

SAFETY DATA SHEET



Version: 15.1
Revision date: 18.05.2015
According to (EC) No. 453/2010, Annex II

SECTION 1

IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

- 1.1 **Product identifier:** ZYGLO® ZL-19
- 1.2 **Relevant identified uses of the mixture and uses advised against:**
Relevant identified uses: Fluorescent penetrant used in Non Destructive Testing (NDT) inspection.
Uses advised against: This product is not recommended for any use other than the identified uses above.
- 1.3 **Details of the supplier of the safety data sheet**
Manufacturer: Magnaflux® (A Division of ITW Ltd)
Address: Faraday Road, South Dorcan Industrial Estate, Swindon, UK
Postcode: SN3 5HE
Telephone/fax number: Telephone: +44 (0)1793 524566
Fax: +44 (0)1793 490459
Web: www.eu.magnaflux.com
Email address of competent person responsible for SDS: datasheets@magnaflux.co.uk
National contact: None appointed.
- 1.4 **Emergency telephone number:** T: +44 (0)1793 524566 (office hours)
Opening hours: Office hours (GMT) Monday - Thursday 8am - 5pm, Friday 8am - 4pm
Other comments: Emergency telephone service is provided in English only.

SECTION 2

HAZARDS IDENTIFICATION

- 2.1 **Classification of the substance or mixture:**
Classification according to Regulation (EC) No 1272/2008 (CLP): **Physical and Chemical Hazard:** None
Health Hazard: Skin Irrit. 2 H315
Eye Dam. 1 H318
Asp. Tox. 1 H304
Environmental Hazard: Aquatic Chronic 3 H412
Xn R41, R65, R66, R52/53
- Classification according to 67/548/EEC as amended & Directive 1999/45/EC:**
- Additional information** EUH066

For full text of risk phrases, hazard statements and EU hazard statements see SECTION 16.

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2.2

Label Elements:

Labelling according to regulation (EC) No 1272/2008 [CLP]

Hazard Pictograms:



Signal Word:

Danger

Hazard Statement(s):

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.

H318: Causes serious eye damage.

H412: Harmful to aquatic life with long lasting effects.

Precautionary Statement(s):

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P273: Avoid release to the environment.

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses if present and easy to do – continue rinsing.

P310: Immediately call a POISON CENTER or doctor/physician.

P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician

P331: Do NOT induce vomiting.

P264: Wash thoroughly after handling

P302+P352: IF ON SKIN: Wash with soap and water.

P332+P313: If skin irritation occurs: Get medical advice/attention.

P362+P364: Take off contaminated clothing and wash it before reuse.

P405: Store locked up.

P501: Dispose of contents/container to hazardous waste or special collection point.

Supplementary Precautionary Statement(s):

EUH066: Repeated exposure may cause skin dryness or cracking

Supplementary Hazard Information (EU)

Hazard Determining Component(s)

Hydrocarbons C12-C15 n-alkanes, isoalkanes, cyclic, < 2% aromatics
Alcohols, C12-C15, branched and linear, ethoxylated, propoxylated
Alcohols, C11 – C15 secondary ethoxylated
Terpineol

2.3

Other hazards:

Spilled liquid could present a slip hazard.

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SECTION 3

COMPOSITION / INFORMATION ON INGREDIENTS

3.2 Mixtures

Ingredient Name	CAS No	EC No	REACH Registration Number	% Weight	Classification according to Regulation (EC) No 1272/2008 [CLP]	R phrases	Additional information
Hydrocarbons C12-C15 n-alkanes, isoalkanes, cyclic, < 2% aromatics		920-107-4	01-2119453414-xxxx	50 – 80 %	Asp. Tox. 1: H304	Xn: R65, R66	EUH066
Alcohols, C12-C15, branched and linear, ethoxylated, propoxylated	120313-48-6			< 15 %	Eye Dam. 1: H318 Aquatic Chronic 2: H411	Xi: R41 N: R51/53	
Alcohols, C11 – C15 secondary ethoxylated	68131-40-8	614-295-4		< 10 %	Skin Irr. 2: H315 Eye Dam. 1 H318	Xi: R41	
Oleic acid monoisopropanolamide	111-05-7			< 3 %	Eye Dam. 1 – H318 Skin. Irr. 2 – H315	Xi: R38, R41	None
Terpineol	8000-41-7	232-368-1	01-2119553062-49-xxxx	< 2 %	Skin Irr. 2: H315 Eye Irr. 2 H319	Xi: R38	None

Note: Hazard statement(s) and risk phrase(s) in this section apply only to raw materials, not necessarily to finished products.

