

**SFR00100122AA - BALL PEN INK BLACK 2330**

## Safety Data Sheet

### SECTION 1. Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Code: SFR00100122AA  
Product name: BALL PEN INK BLACK 2330

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

Intended use: INK FOR BALLPOINT PENS

Identified Uses	Industrial	Professional	Consumer
Inks	✔	✔	-
Uses Advised Against			

Do not use for purposes other than those specified

#### 1.3. Details of the supplier of the safety data sheet

Name: HAINENKO LIMITED  
Full address: 284 Chase Road, Southgate, N14 6HF  
District and Country: London, England  
Tel. 020 8882 8734  
Fax 020 8882 7749

e-mail address of the competent person responsible for the Safety Data Sheet: d.ashpole@hainenko.com

#### 1.4. Emergency telephone number

For urgent inquiries refer to: 020 8882 8734

### SECTION 2. Hazards identification

#### 2.1. Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in (EC) Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of (EU) Regulation 2015/830. Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

**SFR00100122AA - BALL PEN INK BLACK 2330**

Revision nr. 1  
Dated 18/01/2017  
Revised 19/03/2021  
Printed on 19/03/2021  
Page n. 2/12

## Hazard classification and indication:

Serious eye damage, category 1	H318	Causes serious eye damage.
Skin sensitization, category 1	H317	May cause an allergic skin reaction.
Hazardous to the aquatic environment, acute toxicity, category 1	H400	Very toxic to aquatic life.
Hazardous to the aquatic environment, chronic toxicity, category 1	H410	Very toxic to aquatic life with long lasting effects.

**2.2. Label elements**

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

## Hazard pictograms:



Signal words:            Danger

## Hazard statements:

**H318**                    Causes serious eye damage.  
**H317**                    May cause an allergic skin reaction.  
**H410**                    Very toxic to aquatic life with long lasting effects.

## Precautionary statements:

**P273**                    Avoid release to the environment.  
**P280**                    Wear protective gloves / eye protection / face protection.  
**P302+P352**            IF ON SKIN: wash with plenty of water / soap or other suitable material.  
**P310**                    Immediately call a POISON CENTER / a doctor / a center suitable for emergency medical advice.  
**P305+P351+P338**    IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**Contains:**            [4-[P,P'-BIS(DIMETHYLAMINO)BENZHYDRYLIDENE]CYCLOHEXA-2,5-DIEN-1-YLIDENE]DIMETHYLAMMONIUM M-[[P-ANILINOPHENYL]AZO]BENZENESULPHONATE

**2.3. Other hazards**

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

**SECTION 3. Composition/information on ingredients****3.1. Substances**

Information not relevant

**3.2. Mixtures**

Contains:

**SFR00100122AA - BALL PEN INK BLACK 2330**

Identification	Conc. %	Classification 1272/2008 (CLP)
<b>2-PHENOXYETHANOL</b> CAS 122-99-6 EC 204-589-7 INDEX 603-098-00-9 Reg. no. 01-2119488943-21-xxxx	10 - 25	Acute Tox. 4 H302, Eye Irrit. 2 H319
<b>[4-[P,P'-BIS(DIMETHYLAMINO)BENZHYDRYLIDENE]CYCLOHEXA-2,5-DIEN-1-YLIDENE]DIMETHYLAMMONIUM M-[[P-ANILINOPHENYL]AZO]BENZENES ULPHONATE</b> CAS 65113-55-5 EC 265-449-9 INDEX - Reg. no. 01-2119982974-17-xxxx	5 - 15	Eye Dam. 1 H318, STOT SE 3 H335, Skin Sens. 1 H317, Aquatic Acute 1 H400 M=100, Aquatic Chronic 1 H410 M=100
<b>2-METHYLPENTANE-2,4-DIOL</b> CAS 107-41-5 EC 203-489-0 INDEX 603-053-00-3 Reg. no. 01-2119539582-35-xxxx	1 - 10	Eye Irrit. 2 H319, Skin Irrit. 2 H315

Note: Upper limit is not included into the range

The full wording of hazard (H) phrases is given in section 16 of the sheet.

## SECTION 4. First aid measures

### 4.1. Description of first aid measures

EYES: Remove contact lenses, if present. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. If problem persists, seek medical advice.

SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Wash contaminated clothing before using it again.

INHALATION: Remove to open air. If the subject stops breathing, administer artificial respiration. Get medical advice/attention immediately.

