

Safety data sheet

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

1.1. Product identifier

Code: C00004.-(04501 e seg.)
Product name: SMALTO ACRILICO

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

Intended use: "Aerosol" coating product, Acrylic-based.

1.3. Details of the supplier of the safety data sheet

Name: PIGAL s.p.a.
Full address: Via G. Rossa, 2
District and Country: 40053 VALSAMOGGIA - Crespellano (BO)
ITALIA
Tel. +39 051969068
Fax +39 051969353

e-mail address of the competent person
responsible for the Safety Data Sheet

health.safety@pigal.it; pigalab@pigal.it

1.4. Emergency telephone number

For urgent inquiries refer to +39 051969068 ore ufficio (8.30-13; 14-17.30) 118 (contattare il centro antiveleni più vicino)

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 EC Regulation 1907/2006 and subsequent amendments. Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

2.1.1. Regulation 1272/2008 (CLP) and following amendments and adjustments.

Hazard classification and indication:

Aerosol 1	H222 H229
Eye Irrit. 2	H319
Skin Irrit. 2	H315
STOT SE 3	H336

2.1.2. 67/548/EEC and 1999/45/EC Directives and following amendments and adjustments.

Danger Symbols:

F+-Xn

R phrases:

12-20/21/22-36-66

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

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:

H222	Extremely flammable aerosol.
H229	Pressurized container: may burst if heated.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
EUH066	Repeated exposure may cause skin dryness or cracking.

Precautionary statements:

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P210	Keep away from heat, sparks, open flames, hot surfaces. No smoking.
P211	Do not spray on an open flame or other ignition source.
P251	Pressurized container: do not pierce or burn, even after use.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves and protective clothing, eye protection.
P312	Call a POISON CENTER or doctor / physician if you feel unwell.
P410+P412	Protect from sunlight. Do not expose to temperatures exceeding 50°C / 122°F.
P501	Dispose of contents / container according to local regulations.

Contains: METHYL ACETATE

2.3. Other hazards.

Information not available.

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

Information not relevant.

3.2. Mixtures.

Contains:

Identification.	Conc. %.	Classification 67/548/EEC.	Classification 1272/2008 (CLP).
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METHYL ACETATE

CAS. 79-20-9 25 - 30 R66, R67, F R11, Xi R36 Flam. Liq. 2 H225, Eye Irrit. 2 H319, STOT SE 3 H336, EUH066
EC. 201-185-2
INDEX. 607-021-00-X
Reg. no. 01-2119459211-47

PROPANE

CAS. 74-98-6 15 - 20 F+ R12, Note U Flam. Gas 1 H220, Note U
EC. 200-827-9
INDEX. 601-003-00-5

XYLENE (MIXTURE OF ISOMERS)

CAS. 1330-20-7 7 - 10 R10, Xn R20/21, Xi R38, Note C Flam. Liq. 3 H226, Acute Tox. 4 H312, Acute Tox. 4 H332, Skin Irrit. 2 H315, Note C
EC. 215-535-7
INDEX. 601-022-00-9

BUTANE

CAS. 106-97-8 7 - 10 F+ R12, Note C U Flam. Gas 1 H220, Note C U
EC. 203-448-7
INDEX. 601-004-00-0

N-BUTYL ACETATE

CAS. 123-86-4 7 - 10 R10, R66, R67 Flam. Liq. 3 H226, STOT SE 3 H336, EUH066
EC. 204-658-1
INDEX. 607-025-00-1

Isobutane

CAS. 75-28-5 3 - 5 F+ R12, Note C U Flam. Gas 1 H220, Press. Gas H280, Note C U
EC. 200-857-2
INDEX. 601-004-00-0

METHANOL

CAS. 67-56-1 1 - 3 F R11, T R23/24/25, T R39/23/24/25 Flam. Liq. 2 H225, Acute Tox. 3 H301, Acute Tox. 3 H311, Acute Tox. 3 H331, STOT SE 1 H370
EC. 200-659-6
INDEX. 603-001-00-X
Reg. no. 01-2119433307-44

2-BUTOXYETHANOL

CAS. 111-76-2 1 - 3 Xn R20/21/22, Xi R36/38 Acute Tox. 4 H302, Acute Tox. 4 H312, Acute Tox. 4 H332, Eye Irrit. 2 H319, Skin Irrit. 2 H315
EC. 203-905-0
INDEX. 603-014-00-0
Reg. no. 01-2119475108-36

Note: Upper limit is not included into the range.

