

TECHNICAL DATA SHEET



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

1.1. Product identifier

Code: 3534000099
Product name: BULLET ROOF DPM PRIMER comp. A

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

Intended use: Polyamine formulation

1.3. Details of the supplier of the safety data sheet

Name: Bullet Building Products
Full address: Barbot hall industrial estate,
District and Country: Mangham Road, Rotherham.
S614RJ

Tel. 01709 28150

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

sales@bulletbp.co.uk

1.4. Emergency telephone number

For urgent inquiries refer to

www.bulletbuildingproducts.co.uk

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.

Hazard classification and indication:

Serious eye damage, category 1	H318	Causes serious eye damage.
Skin irritation, category 2	H315	Causes skin irritation.
Skin sensitization, category 1A	H317	May cause an allergic skin reaction.
Hazardous to the aquatic environment, chronic toxicity, category 3	H412	Harmful 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.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H412 Harmful to aquatic life with long lasting effects.

SECTION 2. Hazards identification ... / >>

EUH071 Corrosive to the respiratory tract.
EUH208 Contains: M-PHENYLENEBIS (METHYLAMINE)
May produce an allergic reaction.

Precautionary statements:

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P280 Wear protective gloves / eye protection / face protection.
P310 Immediately call a POISON CENTER.
P261 Avoid breathing dust / fume / gas / mist / vapours / spray.
P264 Wash thoroughly after handling.
P362+P364 Take off contaminated clothing and wash it before reuse.

Contains: 2,4,6-TRIS[(DIMETHYLAMINO)METHYL]PHENOL POLYMER WITH (CHLOROMETHYL)OXIRANE
FORMALDEHYDE POLYMER WITH
N1-(2-AMINOETHYL)-N2-[2-[(2-AMINOETHYL)AMINO]ETHYL]-1,2-ETHANEDIAMINE,
2,2'-[1,4-BUTANEDIYL]BIS(OXYMETHYL)
3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE
3,6,9-TRIAZAUNDECAMETHYLENEDIAMINE; TETRAETHYLENEMPENTAMINE

VOC (Directive 2004/42/EC) :

Two-pack performance coatings.

VOC given in g/litre of product in a ready-to-use condition :

Limit value:		25,44
- Catalysed with :	100,00 %	BULLET ROOF DPM PRIMER comp. B
- Thinned with :	15,00 %	WATER

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:

Identification	x = Conc. %	Classification 1272/2008 (CLP)
2,4,6-TRIS[(DIMETHYLAMINO)METHYL]PHENOL POLYMER WITH (CHLOROMETHYL)OXIRANE		
CAS	955016-13-4 $5 \leq x < 9$	Acute Tox. 4 H302, Eye Dam. 1 H318
EC	639-499-0	
INDEX		
MICA		
CAS	12001-26-2 $5 \leq x < 9$	STOT RE 2 H373
EC	601-648-2	
INDEX		
POLYAMINE ADDUCT		
CAS	$5 \leq x < 9$	Aquatic Chronic 2 H411
EC		
INDEX		
FORMALDEHYDE POLYMER WITH N1-(2-AMINOETHYL)-N2-[2-[(2-AMINOETHYL)AMINO]ETHYL]-1,2-ETHANEDIAMINE, 2,2'-[1,4-BUTANEDIYLBIS(OXYMETHYL)]		
CAS	180583-06-6 $2,5 \leq x < 3$	Skin Sens. 1 H317, Aquatic Chronic 2 H411
EC		
INDEX		
3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE		
CAS	2855-13-2 $1 \leq x < 1,5$	Acute Tox. 4 H302, Acute Tox. 4 H312, Skin Corr. 1B H314, Eye Dam. 1 H318, Skin Sens. 1 H317, Aquatic Chronic 3 H412
EC	220-666-8	
INDEX	612-067-00-9	