INGESTION: Get medical advice/attention immediately. Do not induce vomiting. Do not administer anything not explicitly authorised by a doctor.

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

For symptoms and effects caused by the contained substances, see section 11.

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

Information not available

## SECTION 5. Firefighting measures

### 5.1. Extinguishing media

SUITABLE EXTINGUISHING EQUIPMENT

The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.

UNSUITABLE EXTINGUISHING EQUIPMENT

None in particular.

### 5.2. Special hazards arising from the substance or mixture

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE

Do not breathe combustion products.

## SFR00100122AA - BALL PEN INK BLACK 2330

### 5.3. Advice for firefighters

#### GENERAL INFORMATION

Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.

#### SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

## SECTION 6. Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

Block the leakage if there is no hazard.

Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

### 6.2. Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

### 6.3. Methods and material for containment and cleaning up

Collect the leaked product into a suitable container. If the product is flammable, use explosion-proof equipment. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.

Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

### 6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

## SECTION 7. Handling and storage

### 7.1. Precautions for safe handling

Before handling the product, consult all the other sections of this material safety data sheet. Avoid leakage of the product into the environment. Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat.

### 7.2. Conditions for safe storage, including any incompatibilities

Store only in the original container. Store the containers sealed, in a well ventilated place, away from direct sunlight. Keep containers away from any incompatible materials, see section 10 for details.

### 7.3. Specific end use(s)

Information not available

## SECTION 8. Exposure controls/personal protection

### 8.1. Control parameters

Regulatory References:

DEU	Deutschland	MAK-und BAT-Werte-Liste 2012
ESP	España	INSHT - Límites de exposición profesional para agentes químicos en España 2015
FRA	France	JORF n°0109 du 10 mai 2012 page 8773 texte n° 102
GBR	United Kingdom	EH40/2005 Workplace exposure limits
POL	Polska	ROZPORZĄDZENIE MINISTRA PRACY I POLITYKI SPOŁECZNEJ z dnia 16 grudnia 2011r
	TLV-ACGIH	ACGIH 2017

### 2-PHENOXYETHANOL

#### Threshold Limit Value

**SFR00100122AA - BALL PEN INK BLACK 2330**

Type	Country	TWA/8h		STEL/15min		
		mg/m3	ppm	mg/m3	ppm	
AGW	DEU	110	20	220	40	SKIN
MAK	DEU	110	20	220	40	SKIN
NDS	POL	230				

Predicted no-effect concentration - PNEC						
Normal value in fresh water				0,943		mg/l
Normal value in marine water				0,0943		mg/l
Normal value for fresh water sediment				7,2366		mg/kg
Normal value for marine water sediment				0,7237		mg/kg
Normal value for water, intermittent release				3,44		mg/l
Normal value of STP microorganisms				24,8		mg/l
Normal value for the terrestrial compartment				1,26		mg/kg

Health - Derived no-effect level - DNEL / DMEL								
Route of exposure	Effects on consumers				Effects on workers			
	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral	VND	17,43 mg/kg bw/d	VND	17,43 mg/kg bw/d				
Inhalation			2,41 mg/m3	2,41 mg/m3			8,07 mg/m3	8,07 mg/m3
Skin			VND	20,83 mg/kg bw/d			VND	34,72 mg/kg bw/d

**2-METHYLPENTANE-2,4-DIOL**

**Threshold Limit Value**

Type	Country	TWA/8h		STEL/15min	
		mg/m3	ppm	mg/m3	ppm
MAK	DEU	49	10	98	20
VLA	ESP			123	25
VLEP	FRA			125	25
WEL	GBR	123	25	123	25
NDS	POL			120 (C)	
TLV-ACGIH				121 (C)	25 (C)

Predicted no-effect concentration - PNEC						
Normal value in fresh water				0,429		mg/l
Normal value in marine water				0,043		mg/l
Normal value for fresh water sediment				1,79		mg/kg
Normal value for marine water sediment				0,179		mg/kg
Normal value for water, intermittent release				4,29		mg/l
Normal value of STP microorganisms				20		mg/l
Normal value for the food chain (secondary poisoning)				100		mg/kg
Normal value for the terrestrial compartment				0,11		mg/kg

Health - Derived no-effect level - DNEL / DMEL								
Route of exposure	Effects on consumers				Effects on workers			
	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral			1 mg/kg bw/d	VND				
Inhalation	49 mg/m3	VND	25 mg/m3	3,5 mg/m3	98 mg/m3	VND	49 mg/m3	14 mg/m3

## SFR00100122AA - BALL PEN INK BLACK 2330

Skin VND 1 mg/kg bw/d VND 2 mg/kg bw/d

Legend:

(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.

