

## Safety Data Sheet

### MAPEPROOF ESM parte A

Safety Data Sheet dated: 18/02/2020 - version 3



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

### 1.1. Product identifier

Mixture identification:

Trade name: MAPEPROOF ESM parte A

Trade code: 241101M

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

Recommended use: Epoxy resins

Uses advised against: Data not available

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

Company: MAPEI U.K. Ltd - Mapei House Steel Park Road

Halesowen - West Midlands B62 8HD

www.mapei.co.uk (office hour 8:30-17:30)

Responsible: sicurezza@mapei.it

### 1.4. Emergency telephone number

call NHS 111 or a doctor/OHES Environmental Ltd +44(0)1684 299 886

phone: +44(0)121 508 6970 - fax: +44(0)121 5086 960

## SECTION 2: Hazards identification



### 2.1. Classification of the substance or mixture

#### Regulation (EC) n. 1272/2008 (CLP)

Skin Irrit. 2 Causes skin irritation.

Eye Irrit. 2 Causes serious eye irritation.

Skin Sens. 1A May cause an allergic skin reaction.

Aquatic Chronic 2 Toxic to aquatic life with long lasting effects.

Adverse physicochemical, human health and environmental effects:

No other hazards

### 2.2. Label elements

#### Regulation (EC) n. 1272/2008 (CLP)

#### Pictograms and Signal Words



Warning

#### Hazard statements:

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H411 Toxic to aquatic life with long lasting effects.

#### Precautionary statements:

P261 Avoid breathing mist/vapours/spray.

P264 Wash hands thoroughly after handling.

P273 Avoid release to the environment.

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

P333+P313 If skin irritation or rash occurs: Get medical advice/attention.

P391 Collect spillage.

#### Special Provisions:

EUH208 Contains reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight <= 700). May produce an allergic reaction.

EUH208 Contains oxirane, mono[(C12-14-alkyloxy)methyl] derivs.. May produce an allergic reaction.  
EUH205 Contains epoxy constituents. May produce an allergic reaction.

**Contains:**

bisphenol F - epoxy resin

**Special provisions according to Annex XVII of REACH and subsequent amendments:**

None

**2.3. Other hazards**

No PBT/vPvB Ingredients are present

Other Hazards: No other hazards

This preparation contains low molecular weight epoxy resins. Cross sensitisation to other epoxies is possible. Avoid also exposure to spray mist and vapour.

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**SECTION 3: Composition/information on ingredients**

**3.1. Substances**

N.A.

**3.2. Mixtures**

Mixture identification: MAPEPROOF ESM parte A

**Hazardous components within the meaning of the CLP regulation and related classification:**

Quantity	Name	Ident. Numb.	Classification	Registration Number
≥50 - <75 %	reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight <= 700)	CAS:25068-38-6 EC:500-033-5 Index:603-074-00-8	Eye Irrit. 2, H319; Skin Irrit. 2, H315; Skin Sens. 1,1A,1B, H317; Aquatic Chronic 2, H411	01-2119456619-26-xxxx
≥20 - <25 %	oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	CAS:68609-97-2 EC:271-846-8 Index:603-103-00-4	Skin Irrit. 2, H315; Skin Sens. 1, H317	01-2119485289-22-XXXX
≥10 - <20 %	bisphenol F - epoxy resin	CAS:9003-36-5 EC:500-006-8	Skin Irrit. 2, H315; Skin Sens. 1A, H317; Aquatic Chronic 2, H411	01-2119454392-40-XXXX
≥10 - <20 %	bis(isopropyl)naphthalene	CAS:38640-62-9 EC:254-052-6	Asp. Tox. 1, H304; Aquatic Chronic 1, H410	01-2119565150-48-XXXX

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**SECTION 4: First aid measures**

**4.1. Description of first aid measures**

In case of skin contact:

Immediately take off all contaminated clothing.

Areas of the body that have - or are only even suspected of having - come into contact with the product must be rinsed immediately with plenty of running water and possibly with soap.

Wash thoroughly the body (shower or bath).

Remove contaminated clothing immediately and dispose of safely.

After contact with skin, wash immediately with soap and plenty of water.

In case of eyes contact:

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.

Protect uninjured eye.

In case of Ingestion:

Do not induce vomiting, get medical attention showing the SDS and the hazard label.

In case of Inhalation:

Remove casualty to fresh air and keep warm and at rest.

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

Eye irritation

Eye damages

Skin Irritation

Erythema

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

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

Treatment:

(see paragraph 4.1)

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media:

Water.

Carbon dioxide (CO<sub>2</sub>).

Extinguishing media which must not be used for safety reasons:

None in particular.

