



MAROIL S.R.L.

Revision nr. 9

Dated 17/04/2015

BSF/OB

Printed on 16/07/2015

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## Safety data sheet

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

#### 1.1. Product identifier

Code: M 100  
Product name: BSF/OB

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

Intended use: Elevatore di ottani benzina

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

Name: MAROIL S.R.L.  
Full address: LOC. PONTE ALLA CILIEGIA  
District and Country: 55011 MARGINONE ALTOPASCIO (LU)  
ITALIA  
Tel. 0583/28731  
Fax 0583/286542

e-mail address of the competent person responsible for the Safety Data Sheet: marco@bardahl.it

#### 1.4. Emergency telephone number

For urgent inquiries refer to

**Numeri telefonici dei principali Centri Antiveleni italiani (attivi 24/24 ore)**

Centro Antiveleni di Pavia 0382 24444 (CAV IRCCS Fondazione Maugeri - Pavia)

Centro Antiveleni di Milano 02 66101029 (CAV Ospedale Niguarda Ca` Granda - Milano)

Centro Antiveleni di Bergamo 800 883300 (CAV Ospedali Riuniti - Bergamo)

Centro Antiveleni di Firenze 055 7947819 (CAV Ospedale Careggi - Firenze)

Centro Antiveleni di Roma 06 3054343 (CAV Policlinico Gemelli - Roma)

Centro Antiveleni di Roma 06 49978000 (CAV Policlinico Umberto I - Roma)

Centro Antiveleni di Napoli 081 7472870 (CAV Ospedale Cardarelli - Napoli)

### 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:

Flammable liquid, category 3	H226	Flammable liquid and vapour.
Acute toxicity, category 1/2	H310+H330	Fatal if swallowed, in contact with skin or if inhaled.
Acute toxicity, category 4	H302	Harmful if swallowed.
Aspiration hazard, category 1	H304	May be fatal if swallowed and enters airways.
Skin irritation, category 2	H315	Causes skin irritation.
Specific target organ toxicity - single exposure, category 3	H336	May cause drowsiness or dizziness.
Hazardous to the aquatic environment, acute toxicity,	H400	Very toxic to aquatic life.



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category 1

Hazardous to the aquatic environment, chronic toxicity,  
category 1

H410

Very toxic to aquatic life with long lasting effects.

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

Danger Symbols:

T+-N

R phrases:

10-24/25-26-38-50/53-65

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.



Signal words:

Danger

Hazard statements:

**H226** Flammable liquid and vapour.  
**H310+H330** Fatal if swallowed, in contact with skin or if inhaled.  
**H302** Harmful if swallowed.  
**H304** May be fatal if swallowed and enters airways.  
**H315** Causes skin irritation.  
**H336** May cause drowsiness or dizziness.  
**H410** Very toxic to aquatic life with long lasting effects.

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, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
**P233** Keep container tightly closed.  
**P280** Wear protective gloves / clothing and eye / face protection.  
**P284** [In case of inadequate ventilation] wear respiratory protection.  
**P301+P312** IF SWALLOWED: call a POISON CENTER / doctor / . . . / if you feel unwell.  
**P501** Dispose of contents / container to . . .

**Contains:** SOLVENT NAPHTA (PETROLEUM), HEAVY AROM  
CHEROSENE (PETROLIO)  
Methylcyclopentadienyl manganese tricarbonyl

### 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.	Conc. %.	Classification 67/548/EEC.	Classification 1272/2008 (CLP).
<b>CHEROSENE (PETROLIO)</b>			
CAS. 8008-20-6	42,5 - 45	R10, Xi R38, N R51/53, Xn R65	Flam. Liq. 3 H226, Asp. Tox. 1 H304, Skin Irrit. 2 H315, STOT SE 3 H336, Aquatic Chronic 2 H411
EC. 232-366-4			
INDEX. 649-404-00-4			
<b>Methylcyclopentadienyl manganese tricarbonyl</b>			
CAS. 12108-13-3	25,5 - 27	T R24/25, T+ R26, N R50/53	Acute Tox. 1 H310, Acute Tox. 1 H330, Acute Tox. 3 H301, Aquatic Acute 1 H400 M=1, Aquatic Chronic 1 H410
EC. 235-166-5			
INDEX. -			
<b>SOLVENT NAPHTA (PETROLEUM), HEAVY AROM</b>			
CAS. 64742-94-5	15 - 16,5	N R51/53, Xn R65, R66, R67	Asp. Tox. 1 H304, STOT SE 3 H336, Aquatic Chronic 2 H411, EUH066
EC. 265-198-5			
INDEX. 649-424-00-3			

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

Extinguishing substances are: carbon dioxide, foam, chemical powder. For product loss or leakage that has not caught fire, water spray can be used to disperse flammable vapours and protect those trying to stem the leak.