*See Section 16 for hazard statement(s) and risk phrase(s) text in full.

SECTION 4

FIRST AID MEASURES

4.1 Description of first aid measures:

General notes:

If symptoms persist, seek medical attention. Show this safety data sheet to the doctor in attendance.

Following inhalation:

Remove to fresh air. Keep at rest. If not breathing give artificial respiration. Seek medical attention if symptoms occur.

Following skin contact:

Flush with water, use soap if available. Take off contaminated clothing and wash before re-use. If skin irritation or rash occurs: get medical advice/attention. Flush eyes with large amounts of water for at least 15 minutes. Check for and remove any contact lenses if easy to do - continue rinsing. Seek medical attention immediately.

Following eye contact:

Flush eyes with large amounts of water for at least 15 minutes. Check for and remove any contact lenses if easy to do - continue rinsing. Seek medical attention immediately.

Following ingestion:

Do NOT induce vomiting. If vomiting occurs, keep head low so that stomach contents don't enter the lungs. Never give anything by mouth to an unconscious person. Seek medical attention immediately.

Self-protection of the first aider:

No action shall be taken involving any personal risk or without suitable training. If it is suspected that the mixture is still present, wear appropriate personal protective equipment.

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- 4.2 **Most important symptoms, both acute and delayed:**
Risk of serious damage to eyes. May cause lung damage if swallowed. No delayed effects known.
- 4.3 **Indication of any immediate medical attention and special treatment needed:**
Eye wash bottle must be readily available when product is in use.

SECTION 5 FIREFIGHTING MEASURES

- 5.1 **Extinguishing media:**
Suitable extinguishing media: Carbon dioxide, foam, dry chemical, water fog or spray.
Unsuitable extinguishing media: Do not use water jet.
- 5.2 **Special hazards arising from the substance or mixture:** Evacuate immediate area. If possible keep unaffected containers cool with water spray.
Hazardous combustion products: Smoke, soot and oxides of carbon. Burning vapour may give off toxic fumes.
- 5.3 **Advice for fire-fighter:**
Self contained breathing apparatus and full protective clothing must be worn. Water spray should be used to cool containers.

SECTION 6 ACCIDENTAL RELEASE MEASURES

- 6.1 **Personal precautions, protective equipment and emergency procedures:**
Suitable protective equipment (see Section 8) should be worn to prevent any contamination of skin, eyes and personal clothing.
For non-emergency personnel: Remove ignition sources. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Vapours are likely to accumulate in low areas.
For emergency responders: Keep unnecessary people at a safe distance. Remove ignition sources. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Vapours are likely to accumulate in low areas.
- 6.2 **Environmental precautions:**
Prevent liquid from entering drains, sewers and watercourses. Notify the Environment Agency or water authorities if a major spillage occurs. Prevent product from contaminating soil.
- 6.3 **Methods and material for containment and cleaning up:**
Eliminate sources of ignition. Take measures to prevent the build-up of electrostatic charge.
For containment: Contain spilled liquid with sand or earth. Mop up or absorb onto with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite). Place in a container for disposal according to local/national regulations. Large spills should be pumped (using an earthed explosion proof pump) into containers pending disposal.
For cleaning up: Allow residues to evaporate. Do not flush away residues with water.
Other information: No other information.
- 6.4 **Reference to other sections:**
For Personal Protective Equipment see Section 8. For disposal information see Section 13.