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

Do not inhale explosion and combustion gases.

### 5.3. Advice for firefighters

Use suitable breathing apparatus.

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## SECTION 6: Accidental release measures

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

Wear personal protection equipment.

Remove persons to safety.

### 6.2. Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

Limit leakages with earth or sand.

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

Suitable material for taking up: absorbing material, organic, sand

Retain contaminated washing water and dispose it.

### 6.4. Reference to other sections

See also section 8 and 13

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## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Avoid contact with skin and eyes, inhalation of vapours and mists.

Don't use empty container before they have been cleaned.

Before making transfer operations, assure that there aren't any incompatible material residuals in the containers.

Contaminated clothing should be changed before entering eating areas.

Do not eat or drink while working.

See also section 8 for recommended protective equipment.

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

Keep away from food, drink and feed.

Incompatible materials:

None in particular.

Instructions as regards storage premises:

Adequately ventilated premises.

### 7.3. Specific end use(s)

Recommendation(s)

None in particular

Industrial sector specific solutions:

None in particular

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## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### List of components with OEL value

Component	OEL Type	Country	Ceiling	Long Term mg/m <sup>3</sup>	Long Term ppm	Short Term mg/m <sup>3</sup>	Short Term ppm	Behaviour Note
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight <= 700)	National	BULGARIA		1,0				

#### Predicted No Effect Concentration (PNEC) values

Component	CAS-No.	PNEC LIMIT	Exposure Route	Exposure Frequency	Remark
reaction product: bisphenol-A-(epichlorhydrin); epoxy	25068-38-6	0,006 mg/l	Fresh Water		

resin (number average molecular weight <= 700)

		0,0006	Marine water
		mg/l	
		0,0627	Freshwater
		mg/kg	sediments
		0,00627	Marine water
		mg/kg	sediments
oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	68609-97-2	0,00072	Marine water
		mg/l	
		0,0072	Fresh Water
		mg/l	
		66,77	Freshwater
		mg/kg	sediments
		6,677	Marine water
		mg/kg	sediments
		80,12	Soil
		mg/kg	
		10 mg/l	Microorganisms
			in sewage
			treatments
bisphenol F - epoxy resin	9003-36-5	10 mg/l	Microorganisms
			in sewage
			treatments
		0,003	Fresh Water
		mg/l	
		0,294	Freshwater
		mg/kg	sediments
		0,0003	Marine water
		mg/l	
		0,0294	Marine water
		mg/kg	sediments
		0,237	Soil
		mg/kg	

**Derived No Effect Level. (DNEL)**

<b>Component</b>	<b>CAS-No.</b>	<b>Worker Industrial</b>	<b>Worker Professional</b>	<b>Consumer</b>	<b>Exposure Route</b>	<b>Exposure Frequency</b>	<b>Remark</b>
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight <= 700)	25068-38-6	8,3			Human Dermal		Short Term, systemic effects
			12,25		Human Inhalation		Short Term, systemic effects
			8,3		Human Dermal		Long Term, systemic effects
			12,25		Human Inhalation		Long Term, systemic effects
				3,571	Human Dermal		Short Term, systemic effects
				0,75	Human Oral		Short Term, systemic effects
				3,571	Human Dermal		Long Term, systemic effects

## 8.2. Exposure controls

Eye protection:

Use close fitting safety goggles, don't use eye lens.

Protection for skin:

Use clothing that provides comprehensive protection to the skin, e.g. cotton, rubber, PVC or viton.

Protection for hands:

Suitable materials for safety gloves; EN 374:

Polychloroprene - CR: thickness  $\geq 0,5\text{mm}$ ; breakthrough time  $\geq 480\text{min}$ .

Nitrile rubber - NBR: thickness  $\geq 0,35\text{mm}$ ; breakthrough time  $\geq 480\text{min}$ .

Butyl rubber - IIR: thickness  $\geq 0,5\text{mm}$ ; breakthrough time  $\geq 480\text{min}$ .

Fluorinated rubber - FKM: thickness  $\geq 0,4\text{mm}$ ; breakthrough time  $\geq 480\text{min}$ .

Neoprene gloves are suggested (0,5 mm) not recommended gloves: not waterproof gloves

Respiratory protection:

Personal Protective Equipment should comply with relevant CE standards (as EN 374 for gloves and EN 166 for goggles), correctly maintained and stored. Consult the supplier to check the suitability of equipment against specific chemicals and for user information.

In case of insufficient ventilation use mask with ABEKP filters (EN 14387).

Hygienic and Technical measures

N.A.

Appropriate engineering controls:

N.A.