VND = hazard identified but no DNEL/PNEC available ; NEA = no exposure expected ; NPI = no hazard identified.

### 8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.

When choosing personal protective equipment, ask your chemical substance supplier for advice.

Personal protective equipment must be CE marked, showing that it complies with applicable standards.

Provide an emergency shower with face and eye wash station.

#### HAND PROTECTION

Protect hands with category III work gloves (see standard EN 374).

The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability.

The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.

#### SKIN PROTECTION

Wear category II professional long-sleeved overalls and safety footwear (see Directive 89/686/EEC and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.

#### EYE PROTECTION

Wear a hood visor or protective visor combined with airtight goggles (see standard EN 166).

#### RESPIRATORY PROTECTION

If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, use a mask with a type A filter whose class (1, 2 or 3) must be chosen according to the limit of use concentration. (see standard EN 14387). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.

Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.

If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus (in compliance with standard EN 137) or external air-intake breathing apparatus (in compliance with standard EN 138). For a correct choice of respiratory protection device, see standard EN 529.

#### ENVIRONMENTAL EXPOSURE CONTROLS

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

Product residues must not be indiscriminately disposed of with waste water or by dumping in waterways.

## SECTION 9. Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Appearance	viscous liquid
Colour	black
Odour	imperceptible
Odour threshold	Not available
pH	Not available
Melting point / freezing point	Not available
Initial boiling point	> 100 °C

## SFR00100122AA - BALL PEN INK BLACK 2330

Boiling range	Not available
Flash point	> 90 °C
Evaporation Rate	Not available
Flammability of solids and gases	Not available
Lower inflammability limit	Not available
Upper inflammability limit	Not available
Lower explosive limit	Not available
Upper explosive limit	Not available
Vapour pressure	Not available
Vapour density	Not available
Relative density	1,000 +/- 0,050 Kg/l
Solubility	immiscible with water
Partition coefficient: n-octanol/water	Not available
Auto-ignition temperature	Not available
Decomposition temperature	Not available
Viscosity	5000 - 10000 mPa*s @ 25°C
Explosive properties	not explosive
Oxidising properties	Not available

### 9.2. Other information

VOC (Directive 2010/75/EC) :	33,50 % - 335,00 g/litre
VOC (volatile carbon) :	20,28 % - 202,84 g/litre

## SECTION 10. Stability and reactivity

### 10.1. Reactivity

There are no particular risks of reaction with other substances in normal conditions of use.

2-METHYLPENTANE-2,4-DIOL: decomposes under the effect of heat. Does not have any particular corrosive action on metals. Suitable materials are steel and aluminium.

### 10.2. Chemical stability

The product is stable in normal conditions of use and storage.

### 10.3. Possibility of hazardous reactions

No hazardous reactions are foreseeable in normal conditions of use and storage.

### 10.4. Conditions to avoid

None in particular. However the usual precautions used for chemical products should be respected.

2-METHYLPENTANE-2,4-DIOL: avoid exposure to sources of heat and naked flames.

### 10.5. Incompatible materials

2-METHYLPENTANE-2,4-DIOL: strong acids and strong oxidising agents.

### 10.6. Hazardous decomposition products

Information not available

## SECTION 11. Toxicological information

### 11.1. Information on toxicological effects

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification. It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

This product may cause serious ocular lesions, cornea opacity, iris lesions, irreversible eye coloration.

Upon contact with skin, this product causes sensitization (dermatitis). Dermatitis derives from skin irritation on the areas which repeatedly come into contact with the sensitizing agent. Cutaneous lesions may include: erythemas, edemas, papules, vesicles, pustules, scurviess, ulcerations and exudative phenomena, whose intensity varies according to illness seriousness and affected areas. Erythemas, edemas and exudative phenomena prevail during the acute phase. Scurfy skin, dryness, ulcerations and skin thickening prevail during the chronic phase.