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SECTION 7

HANDLING & STORAGE

- 7.1 Precautions for safer handling:**
Protective Measures: Wear suitable protective clothing such as chemical resistant gloves, apron and goggles/face mask to protect from splashes. Ensure adequate exhaust ventilation when in use.
Measures to prevent fire: Avoid contact with skin and eyes. Do not breathe product spray or mist. Keep away from sources of ignition. Take measures to prevent the build-up of electrostatic charge.
Advice on general occupational hygiene: Wash thoroughly after handling.
- 7.2 Conditions for safe storage, including any incompatibilities:**
Technical measures and storage conditions: Store in a cool dry area away from heat and sources of ignition. Keep containers closed when not in use.
Packaging materials: Store in original container.
Requirements for storage rooms and vessels: Store locked up. Recommended storage temperature 10 °C to 30 °C. Keep containers out of direct sunlight. Rotate stock and check regularly for damaged items.
Further information on storage conditions:
- 7.3 Specific end use(s):** Use only for Non Destructive Testing (NDT) applications.
Recommendations: See product data sheet for further information.
Industrial sector specific solutions:

SECTION 8

EXPOSURE CONTROLS / PERSONAL PROTECTION

- 8.1 Control parameters:**
Occupational exposure limit values: Occupational exposure figures have been set for some of the components of this preparation based on GESTIS International Limit Values or manufacturers' recommendation.

Ingredient name	Country	Limit value - 8 hours		Limit value - short term	
		ppm	mg /m3	ppm	mg /m3
Hydrocarbons C12-C15 n-alkanes, isoalkanes, cyclic, < 2% aromatics	Supplier's recommendation	150	1200		
Data obtained from supplier's SDS					

Note: Where no specific short-term exposure limit is listed, a figure three times the long-term exposure limit should be used.

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Derived No Effect Level (DNEL) – Hydrocarbons C12-C15 n-alkanes, isoalkanes, cyclic, < 2% aromatics

End User	Exposure Route	Exposure Time	Effects	DNEL
Worker	Inhalation	Long term	Systemic	No threshold effect and/or no dose-response information available.
Worker	Inhalation	Short term	Local	No threshold effect and/or no dose-response information available.
Worker	Dermal	Long term	Systemic	No threshold effect and/or no dose-response information available.

Derived No Effect Level (DNEL) – Terpineol

End User	Exposure Route	Exposure Time	Effects	DNEL
Worker	Inhalation	Long term	Systemic	5.8 mg/m ³
Worker	Inhalation	Short term	Systemic	5.8 mg/m ³
Worker	Dermal	Long term	Systemic	1.17 mg/kg bw/day
Worker	Dermal	Short term	Systemic	5 mg/kg bw/day

Note: The Derived No Effect Level (DNEL) is an estimated safe level of exposure that is derived from toxicity data in accordance with specific guidance within the European REACH regulation. The DNEL may differ from an Occupational Exposure Limit (OEL) for the same chemical. OELs may be recommended by an individual company, a government regulatory body or an expert organization, such as the Scientific Committee for Occupational Exposure Limits (SCOEL) or the American Conference of Governmental Industrial Hygienists (ACGIH). OELs are considered to be safe exposure levels for a typical worker in an occupational setting for an 8-hour work shift, 40 hour work week, as a time weighted average (TWA) or a 15 minute short-term exposure limit (STEL). While also considered to be protective of health, OELs are derived by a process different from that of REACH.

Predicted No Effect Concentration (PNEC)

	Hydrocarbons C12-C15 n-alkanes, isoalkanes, cyclic, < 2% aromatics	Terpineol
Water - Fresh Water	No data available, testing technically not feasible.	62 µg/L
Water - Marine Water		6.2 µg/L
Water - Intermittent release		No data available.
Sediment - Fresh water		0.442 mg/kg sediment dw
Sediment - Marine water		0.044 mg/kg sediment dw
Soil		0.052 mg/kg soil dw
Sewage Treatment plant		2.57 mg/L

8.2 Exposure controls:

Appropriate engineering controls:

Concentrations of product vapours and mists in the working atmosphere must be kept as low as is reasonably practicable. Exposure should be minimised by the use of appropriate containment, engineering control and ventilation measures. Where this is not possible, personal protective equipment should be worn as indicated below where appropriate.