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

T+ = Very Toxic(T+), T = Toxic(T), Xn = Harmful(Xn), C = Corrosive(C), Xi = Irritant(Xi), O = Oxidizing(O), E = Explosive(E), F+ = Extremely Flammable(F+), F = Highly Flammable(F), N = Dangerous for the Environment(N)

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. Get medical advice/attention 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 chap. 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

If overheated, aerosol cans can deform, explode and be propelled considerable distances. Put a protective helmet on before approaching the fire. Do not breathe combustion products.

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.

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.

Eliminate all sources of ignition (cigarettes, flames, sparks, etc.) from the leakage site. Send away individuals who are not suitably equipped. Wear protective gloves / protective clothing / eye protection / face protection.

6.2. Environmental precautions.

Do not disperse in the environment.

6.3. Methods and material for containment and cleaning up.

Use inert absorbent material to soak up leaked product. 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.**

Avoid bunching of electrostatic charges. Do not spray on flames or incandescent bodies. Vapours may catch fire and an explosion may occur; vapour accumulation is therefore to be avoided by leaving windows and doors open and ensuring good cross ventilation. Do not eat, drink or smoke during use. Do not breathe spray.

7.2. Conditions for safe storage, including any incompatibilities.

Store in a place where adequate ventilation is ensured, away from direct sunlight at a temperature below 50°C, away from any combustion sources.

7.3. Specific end use(s).

Information not available.

SECTION 8. Exposure controls/personal protection.**8.1. Control parameters.**

Regulatory References:

United Kingdom	EH40/2005 Workplace exposure limits. Containing the list of workplace exposure limits for use with the Control of Substances Hazardous to Health Regulations (as amended).
Éire	Code of Practice Chemical Agent Regulations 2011.
OEL EU	Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC.
TLV-ACGIH	ACGIH 2012

METHYL ACETATE**Threshold Limit Value.**

Type	Country	TWA/8h		STEL/15min	
		mg/m3	ppm	mg/m3	ppm
WEL	UK	616	200	770	250
TLV-ACGIH		606	200	757	250

PROPANE**Threshold Limit Value.**

Type	Country	TWA/8h		STEL/15min	
		mg/m3	ppm	mg/m3	ppm
TLV-ACGIH			1000		

N-BUTYL ACETATE**Threshold Limit Value.**

Type	Country	TWA/8h	STEL/15min
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		mg/m3	ppm	mg/m3	ppm
WEL	UK	724	150	966	200
OEL	IRL	710	150	950	200
TLV-ACGIH		713	150	950	200

BUTANE
Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min	
		mg/m3	ppm	mg/m3	ppm
WEL	UK	1450	600	1810	750
OEL	IRL		1000		750
TLV-ACGIH			1000		

XYLENE (MIXTURE OF ISOMERS)
Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min	
		mg/m3	ppm	mg/m3	ppm
WEL	UK		50		100
OEL	IRL		50		100
OEL	EU	221	50	442	100
TLV-ACGIH			100		150

2-BUTOXYETHANOL
Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min	
		mg/m3	ppm	mg/m3	ppm
WEL	UK		25		50
OEL	IRL		20		50
OEL	EU	98	20	246	50
TLV-ACGIH			20		

METHANOL
Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min		
		mg/m3	ppm	mg/m3	ppm	
OEL	EU	260	200			SKIN
WEL	UK	266	200	333	250	SKIN
OEL	IRL	260	200			SKIN
TLV-ACGIH		262	200	328	250	

Legend:

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

Isobutane - TLV TWA = 1000 ppm VLE short = 1000 ppm.

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

Use protective gloves that provide comprehensive protection, eg. PVC, neoprene or rubber.

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 airtight protective 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, a mask with a type AX filter combined with a type P filter should be worn (see standard EN 14387).

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.

SECTION 9. Physical and chemical properties.**9.1. Information on basic physical and chemical properties.**

Appearance	liquid (pressurized)
Colour	various
Odour	characteristic of solvent
Odour threshold.	Not available.
pH.	Not available.
Melting point / freezing point.	Not available.
Initial boiling point.	< 0 °C.
Boiling range.	Not available.
Flash point.	< 0 °C.
Evaporation Rate	Not available.
Flammability of solids and gases	flammable gas
Lower flammability limit.	Not available.
Upper flammability limit.	Not available.
Lower explosive limit.	Not available.
Upper explosive limit.	Not available.
Vapour pressure.	Not available.
Vapour density	>1 (air = 1)
Relative density.	0,800 Kg/l
Solubility	immiscible with water
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature.	> Not available.
Decomposition temperature.	Not available.
Viscosity	Not available.
Explosive properties	Not available.
Oxidising properties	Not available.

