	Threshold Calculation
Resp. Sens. 1; H334	Threshold Calculation
Carc. 1B; H350	Threshold Calculation
Repr. 1B; H360Fd	Threshold Calculation
STOT RE 1; H372	Threshold Calculation
Aquatic Chronic 3; H412	Summation Calculation

Legend

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
BS	British standard
CAS	Chemical Abstracts Service
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
DIN	German Institute for Standardisation
DNEL	Derived no effect level
EU	European Union
EC	European Community
EC50	Effect concentration; 50 %
EL50	Effective loading rate; 50 %
ECHA	European Chemicals Agency
EN	European Standard
GB	Great Britain
HSE	Health and Safety Executive
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IEC	International Electrotechnical Commission
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
ISO	International Organization for Standardization
LC50	Lethal concentration at which 50% of the population is killed
LOAEC	Lowest Observed Adverse Effect Concentration
LOAEL	Lowest Observed Adverse Effect Level
MARPOL	The International Convention for the Prevention of Pollution from Ships
M-factor	Multiplying factor
NOAEL	No Observed Adverse Effect Level
NOAEC	No observed adverse effect concentration
NOEC	No Observed Effect Concentration
OECD	Organisation for Economic Cooperation and Development
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
vPvB	very Persistent and very Bioaccumulative

UK	United Kingdom
UN	United Nations
VOC	Volatile organic compounds

Hazard classification / Classification code:	**Hazard Statement(s)**
Acute Tox. 1; Acute toxicity, Category 1	H330: Fatal if inhaled.
Acute Tox. 2; Acute toxicity, Category 2	H330: Fatal if inhaled.
Eye Irrit. 2; Eye irritation, Category 2	H319: Causes serious eye irritation.
Skin Sens. 1; Skin sensitisation, category 1	H317: May cause an allergic skin reaction.
Resp. Sens. 1; Respiratory sensitisation, category 1	H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Resp. Sens. 1B; Respiratory sensitisation, category 1B	H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Muta. 2; Germ cell mutagenicity, Category 2	H341: Suspected of causing genetic defects.
Carc. 1B; Carcinogenicity, Category 1B	H350: May cause cancer.
Carc. 2; Carcinogenicity, Category 2	H351: Suspected of causing cancer.
Repr. 1B; Reproductive toxicity, Category 1B	H360Fd: May damage fertility. Suspected of damaging the unborn child.
STOT RE 1; Specific target organ toxicity — repeated exposure, Category 1	H372: Causes damage to organs through prolonged or repeated exposure.
Aquatic Acute 1; Hazardous to the aquatic environment, acute, Category 1	H400: Very toxic to aquatic life.
Aquatic Chronic 1; Hazardous to the aquatic environment, chronic, Category 1	H410: Very toxic to aquatic life with long lasting effects.
Aquatic Chronic 2; Hazardous to the aquatic environment, chronic, Category 2	H411: Toxic to aquatic life with long lasting effects.
Aquatic Chronic 3; Hazardous to the aquatic environment, chronic, Category 3	H412: Harmful 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)

Exposure scenarios for substances in this preparation are not available.