SECTION 3. Composition/information on ingredients ... / >>

Reg. no.	01-2119514687-32	
M-PHENYLENEBIS (METHYLAMINE)		
CAS	1477-55-0 $0,89 \leq x < 1$	Acute Tox. 4 H302, Acute Tox. 4 H332, Skin Corr. 1B H314, Eye Dam. 1 H318, Skin Sens. 1 H317, Aquatic Chronic 3 H412, EUH071
EC	216-032-5	
INDEX		
Reg. no.	01-2119480150-50	
3,6,9-TRIAZAUNDECAMETHYLENEDIAMINE; TETRAETHYLENEPENTAMINE		
CAS	112-57-2 $0,15 \leq x < 0,2$	Acute Tox. 4 H302, Acute Tox. 4 H312, Skin Corr. 1B H314, Eye Dam. 1 H318, Skin Sens. 1A H317, Aquatic Chronic 2 H411
EC	203-986-2	
INDEX	612-060-00-0	
AMMONIA		
CAS	1336-21-6 $0 \leq x < 0,05$	Skin Corr. 1B H314, Eye Dam. 1 H318, STOT SE 3 H335, Aquatic Acute 1 H400 M=1, Classification note according to Annex VI to the CLP Regulation: B
EC	215-647-6	
INDEX	007-001-01-2	
Reg. no.	01-2119488876-14	
FORMALDEHYDE		
CAS	50-00-0 $0 \leq x < 0,05$	Carc. 1B H350, Muta. 2 H341, Acute Tox. 3 H301, Acute Tox. 3 H311, Acute Tox. 3 H331, Skin Corr. 1B H314, Eye Dam. 1 H318, STOT SE 3 H335, Skin Sens. 1 H317, Classification note according to Annex VI to the CLP Regulation: B D
EC	200-001-8	
INDEX	605-001-00-5	
Reg. no.	01-2119488953-20	

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 30-60 minutes, opening the eyelids fully. Get medical advice/attention.

SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention.

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

INHALATION: Get medical advice/attention immediately. Remove victim to fresh air, away from the accident scene. If the subject stops breathing, administer artificial respiration. Take suitable precautions for rescue workers.

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

Specific information on symptoms and effects caused by the product are unknown.

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.

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

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. 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	TRGS 900 - Seite 1 von 69 (Fassung 29.03.2019)- Liste der Arbeitsplatzgrenzwerte und Kurzzeitwerte
ESP	España	LÍMITES DE EXPOSICIÓN PROFESIONAL PARA AGENTES QUÍMICOS EN ESPAÑA 2019 (INSST)
FIN	Suomi	HTP-VÄRDEN 2018. Koncentrationer som befunnits skadliga. SOCIAL- OCH HÄLSOVÄRDSMINISTERIETS PUBLIKATIONER 10/2018
FRA	France	Valeurs limites d'exposition professionnelle aux agents chimiques en France. ED 984 - INRS
GBR	United Kingdom	EH40/2005 Workplace exposure limits (Third edition,published 2018)
ITA	Italia	DIRETTIVA (UE) 2017/164 DELLA COMMISSIONE del 31 gennaio 2017
POL	Polska	ROZPORZĄDZENIE MINISTRA RODZINY, PRACY I POLITYKI SPOŁECZNEJ z dnia 12 czerwca 2018 r
ROU	România	HOTĂRÂRE nr. 584 din 2 august 2018 pentru modificarea Hotărârii Guvernului nr. 1.218/2006 privind stabilirea cerințelor minime de securitate și sănătate în muncă pentru asigurarea protecției lucrătorilor împotriva riscurilor legate de prezența agenților chimici
EU	OEL EU	Directive (EU) 2017/2398; Directive (EU) 2017/164; Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC; Directive 91/322/EEC.
	TLV-ACGIH	ACGIH 2019

SECTION 8. Exposure controls/personal protection ... / >>

M-PHENYLENEBIS (METHYLAMINE)

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
TLV-ACGIH				0,018 (C)		SKIN

AMMONIA

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
VLEP	ITA	14	20	36	50	
OEL	EU	14	20	36	50	
TLV-ACGIH		17	25	24	35	