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## SECTION 9: Physical and chemical properties

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

Physical state: Liquid

Appearance and colour: liquid transparent

Odour: characteristic

Odour threshold: N.A.

pH: N.A.

Melting point / freezing point: N.A.

Initial boiling point and boiling range: N.A.

Flash point: N.A.

Evaporation rate: N.A.

Upper/lower flammability or explosive limits: N.A.

Vapour density: N.A.

Vapour pressure: N.A.

Relative density: 1.17 g/cm<sup>3</sup>

Solubility in water: insoluble

Partition coefficient (n-octanol/water): N.A. - This product is a mixture

Auto-ignition temperature: N.A. - No explosive or spontaneous ignition in contact with air at room temperature

Decomposition temperature: N.A.

Viscosity: 350.00 cPs

Explosive properties: == - No components with explosive properties

Oxidizing properties: N.A. - No component with oxidizing properties

Solid/gas flammability: N.A.

### 9.2. Other information

No additional information

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## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Stable under normal conditions

### 10.2. Chemical stability

Stable under normal conditions

### 10.3. Possibility of hazardous reactions

None.

### 10.4. Conditions to avoid

Stable under normal conditions.

### 10.5. Incompatible materials

None in particular.

## 10.6. Hazardous decomposition products

None.

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## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

#### Toxicological information of the mixture:

There is no toxicological data available on the mixture. Consider the individual concentration of each component to assess toxicological effects resulting from exposure to the mixture.

#### Toxicological information on main components of the mixture:

reaction product: bisphenol-A- (epichlorhydrin); epoxy resin (number average molecular weight <= 700)	a) acute toxicity	LD50 Oral Rat > 15000 mg/kg
		LD50 Skin Rabbit > 23000 mg/kg
		LD50 Oral Rat = 11400 mg/kg
	i) STOT-repeated exposure	NOAEL Oral Rat = 50 mg/kg
		NOAEL Skin Rat = 100 mg/kg
oxirane, mono[(C12-14- alkyloxy)methyl] derivs.	a) acute toxicity	LD50 Oral Rat > 5000 mg/kg
		LD50 Skin Rabbit > 3987 mg/kg
		LD50 Oral Rat = 17100 mg/kg
bisphenol F - epoxy resin	a) acute toxicity	LD50 Oral Rat > 10000 mg/kg
		LD50 Skin Rat > 2000 mg/kg
		LD50 Oral Rat > 2 g/kg
	i) STOT-repeated exposure	NOAEL Oral = 250 mg/kg
bis(isopropyl)naphthalene	a) acute toxicity	LD50 Oral Rat > 4000 mg/kg
		LD50 Skin Rat > 4000 mg/kg
		LC50 Inhalation Rat > 5,6 mg/l 4h
		LD50 Skin Rat > 4500 mg/kg
		LC50 Inhalation Rat > 5,64 mg/l 4h
		LD50 Oral Rat = 3900 mg/kg

**If not differently specified, the information required in Regulation (EU)2015/830 listed below must be considered as N.A.**

- a) acute toxicity
- b) skin corrosion/irritation
- c) serious eye damage/irritation
- d) respiratory or skin sensitisation
- e) germ cell mutagenicity
- f) carcinogenicity
- g) reproductive toxicity
- h) STOT-single exposure
- k) Toxicological kinetics,  
metabolism and distribution  
information
- i) STOT-repeated exposure
- j) aspiration hazard

## SECTION 12: Ecological information

### 12.1. Toxicity

Adopt good working practices, so that the product is not released into the environment.

Eco-Toxicological Information:

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

### List of components with eco-toxicological properties

Component	Ident. Numb.	Ecotox Infos
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight <= 700)	CAS: 25068-38-6 - EINECS: 500-033-5 - INDEX: 603-074-00-8	a) Aquatic acute toxicity : LC50 Fish > 2 mg/L 96  a) Aquatic acute toxicity : EC50 Daphnia > 1,8 mg/L 48 a) Aquatic acute toxicity : LC50 Algae > 11 mg/L 72 a) Aquatic acute toxicity : LC50 Daphnia = 1,3 mg/L 96 b) Aquatic chronic toxicity : NOEC Daphnia = 0,3 mg/L a) Aquatic acute toxicity : EC50 Daphnia = 7,20000 mg/L 48
oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	CAS: 68609-97-2 - EINECS: 271-846-8 - INDEX: 603-103-00-4	a) Aquatic acute toxicity : EC50 Algae = 844,00000 mg/L 72 a) Aquatic acute toxicity : LC50 Fish > 1800,00000 mg/L 96 a) Aquatic acute toxicity : EC50 Fish = 2,54 mg/L 96
bisphenol F - epoxy resin	CAS: 9003-36-5 - EINECS: 500-006-8	a) Aquatic acute toxicity : EC50 Daphnia = 2,55 mg/L 48 a) Aquatic acute toxicity : LL50 Daphnia = 1,7 mg/L 48
bis(isopropyl)naphthalene	CAS: 38640-62-9 - EINECS: 254-052-6	a) Aquatic acute toxicity : NOEC Daphnia = 0,013 mg/L - 21 d a) Aquatic acute toxicity : LC50 Fish Cyprinus carpio > 1000 mg/L 96h a) Aquatic acute toxicity : LC50 Fish Oryzias latipes > 1000 mg/L 96h