9.2. Other information.

VOC (Directive 1999/13/EC) : 67,57 % - 540,60 g/litre.
VOC (volatile carbon) : 0

Can pressure: 4,0 bar after filling at 20°C

SECTION 10. Stability and reactivity.

10.1. Reactivity.

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

2-BUTOXYETHANOL: decomposes in the presence of heat.

N-BUTYL ACETATE: decomposes readily with water, especially when warm.

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.

XYLENE (MIXTURE OF ISOMERS): stable, but may develop violent reactions in the presence of strong oxidising agents such as sulphuric and nitric acids and perchlorates. May form explosive mixtures with the air.

2-BUTOXYETHANOL: can react dangerously with: aluminium, oxidising agents. Forms peroxide with air.

N-BUTYL ACETATE: risk of explosion on contact with: strong oxidising agents. Can react dangerously with alkaline hydroxides, potassium tert-butoxide. Forms explosive mixtures with the air.

10.4. Conditions to avoid.

Avoid overheating.

2-BUTOXYETHANOL: avoid exposure to sources of heat and naked flames.

N-BUTYL ACETATE: avoid exposure to moisture, sources of heat and naked flames.

10.5. Incompatible materials.

Strong reducing or oxidising agents, strong acids or alkalis, hot material.

N-BUTYL ACETATE: water, nitrates, strong oxidising agents, acids and alkalis and potassium tert-butoxide.

10.6. Hazardous decomposition products.

2-BUTOXYETHANOL: hydrogen.

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.

Acute effects: stinging eyes. Symptoms may include: rubescence, edema, pain and lachrymation.

Vapour inhalation may moderately irritate the upper respiratory tract. Contact with skin may cause slight irritation.

Ingestion may cause health problems, including stomach pain and sting, nausea and sickness.

Acute effects: contact with skin may cause: irritation, erythema, edema, dryness and chapped skin. Vapour inhalation may slightly irritate the upper

respiratory trait. Ingestion may cause health disorders, including stomach pain and sting, nausea and sickness. This product contains highly volatile substances, which may cause serious depression of the central nervous system (CNS) and have negative effects, such as drowsiness, dizziness, slow reflexes, narcosis.

XYLENE (MIXTURE OF ISOMERS): has a toxic effect on the CNS (encephalopathies). Irritating to the skin, conjunctivae, cornea and respiratory apparatus.

METHANOL: The minimal lethal dose following ingestion is considered to be in the range of 300-1000 mg/kg. Ingestion of as little as 4-10 ml methanol in adults may cause permanent blindness (IPCS).

2-Butoxyethanol - OBSERVATION ON HUMAN

The material may be harmful by skin absorption. Eye contact: irritating. Contact skin: irritant.

Sensitization: no power; skin sensitizer - procedures Magnusson and Kligman.

Subacute / Subchronic: This product may cause kidney damage, increased liver weight and hemolysis. Studies have shown that the product penetrates quickly into the skin and the contact with the skin can cause a significant absorption and systemic toxicity.

Chronic toxicity / carcinogenicity: studies carried out on rats and mouse and confirms the absence of mutagenic activity. Do not have detected either the criteria for classification of a category 3 carcinogen. Genotoxicity: non-toxic. Toxicity to reproduction / development: substance is not teratogenic.

N-BUTYL ACETATE - OBSERVATION ON HUMAN

Vapors cause irritation of the eyes and nose. In case of repeated exposures, you have skin irritation, dermatitis (dryness and cracking of skin) and keratitis.

2-BUTOXYETHANOL

LD50 (Oral). 560 mg/kg Rat

LD50 (Dermal). 1800 mg/kg Rabbit

LC50 (Inhalation). 2400 mg/l/4h Rat

N-BUTYL ACETATE

LD50 (Oral). > 6400 mg/kg Rat

LD50 (Dermal). > 5000 mg/kg Rabbit

LC50 (Inhalation). 21,1 mg/l/4h Rat

METHYL ACETATE - LD50 (ORAL/RABBIT) 5300 mg/kg

XYLENE - LD50 (ORAL/RAT) 5000 mg/kg

SECTION 12. Ecological information.

12.1. Toxicity.

Information not available.

12.2. Persistence and degradability.

2-Butoxyethanol - Biodegradation 28 Days = 90.4%.

12.3. Bioaccumulative potential.

2-Butoxyethanol - Low bioaccumulation.

12.4. Mobility in soil.

2-Butoxyethanol - The product has very high potential for mobility.

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.

The valid EEC waste code are largely source-related; the manufacturer is, therefore, unable to specify waste code for products used in various sectors. CER-code (suggested): 08 01 11.

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.

Avoid littering. Do not contaminate soil, sewers and waterways.

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.