FORMALDEHYDE

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
AGW	DEU	0,37	0,3	0,74	0,6	
VLA	ESP	0,37	0,3	0,74	0,6	
HTP	FIN	0,37	0,3	1,2 (C)	1 (C)	
VLEP	FRA		0,5		1	
WEL	GBR	2,5	2	2,5	2	
NDS/NDSch	POL	0,37		0,74		SKIN
TLV	ROU	1,2	1	3	2	
OEL	EU	0,37	0,3	0,74	0,6	
TLV-ACGIH			0,1		0,3 (C)	

Legend:

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

3.2. 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 Regulation 2016/425 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, 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

Properties	Value	Information
Appearance	dense liquid	
Colour	white	
Odour	ammoniacal	
Odour threshold	Not available	
pH	11	
Melting point / freezing point	Not available	
Initial boiling point	100 °C	
Boiling range	Not available	
Flash point	> 100 °C	
Evaporation Rate	Not available	
Flammability of solids and gases	not applicable	
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	1,6 g/cm ³	Temperature:20°C
Solubility	partially soluble in water	
Partition coefficient: n-octanol/water	Not applicable	
Auto-ignition temperature	Not available	
Decomposition temperature	Not available	
Viscosity	50000 mPa*s	Temperature:20°C
Explosive properties	not expected	
Oxidising properties	not expected	

9.2. Other information

Total solids (250°C / 482°F)	68,54 %	
VOC (Directive 2004/42/EC) :	1,55 % - 24,78	g/litre
VOC (volatile carbon) :	< 0.01 % - 0,01	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.

AMMONIA

Corrodes: aluminium, iron, zinc, copper, copper alloys.

FORMALDEHYDE

Decomposes under the effect of heat.

Aqueous solutions are stabilised with methanol but tend to polymerise over time.

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.

AMMONIA

Risk of explosion on contact with: strong acids, iodine. May react dangerously with: strong bases.

FORMALDEHYDE

Risk of explosion on contact with: nitromethane, nitrogen dioxide, hydrogen peroxide, phenoles, performic acid, nitric acid. May polymerise on contact with: strong oxidising agents, alkalis. May react dangerously with: hydrochloric acid, magnesium carbonate, sodium hydroxide, perchloric acid, aniline. Forms explosive mixtures with: air.

10.4. Conditions to avoid

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

SECTION 10. Stability and reactivity ... / >>

FORMALDEHYDE

Avoid exposure to: light, sources of heat, naked flames.

10.5. Incompatible materials

AMMONIA

Incompatible with: silver, silver salts, lead, lead salts, zinc, zinc salts, hydrochloric acid, nitric acid, oleum, halogens, acrolein, nitromethane, acrylic acid.

FORMALDEHYDE

Incompatible with: acids, alkalis, ammonia, tannin, strong oxidants, phenoles, copper salts, silver, iron.

10.6. Hazardous decomposition products

AMMONIA

May develop: nitric oxide.

FORMALDEHYDE

When heated to decomposition releases: methanol, carbon monoxide.

SECTION 11. Toxicological information

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.

11.1. Information on toxicological effects

Metabolism, toxicokinetics, mechanism of action and other information

Information not available

Information on likely routes of exposure

Information not available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Information not available

Interactive effects

Information not available

ACUTE TOXICITY

LC50 (Inhalation) of the mixture:	Not classified (no significant component)
LD50 (Oral) of the mixture:	>2000 mg/kg
LD50 (Dermal) of the mixture:	>2000 mg/kg

Corrosive to the respiratory tract.