### 12.2. Persistence and degradability

N.A.

### 12.3. Bioaccumulative potential

N.A.

### 12.4. Mobility in soil

N.A.

### 12.5. Results of PBT and vPvB assessment

No PBT/vPvB Ingredients are present

### 12.6. Other adverse effects

N.A.

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## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Recover if possible. In so doing, comply with the local and national regulations currently in force.

A waste code according to European waste catalogue (EWC) cannot be specified, due to dependence on the usage. Contact an authorized waste disposal service.

Product:

Do not dispose of waste into sewers.

Do not contaminate ponds, waterways or ditches with chemical or used container.

Send to an authorized waste disposal service.

Contaminated packaging:

Empty remaining content.

Dispose of as unused product.

Do not re-use empty containers.

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## SECTION 14: Transport information

### 14.1. UN number

3082

#### 14.2. UN proper shipping name

ADR-Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (epoxy resins)  
IATA-Technical name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (epoxy resins)  
IMDG-Technical name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (epoxy resins)

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

ADR-Class: 9  
IATA-Class: 9  
IMDG-Class: 9

#### 14.4. Packing group

ADR-Packing Group: III  
IATA-Packing group: III  
IMDG-Packing group: III

#### 14.5. Environmental hazards

Marine pollutant: Yes  
Environmental Pollutant: Yes

#### 14.6. Special precautions for user

Road and Rail (ADR-RID):  
ADR exempt: No  
ADR-Label: 9  
ADR-Hazard identification number: 90  
ADR-Special Provisions: 274 335 375 601  
ADR-Transport category (Tunnel restriction code): 3 (-)

#### Air (IATA):

IATA-Passenger Aircraft: 964  
IATA-Cargo Aircraft: 964  
IATA-Label: 9  
IATA-Subsidiary hazards: -  
IATA-Erg: 9L  
IATA-Special Provisions: A97 A158 A197

#### Sea (IMDG):

IMDG-Stowage Code: Category A  
IMDG-Stowage Note: -  
IMDG-Subsidiary hazards: -  
IMDG-Special Provisions: 274 335 969  
IMDG-Page: N/A  
IMDG-Label: N/A  
IMDG-EMS: F-A, S-F  
IMDG-MFAG: N/A

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

N.A.

These substances, when carried in single or combination packagings containing a net quantity per single or inner packaging of 5 l or less for liquids, or having a net mass per single or inner packaging of 5 kg or less for solids, are not subject to provisions of ADR, IMDG and IATA DGR.

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## SECTION 15: Regulatory information

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

VOC (2004/42/EC) : 45 (A+B) g/l  
Dir. 98/24/EC (Risks related to chemical agents at work)  
Dir. 2000/39/EC (Occupational exposure limit values)  
Regulation (EC) n. 1907/2006 (REACH)  
Regulation (EU) 2015/830  
Regulation (EC) n. 1272/2008 (CLP)  
Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013  
Regulation (EU) n. 286/2011 (ATP 2 CLP)  
Regulation (EU) n. 618/2012 (ATP 3 CLP)  
Regulation (EU) n. 487/2013 (ATP 4 CLP)  
Regulation (EU) n. 944/2013 (ATP 5 CLP)  
Regulation (EU) n. 605/2014 (ATP 6 CLP)  
Regulation (EU) n. 2015/1221 (ATP 7 CLP)



Regulation (EU) n. 2016/918 (ATP 8 CLP)  
 Regulation (EU) n. 2016/1179 (ATP 9 CLP)  
 Regulation (EU) n. 2017/776 (ATP 10 CLP)  
 Provisions related to directive EU 2012/18 (Seveso III):

Seveso III category according to Annex 1, part 1	Lower-tier threshold (tonnes)	Upper-tier threshold (tonnes)
Products belongs to category E2	200	500

**German Water Hazard Class**

N.A.

**Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:**

Restrictions related to the product: 3

Restrictions related to the substances contained: None

**SVHC Substances:**

No Data Available

**15.2. Chemical safety assessment**

No Chemical Safety Assessment has been carried out for the mixture.