These goods must be transported by vehicles authorized to the carriage of dangerous goods according to the provisions set out in the current edition of the Code of International Carriage of Dangerous Goods by Road (ADR) and in all the applicable national regulations. These goods must be packed in their original packagings or in packagings made of materials resistant to their content and not reacting dangerously with it. People loading and unloading dangerous goods must be trained on all the risks deriving from these substances and on all actions that must be taken in case of emergency situations.

Road and rail transport:

ADR/RID Class:	2	UN:	1950
Packing Group:	-		
Label:	2.1		
Nr. Kemler:	--		
Limited Quantity:	1 L		
Tunnel restriction code:	(D)		
Proper Shipping Name:	AEROSOLS		

Carriage by sea (shipping):

IMO Class:	2.1	UN:	1950
Packing Group:	-		
Label:	2.1		
EMS:	F-D, S-U		
Marine Pollutant:	NO		
Proper Shipping Name:	AEROSOLS		

Transport by air:

SMALTO ACRILICO

IATA:	2	UN:	1950
Packing Group:	-		
Label:	2.1		
Cargo:			
Packaging instructions:	203	Maximum quantity:	150 Kg
Pass.:			
Packaging instructions:	203	Maximum quantity:	75 Kg
Special Instructions:	A145, A167, A802		
Proper Shipping Name:	AEROSOLS		

SECTION 15. Regulatory information.**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture.**

Seveso category. 8

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

Contained substance.

Point. 28-29 BUTANE

Substances in Candidate List (Art. 59 REACH).

None.

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.

Product not intended for uses provided for by Dir. 2004/42/CE.

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:

Flam. Gas 1	Flammable gas, category 1
Aerosol 1	Aerosol, category 1
Aerosol 3	Aerosol, category 3
Flam. Liq. 2	Flammable liquid, category 2
Flam. Liq. 3	Flammable liquid, category 3
Press. Gas	Pressurised gas
Acute Tox. 3	Acute toxicity, category 3
STOT SE 1	Specific target organ toxicity - single exposure, category 1
Acute Tox. 4	Acute toxicity, category 4
Eye Irrit. 2	Eye irritation, category 2
Skin Irrit. 2	Skin irritation, category 2
STOT SE 3	Specific target organ toxicity - single exposure, category 3
H220	Extremely flammable gas.
H222	Extremely flammable aerosol.
H229	Pressurized container: may burst if heated.
H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H280	Contains gas under pressure; may burst if heated.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H331	Toxic if inhaled.
H370	Causes damage to organs.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H332	Harmful if inhaled.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
EUH066	Repeated exposure may cause skin dryness or cracking.

Text of risk (R) phrases mentioned in section 2-3 of the sheet:

R10	FLAMMABLE.
R11	HIGHLY FLAMMABLE.
R12	EXTREMELY FLAMMABLE.
R20/21	HARMFUL BY INHALATION AND IN CONTACT WITH SKIN.

R20/21/22	HARMFUL BY INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED.
R23/24/25	TOXIC BY INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED.
R36	IRRITATING TO EYES.
R36/38	IRRITATING TO EYES AND SKIN.
R38	IRRITATING TO SKIN.
R39/23/24/25	TOXIC: DANGER OF VERY SERIOUS IRREVERSIBLE EFFECTS THROUGH INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED.
R66	REPEATED EXPOSURE MAY CAUSE SKIN DRYNESS OR CRACKING.
R67	VAPOURS MAY CAUSE DROWSINESS AND DIZZINESS.

LEGEND:

- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- CAS NUMBER: Chemical Abstract Service Number
- 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. Directive 1999/45/EC and following amendments
2. Directive 67/548/EEC and following amendments and adjustments
3. Regulation (EC) 1907/2006 (REACH) of the European Parliament
4. Regulation (EC) 1272/2008 (CLP) of the European Parliament
5. Regulation (EC) 790/2009 (I Atp. CLP) of the European Parliament
6. Regulation (EC) 453/2010 of the European Parliament
7. Regulation (EC) 286/2011 (II Atp. CLP) of the European Parliament
8. Regulation (EC) 618/2012 (III Atp. CLP) of the European Parliament
9. The Merck Index. - 10th Edition
10. Handling Chemical Safety
11. Niosh - Registry of Toxic Effects of Chemical Substances
12. INRS - Fiche Toxicologique (toxicological sheet)
13. Patty - Industrial Hygiene and Toxicology
14. N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
15. ECHA website

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.

Changes to previous review:

The following sections were modified:

02 / 03 / 04 / 08 / 09 / 10 / 11 / 12 / 14 / 15 / 16.