2-METHYLPENTANE-2,4-DIOL  
LD50 (Oral) 4700 mg/kg Rat (Sherman) (male) - OECD Guideline 401  
LD50 (Dermal) > 2000 mg/kg Rat - OECD Guideline 402

2-PHENOXYETHANOL  
LD50 (Oral) 1250 mg/kg Rat  
LD50 (Dermal) > 2000 mg/kg Rabbit - OECD TG 404

[4-[P,P'-BIS(DIMETHYLAMINO)BENZHYDRYLIDENE]CYCLOHEXA-2,5-DIEN-1-YLIDENE]DIMETHYLAMMONIUM ANILINOPHENYL]AZO]BENZENESULPHONATE  
LD50 (Oral) > 2000 mg/kg Rat (Sprague-Dawley) (female) - OECD Guideline 423  
LD50 (Dermal) > 2000 mg/kg Rat (Sprague-Dawley) - OECD Guideline 402

M-[[P-

## SECTION 12. Ecological information

This product is dangerous for the environment and highly toxic for aquatic organisms. In the long term, it have negative effects on aquatic environment.

### 12.1. Toxicity

#### 2-METHYLPENTANE-2,4-DIOL

LC50 - for Fish	8690 mg/l/96h <i>Pimephales promelas</i> - OECD Guideline 203
EC50 - for Crustacea	3200 mg/l/48h <i>Daphnia magna</i> - OECD Guideline 202
EC50 - for Algae / Aquatic Plants	> 429 mg/l/72h <i>Pseudokirchnerella subcapitata</i> - OECD Guideline 201

#### 2-PHENOXYETHANOL

LC50 - for Fish	> 100 mg/l/96h <i>Leuciscus idus</i>
EC50 - for Crustacea	> 500 mg/l/48h <i>Daphnia magna</i> and other aquatic invertebrates
EC50 - for Algae / Aquatic Plants	> 500 mg/l/72h Algae

#### [4-[P,P'-BIS(DIMETHYLAMINO)BENZHYDRYLIDENE]CYCLOHEXA-2,5-DIEN-1-YLIDENE]DIMETHYLAMMONIUM M-[[P-ANILINOPHENYL]AZO]BENZENESULPHONATE

EC50 - for Algae / Aquatic Plants	0,0034 mg/l/72h <i>Pseudokirchnerella subcapitata</i> - OECD Guideline 201
Chronic NOEC for Algae / Aquatic Plants	< 0,001 mg/l

### 12.2. Persistence and degradability

#### 2-METHYLPENTANE-2,4-DIOL

Solubility in water	> 10000 mg/l
Rapidly degradable	
% Biodegradability: 81% (28 days) - Method: OECD Guideline 301 F	

#### 2-PHENOXYETHANOL

Solubility in water	24000 mg/l
Rapidly degradable	
Degradation: > 90% in 15 days (OECD TG 301 A)	



**SFR00100122AA - BALL PEN INK BLACK 2330**

[4-[P,P'-  
BIS(DIMETHYLAMINO)BENZHYDRYLIDEN  
E]CYCLOHEXA-2,5-DIEN-1-  
YLIDENE]DIMETHYLAMMONIUM M-[[P-  
ANILINOPHENYL]AZO]BENZENESULPHON  
ATE  
NOT rapidly degradable

**12.3. Bioaccumulative potential**

2-METHYLPENTANE-2,4-DIOL  
Partition coefficient: n-octanol/water < -0,14

**12.4. Mobility in soil**  
Information not available

**12.5. Results of PBT and vPvB assessment**

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

**12.6. Other adverse effects**

Information not available

**SECTION 13. Disposal considerations**

**13.1. Waste treatment methods**

Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.

Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

Waste transportation may be subject to ADR restrictions.

CONTAMINATED PACKAGING

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

**SECTION 14. Transport information**

**14.1. UN number**

ADR / RID, IMDG, 3082  
IATA:

**14.2. UN proper shipping name**

ADR / RID:

IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. ([4-[P,P'-  
BIS(DIMETHYLAMINO)BENZHYDRYLIDENE]CYCLOHEXA-2,5-DIEN-1-YLIDENE]DIMETHYLAMMONIUM M-[[P-  
ANILINOPHENYL]AZO]BENZENESULPHONATE)

IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. ([4-[P,P'-  
BIS(DIMETHYLAMINO)BENZHYDRYLIDENE]CYCLOHEXA-2,5-DIEN-1-YLIDENE]DIMETHYLAMMONIUM M-[[P-  
ANILINOPHENYL]AZO]BENZENESULPHONATE)