**SECTION 16: Other information**

Code	Description
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

Code	Hazard class and hazard category	Description
3.10/1	Asp. Tox. 1	Aspiration hazard, Category 1
3.2/2	Skin Irrit. 2	Skin irritation, Category 2
3.3/2	Eye Irrit. 2	Eye irritation, Category 2
3.4.2/1	Skin Sens. 1	Skin Sensitisation, Category 1
3.4.2/1-1A-1B	Skin Sens. 1,1A,1B	Skin Sensitisation, Category 1,1A,1B
3.4.2/1A	Skin Sens. 1A	Skin Sensitisation, Category 1A
4.1/C1	Aquatic Chronic 1	Chronic (long term) aquatic hazard, category 1
4.1/C2	Aquatic Chronic 2	Chronic (long term) aquatic hazard, category 2

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

Classification according to Regulation (EC) Nr. 1272/2008	Classification procedure
3.2/2	Calculation method
3.3/2	Calculation method
3.4.2/1A	Calculation method
4.1/C2	Calculation method

This document was prepared by a competent person who has received appropriate training.

Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities

SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.

It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

This SDS cancels and replaces any preceding release.

Legend to abbreviations and acronyms used in the safety data sheet:

ACGIH: American Conference of Governmental Industrial Hygienists

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.

AND: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

ATE: Acute Toxicity Estimate

ATEmix: Acute toxicity Estimate (Mixtures)  
BCF: Biological Concentration Factor  
BEI: Biological Exposure Index  
BOD: Biochemical Oxygen Demand  
CAS: Chemical Abstracts Service (division of the American Chemical Society).  
CAV: Poison Center  
CE: European Community  
CLP: Classification, Labeling, Packaging.  
CMR: Carcinogenic, Mutagenic and Reprotoxic  
COD: Chemical Oxygen Demand  
COV: Volatile Organic Compound  
CSA: Chemical Safety Assessment  
CSR: Chemical Safety Report  
DMEL: Derived Minimal Effect Level  
DNEL: Derived No Effect Level.  
DPD: Dangerous Preparations Directive  
DSD: Dangerous Substances Directive  
EC50: Half Maximal Effective Concentration  
ECHA: European Chemicals Agency  
EINECS: European Inventory of Existing Commercial Chemical Substances.  
ES: Exposure Scenario  
GefStoffVO: Ordinance on Hazardous Substances, Germany.  
GHS: Globally Harmonized System of Classification and Labeling of Chemicals.  
IARC: International Agency for Research on Cancer  
IATA: International Air Transport Association.  
IATA-DGR: Dangerous Goods Regulation by the "International Air Transport Association" (IATA).  
IC50: half maximal inhibitory concentration  
ICAO: International Civil Aviation Organization.  
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO).  
IMDG: International Maritime Code for Dangerous Goods.  
INCI: International Nomenclature of Cosmetic Ingredients.  
IRCCS: Scientific Institute for Research, Hospitalization and Health Care  
KSt: Explosion coefficient.  
LC50: Lethal concentration, for 50 percent of test population.  
LD50: Lethal dose, for 50 percent of test population.  
LDLo: Leathal Dose Low  
N.A.: Not Applicable  
N/A: Not Applicable  
N/D: Not defined/ Not available  
NA: Not available  
NIOSH: National Institute for Occupational Safety and Health  
NOAEL: No Observed Adverse Effect Level  
OSHA: Occupational Safety and Health Administration.  
PBT: Persistent, Bioaccumulative and Toxic  
PGK: Packaging Instruction  
PNEC: Predicted No Effect Concentration.  
PSG: Passengers  
RID: Regulation Concerning the International Transport of Dangerous Goods by Rail.  
STEL: Short Term Exposure limit.  
STOT: Specific Target Organ Toxicity.  
TLV: Threshold Limiting Value.  
TWATLV: Threshold Limit Value for the Time Weighted Average 8 hour day. (ACGIH Standard).  
vPvB: Very Persistent, Very Bioaccumulative.  
WGK: German Water Hazard Class.

**Paragraphs modified from the previous revision:**

- 2. HAZARDS IDENTIFICATION
- 4. FIRST AID MEASURES
- 5. FIRE-FIGHTING MEASURES
- 9. PHYSICAL AND CHEMICAL PROPERTIES
- 11. TOXICOLOGICAL INFORMATION
- 12. ECOLOGICAL INFORMATION
- 13. DISPOSAL CONSIDERATIONS

- 14. TRANSPORT INFORMATION
- 15. REGULATORY INFORMATION