Personal protection equipment:

Provide eye wash station.
Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limits are not exceeded.

Eye and face protection:

Safety glasses with side-shields conforming to EN166.

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Skin protection - hand:	Protective gloves conforming to EN374. Use chemical resistant gloves recommended by glove manufacturer as being suitable for kerosenes if hand exposure is unavoidable. Marigold blue nitrile, Long Nitrosolve or Green Supersolve (breakthrough time 480 minutes, permeation rate 96 mg/m ² after breakthrough, degradation level 2) are suitable, although other types may be more suitable in other circumstances. Glove manufacturer's directions for use should be observed.
Skin protection – other:	Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of dangerous substance at the specific workplace.
Respiratory protection:	If ventilation is insufficient, suitable respiratory protection must be provided. Chemical respirator with organic vapour cartridge. Use respiratory equipment with gas filter, type A2. EN 136/ 140/ 145/ 143/ 149 For higher level protection use type ABEK-P3 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under CEN standards.
Thermal hazards:	Not applicable.
Environmental exposure controls:	Avoid any release to the environment.

SECTION 9

PHYSICAL & CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:	
Appearance:	Yellow/ green liquid.
Odour:	Mild pine.
Odour threshold:	No data available.
pH:	Neutral.
Melting point/freezing point:	No data available.
Initial boiling point and boiling range:	230 °C.
Flash point (PMCC):	93 °C (minimum).
Evaporation rate (BuAC = 100):	< 0.1.
Flammability (solid, gas) (Limits in air):	No data available.
Upper/lower flammability or explosive limits:	1.0 – 6.0 % (Vol %).
Vapour pressure:	< 0.5 mm Hg @ 20 °C.
Vapour density (Air = 1):	> 1.
Relative density:	0.86 g/cm ³ .
Solubility:	Emulsifies.
Partition coefficient: n-octanol/water:	No data available.
Auto-ignition temperature:	> 200 °C.
Decomposition temperature:	No data available.
Viscosity (ASTM D445):	5.6 mm ² /s @ 38 °C.
Explosive properties:	No data available.
Oxidising properties:	No data available.

Note: properties relate to the bulk product only unless otherwise stated.

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9.2 Other information:
No other information.

SECTION 10 STABILITY & REACTIVITY

10.1	Reactivity:	No data available.
10.2	Chemical stability	Stable under normal conditions of use and applications.
10.3	Possibility of hazardous reactions:	No data available.
10.4	Conditions to avoid:	Keep away from sources of ignition, hot surfaces and direct sun light.
10.5	Incompatible materials:	Strong oxidising agents.
10.6	Hazardous decomposition materials:	None under normal conditions of use. Smoke, soot and oxides of carbon on combustion.

SECTION 11 TOXICOLOGICAL INFORMATION

11.1	Information on toxicological effects: based on data for component materials.	
	Acute toxicity - oral:	Conclusive but not sufficient for classification.
	Acute toxicity – dermal:	Conclusive but not sufficient for classification.
	Acute toxicity – inhalation:	Conclusive but not sufficient for classification.
	Skin corrosion/irritation:	Skin Irr. 2, H315: Causes skin irritation. EUH066: Repeated exposure may cause skin cracking or dryness.
	Serious eye damage/irritation:	Eye Dam. 1, H318: Causes serious eye damage.
	Respiratory sensitisation:	Based on tests of individual components, this preparation is not sensitising.
	Skin sensitisation:	Based on tests of individual components, this preparation is not sensitising.
	Germ cell mutagenicity:	Based on individual components, this preparation is not expected to show mutagenic effects.
	Carcinogenicity:	Based on individual components, this preparation is not expected to show carcinogenic effects.
	Reproductive toxicity:	Based on individual components, this preparation is not expected to show reproductive toxicity.
	STOT single exposure:	Data lacking.
	STOT repeated exposure:	Data lacking.
	Aspiration hazard:	Asp. Tox. 1 - H304: May be fatal if swallowed and enters airways.