**14.3. Transport hazard class(es)**

ADR / RID: Class: 9 Label: 9

IMDG: Class: 9 Label: 9



**SFR00100122AA - BALL PEN INK BLACK 2330**

IATA: Class: 9 Label: 9



**14.4. Packing group**

ADR / RID, IMDG, III  
IATA:

**14.5. Environmental hazards**

ADR / RID: Environmentally Hazardous



IMDG: Marine Pollutant



IATA: Environmentally Hazardous



**14.6. Special precautions for user**

ADR / RID: HIN - Kemler: 90

Limited Quantities: 5 L

Tunnel restriction code: (E)

Special Provision: -

IMDG: EMS: F-A, S-F

Limited Quantities: 5 L

IATA: Cargo:

Maximum quantity: 450 L

Packaging instructions: 964

Pass.:

Maximum quantity: 450 L

Packaging instructions: 964

Special Instructions:

A97, A158, A197

**14.7. Transport in bulk according to Annex II of Marpol and the IBC Code**

Information not relevant

**SECTION 15. Regulatory information**

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

Seveso category 9i

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006

Product  
Point 3

Substances in Candidate List (Art. 59 REACH)

None

**SFR00100122AA - BALL PEN INK BLACK 2330**

Substances subject to authorisation (Annex XIV REACH)

None

Substances subject to exportation reporting pursuant to (EC) Reg. 649/2012:

None

Substances subject to the Rotterdam Convention:

None

Substances subject to the Stockholm Convention:

None

Healthcare controls

Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

**15.2. Chemical safety assessment**

No chemical safety assessment has been processed for the mixture and the substances it contains.

**SECTION 16. Other information**

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

<b>Acute Tox. 4</b>	Acute toxicity, category 4
<b>Eye Dam. 1</b>	Serious eye damage, category 1
<b>Eye Irrit. 2</b>	Eye irritation, category 2
<b>Skin Irrit. 2</b>	Skin irritation, category 2
<b>STOT SE 3</b>	Specific target organ toxicity - single exposure, category 3
<b>Skin Sens. 1</b>	Skin sensitization, category 1
<b>Aquatic Acute 1</b>	Hazardous to the aquatic environment, acute toxicity, category 1
<b>Aquatic Chronic 1</b>	Hazardous to the aquatic environment, chronic toxicity, category 1
<b>H302</b>	Harmful if swallowed.
<b>H318</b>	Causes serious eye damage.
<b>H319</b>	Causes serious eye irritation.
<b>H315</b>	Causes skin irritation.
<b>H335</b>	May cause respiratory irritation.
<b>H317</b>	May cause an allergic skin reaction.
<b>H400</b>	Very toxic to aquatic life.
<b>H410</b>	Very toxic to aquatic life with long lasting effects.

**LEGEND:**

- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- CAS NUMBER: Chemical Abstract Service Number

**SFR00100122AA - BALL PEN INK BLACK 2330**

- CE50: Effective concentration (required to induce a 50% effect)
- CE NUMBER: Identifier in ESIS (European archive of existing substances)
- CLP: EC Regulation 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX NUMBER: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent bioaccumulative and toxic as REACH Regulation
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PNEC: Predicted no effect concentration
- REACH: EC Regulation 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA STEL: Short-term exposure limit
- TWA: Time-weighted average exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very Persistent and very Bioaccumulative as for REACH Regulation
- WGK: Water hazard classes (German).

## GENERAL BIBLIOGRAPHY

1. Regulation (EC) 1907/2006 (REACH) of the European Parliament
  2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
  3. Regulation (EU) 790/2009 (I Atp. CLP) of the European Parliament
  4. Regulation (EU) 2015/830 of the European Parliament
  5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
  6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
  7. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
  8. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
  9. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament
  10. Regulation (EU) 2015/1221 (VII Atp. CLP) of the European Parliament
  11. Regulation (EU) 2016/918 (VIII Atp. CLP) of the European Parliament
  12. Regulation (EU) 2016/1179 (IX Atp. CLP)
  13. Regulation (EU) 2017/776 (X Atp. CLP)
- The Merck Index. - 10th Edition
  - Handling Chemical Safety
  - INRS - Fiche Toxicologique (toxicological sheet)
  - Patty - Industrial Hygiene and Toxicology
  - N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
  - IFA GESTIS website
  - ECHA website
  - Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

## Note for users:

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.

This document must not be regarded as a guarantee on any specific product property.

The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.

Provide appointed staff with adequate training on how to use chemical products.