#### UNSUITABLE EXTINGUISHING EQUIPMENT

Do not use jets of water. Water is not effective for putting out fires but can be used to cool containers exposed to flames to prevent explosions.

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

#### HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE

Excess pressure may form in containers exposed to fire at a risk of explosion. 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

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. 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. Check incompatibility for container material in section 7. 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.**

Keep away from heat, sparks and naked flames; do not smoke or use matches or lighters. Without adequate ventilation, vapours may accumulate at ground level and, if ignited, catch fire even at a distance, with the danger of backfire. Avoid bunching of electrostatic charges. Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat. Avoid leakage of the product into the environment.

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

Store only in the original container. Store in a well ventilated place, keep far away from sources of heat, naked flames and sparks and other sources of ignition. 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:

CHE	Suisse / Schweiz	Valeurs limites d'exposition aux postes de travail 2012. / Grenzwerte am Arbeitsplatz
IRL	Éire	Code of Practice Chemical Agent Regulations 2011


**Methylcyclopentadienyl manganese tricarbonyl****Threshold Limit Value.**

Type	Country	TWA/8h		STEL/15min	
		mg/m3	ppm	mg/m3	ppm
VEL	CHE	0,2	0,1		
MAK	CHE	0,2	0,1		
OEL	IRL	0,2		0,6	

Legend:

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

**8.2. Exposure controls.**

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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 III 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.

Consider the appropriateness of providing antistatic clothing in the case of working environments in which there is a risk of explosion.

#### EYE PROTECTION

Wear airtight protective goggles (see standard EN 166).

In the presence of risks of exposure to splashes or squirts during work, adequate mouth, nose and eye protection should be used to prevent accidental absorption.

#### 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	liquid
Colour	yellow
Odour	characteristic
Odour threshold.	Not available.
pH.	Not available.
Melting point / freezing point.	Not available.
Initial boiling point.	Not available.
Boiling range.	Not available.
Flash point.	53 °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.	0,909 Kg/l
Solubility	insoluble
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.

Viscosita a 40°C	1,75 cSt
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## SECTION 10. Stability and reactivity.

### 10.1. Reactivity.

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

SOLVENT NAPHTA (PETROLEUM), HEAVY AROM: can form flammable mixtures with the air.

### 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.

### 10.5. Incompatible materials.

Information not available.

### 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.

Acute effects: this product is highly toxic and causes rapid poisoning by inhalation and cutaneous absorption; ingestion may be harmful. Poisoning by inhalation may give rise to a series of symptoms, which may include: stinging and irritated eyes, mouth, throat; cough, respiratory disorders, dizziness, headache, nausea and sickness. In the most serious cases, inhalation of this product may cause larynx and bronchial tube edema, chemical pneumonia and pulmonary edema, reduction or increase of heart-beat, copious salivation, blood sputum, loss of consciousness, behavioral disorders (depression or euphoria). Poisoning by cutaneous absorption may give rise to symptoms, which may include: increase of skin temperature, swelling, itchiness, headache, respiratory disorders and sometimes even burns and cauterizations. Ingestion of even small amounts of product may cause serious health problems (stomach pain, nausea, sickness, diarrhoea).

Acute effects: ingestion of this product is harmful. Even small amounts of product may cause serious health problems (stomach pain, nausea, sickness, diarrhoea).

The introduction of even small quantities of this liquid into the respiratory system in case of ingestion or vomit may cause bronchopneumonia and pulmonary edema.

Acute effects: contact with skin may cause: irritation, erythema, edema, dryness and chapped skin.

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.

Methylcyclopentadienyl manganese tricarbonyl

LD50 (Oral).8 mg/kg

LD50 (Dermal).140 mg/kg Rabbit

LC50 (Inhalation).0,076 mg/l/4h

## 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.

Information not available.

### 12.2. Persistence and degradability.

Petroleum distillates, charcoal, vegetable extracts: they are mixtures of paraffinic, naphthenic, diterpenic and aromatic hydrocarbons. Their behaviour on the environment depends on the concentration. In each case use, according to good working practices, avoiding disposal in the environment. As a rule, the product is poorly biodegradable.

SOLVENT NAPHTA (PETROLEUM), HEAVY AROM: Oil distillates, coal, plant extracts: they are blends of parafin hydrocarbons, naphthenes, diterpenes and aromatics. Their behaviour in the environment depends on their composition. In any case they should be used according to good working practice, avoiding discharging it into the environment. In general the product is poorly biodegradable.

### 12.3. Bioaccumulative potential.

Information not available.