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Information on likely Routes of Exposure and Potential Health Effects:

Inhalation:	May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion:	May be harmful if swallowed. Ingestion may cause irritation of the mouth, throat and digestive tract. Small amounts of product aspirated into the respiratory system during ingestion or from vomiting may cause bronchopneumonia or pulmonary edema.
Eye contact:	Risk of serious damage to eyes.
Skin contact:	May be harmful if absorbed through skin. Causes skin irritation. Repeated exposure may cause skin cracking or dryness.

Toxicity Test Results: based on data for component materials, where available.

Hydrocarbons C12-C15 n-alkanes, isoalkanes, cyclic, < 2% aromatics

Acute Toxicity – oral	LD50 (rat)	> 5000 mg/kg (OECD 401)
Acute Toxicity – dermal	LD50 (rabbit)	> 5000 mg/kg (OECD 402)
Acute Toxicity – inhalation	LC50 (rat)	4951 mg/l (vapours) 4h (OECD403)

Alcohols, C12-C15, branched and linear, ethoxylated, propoxylated

Acute Toxicity – oral	LD50 (rat)	2,000 – 5,000 mg/kg
Acute Toxicity – dermal	LD50 (rabbit)	Not determined
Acute Toxicity – inhalation	LC50 (rat)	Not determined

Alcohols, C11 – C15 secondary ethoxylated

Acute Toxicity – oral	LD50 (rat)	> 3,000 mg/kg
Acute Toxicity – dermal	LD50 (rabbit)	> 2,000 mg/kg
Acute Toxicity – inhalation	LC50 (rat)	No data.

Terpineol

Acute Toxicity – oral	LD50 (rat)	4300 mg/kg
Acute Toxicity – dermal	LD50 (rabbit)	> 3000 mg/kg
Acute Toxicity – inhalation	LC50 (rat)	No data

Other Information: No other information

SECTION 12 ECOLOGICAL INFORMATION

Based on data for component materials

12.1 Toxicity:

Hydrocarbons C12-C15 n-alkanes, isoalkanes, cyclic, < 2% aromatics

Fish	Onchorhynchus mykiss	LC0	96h	1000 mg/l
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Alcohols, C12-C15, branched and linear, ethoxylated, propoxylated

Fish	Leuciscus idus	LC50	96h	1 – 10 mg/l (1)
Microorganisms	Activated Sludge	EC10		> 1000 mg/l (DEV-L2)

Alcohols, C11 – C15 secondary ethoxylated

Fish	Pimephales promelas	LC50	96h	3.5 – 4.9 mg/l
Aquatic Invertebrates	Daphnia Magna	EC50	48h	3.1 mg/l.

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12.2	Persistence and degradability:	Hydrocarbons C12- C15 n-alkanes, isoalkanes, cyclics, < 2% aromatics: expected to be biodegradable. Alcohols, C12-C15, branched and linear, ethoxylated, propoxylated: moderately biodegradable. Alcohols, C11 – C15 secondary ethoxylated: readily biodegradable.
12.3	Bioaccumulative potential:	Hydrocarbons C12 - C15 n-alkanes, isoalkanes, cyclics, < 2% aromatics: no data available. Alcohols, C12-C15, branched and linear, ethoxylated, propoxylated: Accumulation in organisms is not expected. Alcohols, C11 – C15 secondary ethoxylated: Not expected to be bioaccumulating.
	Partition coefficient: n-octanol/water (log Kow):	Hydrocarbons C12 - C15 n-alkanes, isoalkanes, cyclics, < 2% aromatics: no data available. Alcohols, C12-C15, branched and linear, ethoxylated, propoxylated: no data available. Alcohols C11 - C15 secondary ethoxylated: log Pow = 3.3 - 4.4
	Bioconcentration factor (BCF):	Alcohols C11 - C15 secondary ethoxylated: log BCF = 15 – 64
12.4	Mobility in soil:	Hydrocarbons C12 - C15 n-alkanes, isoalkanes, cyclics, < 2% aromatics: this product is insoluble in water. Alcohols, C12-C15, branched and linear, ethoxylated, propoxylated: The substance will not evaporate into the atmosphere from the water surface. Adsorption to the solid phase is possible. Alcohols C11 - C15 secondary ethoxylated: This product is soluble in water.
12.5	Results of PBT and vPvB assessment:	This mixture does not contain any substances that are assessed to be a PBT or vPvB.
12.6	Other adverse effects:	No data available,