2,4,6-TRIS[(DIMETHYLAMINO)METHYL]PHENOL POLYMER WITH (CHLOROMETHYL)OXIRANE	
LD50 (Oral)	> 500 mg/kg

3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE	
LD50 (Oral)	1030 mg/kg Rat, OECD Guideline 401
LD50 (Dermal)	> 2000 mg/kg Rat, OECD Guideline 402
LC50 (Inhalation)	> 5,01 mg/l/4h Rat, OECD Guideline 403

AMMONIA	
LD50 (Oral)	350 mg/kg Rat

M-PHENYLENEBIS (METHYLAMINE)	
LD50 (Oral)	> 200 mg/kg Rat - Sprague-Dawley
LD50 (Dermal)	3100 mg/kg Rat
LC50 (Inhalation)	1,34 mg/l Rat - Wistar

FORMALDEHYDE	
LD50 (Oral)	100 mg/kg Rat
LD50 (Dermal)	270 mg/kg Rabbit
LC50 (Inhalation)	0,588 mg/l/4h Rat

SECTION 11. Toxicological information ... / >>

SKIN CORROSION / IRRITATION

Causes skin irritation

SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye damage

RESPIRATORY OR SKIN SENSITISATION

Sensitising for the skin
May produce an allergic reaction.

Contains:

M-PHENYLENEBIS (METHYLAMINE)

GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

CARCINOGENICITY

Does not meet the classification criteria for this hazard class

REPRODUCTIVE TOXICITY

Does not meet the classification criteria for this hazard class

STOT - SINGLE EXPOSURE

Does not meet the classification criteria for this hazard class

STOT - REPEATED EXPOSURE

Does not meet the classification criteria for this hazard class

MICA

The substance has this effect only by inhalation. If it is suspended in a liquid matrix the effect does not occur.

Route of exposure

MICA

Inhalation

ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class

SECTION 12. Ecological information

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

12.1. Toxicity

3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE

LC50 - for Fish	110 mg/l/96h EU Method C.1, <i>Leuciscus idus</i>
EC50 - for Crustacea	23 mg/l/48h OECD Guideline 202, <i>Daphnia magna</i>
EC50 - for Algae / Aquatic Plants	37 mg/l/72h EU Method C.3, <i>Desmodesmus subspicatus</i>

AMMONIA

LC50 - for Fish	47 mg/l/96h <i>Channa punctata</i>
EC50 - for Crustacea	20 mg/l/48h <i>Daphnia magna</i>

M-PHENYLENEBIS (METHYLAMINE)

LC50 - for Fish	87,6 mg/l/96h <i>Oryzias latipes</i>
EC50 - for Crustacea	15,2 mg/l/48h <i>Daphnia magna</i>
EC50 - for Algae / Aquatic Plants	20,3 mg/l/72h <i>Pseudokirchnerella subcapitata</i>

12.2. Persistence and degradability

SECTION 12. Ecological information ... / >>

AMMONIA

Degradability: information not available

M-PHENYLENEBIS (METHYLAMINE)

Solubility in water
Rapidly degradable 1000 - 10000 mg/l

FORMALDEHYDE

Solubility in water
Rapidly degradable 55000 mg/l

12.3. Bioaccumulative potential

M-PHENYLENEBIS (METHYLAMINE)

Partition coefficient: n-octanol/water 0,18

FORMALDEHYDE

Partition coefficient: n-octanol/water 0,35
BCF < 1

12.4. Mobility in soil

FORMALDEHYDE

Partition coefficient: soil/water

1,202

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.

CONTAMINATED PACKAGING

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

SECTION 14. Transport information

The product is not dangerous under current provisions of the Code of International Carriage of Dangerous Goods by Road (ADR) and by Rail (RID), of the International Maritime Dangerous Goods Code (IMDG), and of the International Air Transport Association (IATA) regulations.

14.1. UN number

Not applicable

14.2. UN proper shipping name

Not applicable

14.3. Transport hazard class(es)

Not applicable

14.4. Packing group

Not applicable

SECTION 14. Transport information ... / >>

14.5. Environmental hazards

Not applicable

14.6. Special precautions for user

Not applicable

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

Information not relevant

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. 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)
 14. Regulation (EU) 2018/669 (XI Atp. CLP)
 15. Regulation (EU) 2018/1480 (XIII Atp. CLP)
-
16. Regulation (EU) 2019/521 (XII 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.

Product's classification is based on the calculation methods set out in Annex I of the CLP Regulation, unless otherwise indicated in sections 11 and 12.

The data for evaluation of chemical-physical properties are reported in section 9.