### 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,  
IATA:

UN: 2929

**14.2. UN proper shipping name.**

ADR / RID: TOXIC LIQUID,  
FLAMMABLE,  
ORGANIC,  
N.O.S.  
(Methylcyclopent  
adienyl  
manganese  
tricarbonyl;

IMDG: CHEROSENE  
(PETROLIO )  
TOXIC LIQUID,  
FLAMMABLE,  
ORGANIC,  
N.O.S.  
(Methylcyclopent  
adienyl  
manganese  
tricarbonyl;

IATA: CHEROSENE  
(PETROLIO )  
TOXIC LIQUID,  
FLAMMABLE,  
ORGANIC,  
N.O.S.  
(Methylcyclopent  
adienyl  
manganese  
tricarbonyl;  
CHEROSENE  
(PETROLIO )

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

ADR / RID: Class: 6.1 Label: 6.1 (3)



IMDG: Class: 6.1 Label: 6.1 (3)



IATA: Class: 6.1 Label: 6.1 (3)


**14.4. Packing group.**

ADR / RID, IMDG, IATA: II

**14.5. Environmental hazards.**

ADR / RID: Environmentally Hazardous.



IMDG: Marine Pollutant.



IATA: NO

For Air transport, environmentally hazardous mark is only mandatory for UN 3077 and UN 3082.

**14.6. Special precautions for user.**

ADR / RID: HIN - Kemler: 63

Limited Quantities 0,1 L

Tunnel restriction code (D/E)

Special Provision: -

IMDG: EMS: F-E, S-D

Limited Quantities 0,1 L

IATA: Cargo:

Maximum quantity: 60 L

 Packaging instructions: 662  
Packaging instructions: 654

Pass.:

Maximum quantity: 5 L

Special Instructions:

A4, A137

**14.7. Transport in bulk according to Annex II of MARPOL73/78 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.

1, 9i, 6



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

Product.

Point. 3 - 40

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.

**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>Flam. Liq. 3</b>	Flammable liquid, category 3
<b>Acute Tox. 1</b>	Acute toxicity, category 1
<b>Acute Tox. 1/2</b>	Acute toxicity, category 1/2
<b>Acute Tox. 3</b>	Acute toxicity, category 3
<b>Acute Tox. 4</b>	Acute toxicity, category 4
<b>Asp. Tox. 1</b>	Aspiration hazard, category 1
<b>Skin Irrit. 2</b>	Skin irritation, category 2
<b>STOT SE 3</b>	Specific target organ toxicity - single exposure, category 3
<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>Aquatic Chronic 2</b>	Hazardous to the aquatic environment, chronic toxicity, category 2
<b>H226</b>	Flammable liquid and vapour.
<b>H310</b>	Fatal in contact with skin.
<b>H310+H330</b>	Fatal if swallowed, in contact with skin or if inhaled.
<b>H301</b>	Toxic if swallowed.
<b>H302</b>	Harmful if swallowed.
<b>H304</b>	May be fatal if swallowed and enters airways.
<b>H315</b>	Causes skin irritation.
<b>H336</b>	May cause drowsiness or dizziness.
<b>H400</b>	Very toxic to aquatic life.
<b>H410</b>	Very toxic to aquatic life with long lasting effects.
<b>H411</b>	Toxic to aquatic life with long lasting effects.
<b>EUH066</b>	Repeated exposure may cause skin dryness or cracking.

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

<b>R10</b>	FLAMMABLE.
<b>R24/25</b>	TOXIC IN CONTACT WITH SKIN AND IF SWALLOWED.
<b>R26</b>	VERY TOXIC BY INHALATION.
<b>R38</b>	IRRITATING TO SKIN.
<b>R50/53</b>	VERY TOXIC TO AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT.
<b>R51/53</b>	TOXIC TO AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT.
<b>R65</b>	HARMFUL: MAY CAUSE LUNG DAMAGE IF SWALLOWED.
<b>R66</b>	REPEATED EXPOSURE MAY CAUSE SKIN DRYNESS OR CRACKING.
<b>R67</b>	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



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- 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 (EU) 1907/2006 (REACH) of the European Parliament
  4. Regulation (EU) 1272/2008 (CLP) of the European Parliament
  5. Regulation (EU) 790/2009 (I Atp. CLP) of the European Parliament
  6. Regulation (EU) 453/2010 of the European Parliament
  7. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
  8. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
  9. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
  10. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
  11. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament
- The Merck Index. - 10th Edition
  - Handling Chemical Safety
  - Niosh - Registry of Toxic Effects of Chemical Substances
  - INRS - Fiche Toxicologique (toxicological sheet)
  - Patty - Industrial Hygiene and Toxicology
  - N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
  - 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.