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SECTION 13

DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods:

Dispose of waste and residues in accordance with local authority requirements. Seek the advice of an approved waste disposal contractor for disposal at a licensed facility in accordance with national legislation.

Product/packing disposal:

Empty containers may contain residues.
Do NOT remove labels.

Waste codes/waste designations according to LoW:

None assigned.

NOTE: Waste codes are assigned based upon the most common uses for this material and may not reflect contaminants resulting from actual use. Waste producers need to assess the actual process used when generating the waste and its contaminants in order to assign the proper waste code(s).

Waste treatment – relevant information:

Dispose of waste and residues in accordance with local authority requirements. Seek the advice of an approved waste disposal contractor for disposal at a licensed facility in accordance with national legislation
Do not empty down the drain.

Sewage disposal – relevant information:

Other disposal recommendations:

Use a licensed waste contractor.

SECTION 14

TRANSPORT INFORMATION

14.1	UN number:	ADR/RID:	-
		IMDG:	-
		IATA:	-
14.2	UN proper shipping name:	ADR/RID:	Not dangerous goods.
		IMDG:	Not dangerous goods.
		IATA:	Not dangerous goods.
14.3	Transport hazard class(es):	ADR/RID:	-
		IMDG:	-
		IATA:	-
14.4	Packing group:	ADR/RID:	-
		IMDG:	-
		IATA:	-
14.5	Environmental hazards:	ADR/RID:	-
		IMDG:	-
		IATA:	-
14.6	Special precautions for user:		
	Not applicable.		
14.7	Transport in bulk according to Annex II of Marpol 73/78 and the IBC code:		
	Not applicable.		

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SECTION 15

REGULATORY INFORMATION

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

EU Regulations:

This data sheet complies with the requirements of Regulation (EC) No 1272/2008 on the classification, labelling and packaging of substances and mixtures.

Regulation (EU) No 453/2010 amending Regulation (EC) No 1907/2006 REACH.

Information according to 2013/10/EU and 2008/47/EC amendment of the aerosol directive 75/324/EEC.

Not applicable this product is not an aerosol.

National regulations (Germany):

Wassergefährdungsklasse (water hazard class):

WGK 2 - Hazard to waters.

Technische Anleitung Luft (TA-Luft):

Class 5.2.5 Organic substances, except dusts.

15.2 Chemical safety assessment:

No chemical safety assessment has been carried out for this mixture by the supplier.

SECTION 16

OTHER INFORMATION

(i) Indication of changes:

This safety data sheet has been updated to meet the requirements of Regulation EU No 453/2010 and Regulation (EC) No 1272/2008.

Vertical lines on the left hand side indicate an amendment from the previous version.

(ii) Abbreviations and acronyms:

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road (Accord européen relatif au transport international des marchandises Dangereuses par Route)
CAS No.	Chemical Abstracts Service number
CEN	European Committee for Standardisation
CLP	Classification, Labelling Packaging Regulation; Regulation (EC) No 1272/2008
ECHA	European Chemicals Agency
EC50	Half Maximal Effective Concentration
EC number	EINECS and ELINCS number
EINECS	European Inventory of Existing Commercial Substances
ELINCS	European List of notified Chemical Substances
GHS	Globally Harmonized System
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Lethal Concentration to 50% of a test population
LD50	Lethal Dose to 50% of a test population
MPI	Magnetic Particle Inspection
NDT	Non-Destructive Testing
OEL	Occupational Exposure Limit
PBT	Persistent, Bioaccumulative and Toxic Substance
PMCC	Pensky-Martens closed cup method
PPE	Personal Protection Equipment
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation EC (No) 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail (Reglement International concernant le transport des marchandises Dangereuses par chemin de fer)
SDS	Safety Data Sheet
STOT RE	Specific Target Organ Toxicity, Repeat Exposure
STOT SE	Specific Target Organ Toxicity, Single Exposure
TA-Luft	Technical Instructions on Air Quality Control (Technische Anleitung zur

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Reinhaltung der Luft)
 vPvB Very Persistent and Very Bioaccumulative
 WEL Workplace Exposure Limit
 WGK German Water Hazard Class (Wassergefährdungsklasse)

(iii) Key literature and sources of data:

- Supplier's safety data sheets for components listed in Section 3.
- European Chemicals Agency, <http://echa.europa.eu/>
- GESTIS International Limit Values Database, http://limitvalue.ifa.dguv.de/Webform_gw.aspx
- Occupational Exposure Limits EH40/2005.
- Chemical (Hazard Information & Packaging for Supply) Regulations 2009 Chemicals (CHIP 4).
- Commission regulation (EU) 453/2010.
- Control of Substances Hazardous to Health Regulations 2002.
- Dangerous Substances Directive 67/548/EEC as modified.
- Dangerous Preparations Directive 1999/45/EC.
- EC Directive 91/155/EEC.
- Hazardous waste regulations 2005.
- Health & Safety at Work Act 1974.
- REACH Directive (EC) 1907/2006.

(iv) Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 (CLP):

Classification according to Regulation (EC) No 1272/2008	Classification procedure
Eye Dam. 1 H318	Calculation – non additive approach
Asp Tox 1 H304	Calculation
Skin Irr 2 H315	Calculation
Aquatic Chronic 3 H412	Calculation

(v) Hazard statements (number and full text):

H304: May be fatal if swallowed and enters airways.
 H315: Causes skin irritation.
 H318: Causes serious eye damage.
 H319: Causes serious eye irritation.
 H411: Toxic to aquatic life with long lasting effects.
 H412: Harmful to aquatic life with long lasting effects.
 EUH066: Repeated exposure may cause skin dryness or cracking.

Risk phrases (number and full text):

R41: Risk of serious damage to eyes.
 R38: Irritating to skin.
 R51/53: Toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment.
 R52/53: Harmful to aquatic organisms, may cause long term adverse effects in the aquatic environment.
 R65: Harmful: may cause lung damage if swallowed.
 R66: Repeated exposure may cause skin dryness or cracking.

Relevant precautionary statements (number and full text):

P280: Wear protective gloves/protective clothing/eye protection/face protection.
 P273: Avoid release to the environment.
 P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.
 P310: Immediately call a POISON CENTER or doctor/physician.
 P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
 P331: Do NOT induce vomiting.
 P264: Wash thoroughly after handling
 P302+P352: IF ON SKIN: Wash with soap and water.
 P332+P313: If skin irritation occurs: Get medical advice/attention.
 P362+P364: Take off contaminated clothing and wash it before reuse.
 P405: Store locked up.
 P501: Dispose of contents/container to hazardous waste or special collection point.

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- (vi) **Training advice:**
Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene. Chemical hazard risk assessment. Provide adequate information, instruction and training to operators.

DISCLAIMER

The information and recommendations contained herein are based upon data believed to be up-to-date and correct. However, no guarantee or warranty of any kind, express or implied, is made with respect to the information and recommendations contained herein. We accept no responsibility and disclaim all liability for any harmful effects that may be caused by (incorrect) use, handling, purchase, resale, or exposure to our product. Customers and users of our product must comply with all applicable health and safety laws, regulations, and orders. In particular, they are under an obligation to carry out a risk assessment for the particular work places and to take adequate risk management measures in accordance with the national implementation legislation of EU Directives 89/391/EEC and 98/24/EC amended by Directive 2014/27/EU.

Revision summary:	Revision Comments	
		Comprehensive revision to take into account Regulations (EC) No 1272/2008 (CLP) and Regulation (EU) No 453/2010. Vertical lines on the left hand side indicate an amendment from the previous version.
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