In compliance with EC Regulations No.: 1907/2006, 830/2015 and 1272/2008 (CLP).

Date last modified: 30 December 2019 - version 6.0

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

1.1 Product Identifier

Product Name: SOLBREAK HFP
Product Code #: 832548 (25 lt) / 832140 (210 lt)

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

Intended Use: Industrial applications; Cleaning agent for machinery & equipment.

Uses advised against: This product is not recommended for any industrial, professional or consumer use other than the Intended Uses above.

1.3 Details of the supplier of the safety data sheet

Company/undertaking identification

Supplier/Manufacturer:

Marichem Marigases Hellas SA
Sfaktirias 64,
185 45 Piraeus,
Greece
Tel. No.: ++30 210 4148800
Fax No.: ++30 210 4133985
http://www.marichem-marigases.com

e-mail: mail@marichem-marigases.com

1.4 Emergency telephone number

Tel. No.: ++30 210 4148800 (including working hours)

Emergency Information:
Inside U.S. and Canada: (800)-424-9300 (CHEMTREC)
Outside U.S. and Canada: 1-703-527-3887 (CHEMTREC)
National Emergency Centre (Greece): ++30 210 7793777

2. HAZARDS IDENTIFICATION

2.1 Classification of the mixture

Classification under EC 1272/2008 regulation - GHS classification.

Aspiration Toxicity, Category 1
Specific target organ toxicity-single exposure, Category 3
Eye damage, Category 1
Acute Toxicity (dermal, oral, inhalation - vapor), Category 4
Skin Corrosion/Irritation, Category 2

SIGNAL WORD: DANGER

Hazard Statement(s):

H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H318: Causes serious eye damage.
H332: Harmful if inhaled.
H335: May cause respiratory irritation.
EUH066: Repeated exposure may cause skin dryness or cracking.

2.2 Label Elements

Labelling according to Regulation (EC) No. 1272/2008.
The substance is classified and labelled according to the CLP Regulation.

Hazard Pictograms

GHS 07 GHS 08 GHS 05

SIGNAL WORD: DANGER

Hazard Statements

H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H318: Causes serious eye damage.
H332: Harmful if inhaled.
H335: May cause respiratory irritation.
EUH066: Repeated exposure may cause skin dryness or cracking.

Precautionary Statements

Prevention

P261: Avoid breathing mist/vapours/spray.
P262: Do not get in eyes, on skin or on clothing.
P264: Wash face, hands and any exposed skin thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P271: Use only outdoors or in a well-ventilated area.
P273: Avoid release to the environment.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P281: Use personal protective equipment as required.

Response

P310: Immediately call a POISON CENTER or doctor/physician.
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P301+P330: IF SWALLOWED: Rinse mouth.
P303+P361+P352: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Wash with plenty of soap and water.
P361: Remove/Take off immediately all contaminated clothing.
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338+P310: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.
P332 + P313 If skin irritation occurs: Get medical advice/attention.
P331: Do NOT induce vomiting.
P391: Collect spillage.

Storage

P403+P233: Store in a well-ventilated place. Keep container tightly closed.
P405: Store locked up.

Disposal

P501: Dispose of contents and container to appropriate waste site or reclaimer in accordance with local and national regulations.

2.3 Other Hazards

Does not meet the criteria for PBT or vPvB.
Ingestion may cause irritation to mucous membranes.
Material can accumulate static charges which may cause an ignition.
May be irritating to the eyes, nose, throat and lungs.
Combustible liquid. In use, may form flammable/explosive vapour-air mixture. Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire.

Product classification and labelling according to Directive 67/548/EEC, European Dangerous Preparations Directive (1999/45/EC), European Regulation 648/2004 and their amendments.

Symbol: Xn

Harmful (Xn)

R-phrases:	R36/38	Irritating to eyes and skin.
	R52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
	R65	Harmful: may cause lung damage if swallowed.
	R66	Repeated exposure may cause skin dryness or cracking.
S-phrases:	S2	Keep out of the reach of children.
	S23	Do not breathe gas/vapor.
	S24	Avoid contact with skin.
	S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	S28	After contact with skin, wash immediately with plenty of water.
	S61	Avoid release to the environment. Refer to special instructions/safety data sheets.
	S62	If swallowed do not induce vomiting: seek medical advice immediately and show this container or label.
	S36/37/39	Wear suitable protective clothing, gloves and eye/face protection.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Chemical Composition:

Ingredients	CAS Number	Proportion	Hazard Code(s)*
2-aminoethanol	141-43-5	1% - 5%	H302; H312; H314; H332; H335.
2-Propylheptanol Ethoxylate	160875-66-1	1% - 5.5%	H318
Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, <2% aromatics	64742-48-9	35% - 55%	H304; EUH066
Phosphoric acid, 2-ethylhexyl ester	1310-73-2	0.5% - 2.5%	H314
2-butoxyethanol	111-76-2	5.5% - 15%	H319; H315; H312; H332; H302.
Hydrocarbons, C9, aromatics	64742-95-6	1% - 5%	H226; H304; H335; H336; EUH066; H411.
Ingredients that do not contribute in the classification of the product	-	8% - 15%	-

*See section 16 for the full text of the Hazard Code(s) declared above.

Occupational Exposure Limits, if available, are listed in section 8.

4. FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation
Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device, or use mouth-to-mouth resuscitation.

Skin contact
Wash contact areas with soap and water. Remove contaminated clothing. If this chemical penetrates the clothing promptly remove the clothing and wash. Launder contaminated clothing before reuse.

Eye contact
Flush thoroughly with water. If irritation occurs, get medical assistance.

Ingestion
Seek immediate medical attention. Do not induce vomiting. Never give anything to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed
Acute health effects: drowsiness, dizziness, nausea, skin irritation.
Delayed effects: N/A.

4.3 Indication of any immediate medical attention and special treatment needed
Note to physician: If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media
Appropriate extinguishing media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.
Inappropriate extinguishing media: Straight streams of water.

5.2 Unusual fire hazards arising from the substance or mixture
Hazardous material. Fire-fighters should consider protective equipment.
Hazardous combustion products: Smoke, Fume, Incomplete combustion products, Oxides of Carbon.
Possible formation of toxic Carbon Monoxide when combustion takes place in lack of oxygen.

5.3 Fire Fighting Instructions
Evacuate area. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply.
Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

6. ACCIDENTAL RELEASE MEASURES

6.1 Notification Procedure

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

6.2 Protective Measures

Avoid contact with spilled material. Warn or evacuate occupants in surrounding and downwind areas if required, due to toxicity or flammability of the material

6.3 Spill Management

Land Spill: Stop leak if you can do so without risk. Do not touch or walk through spilled material. Large Spills: Water spray may reduce vapour, but may not prevent ignition in enclosed spaces. Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Recover by pumping or with a suitable absorbent

Water Spill: Stop leak if you can do so without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.
Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken .

6.4 Environmental Precautions

Large Spills: Dyke far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

6.5 Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Prevention of user exposure: Avoid breathing mists or vapours. Avoid contact with skin. Potentially toxic/irritating fumes/vapour may be evolved from heated or agitated material. Use only with adequate ventilation. Prevent small spills and leakage to avoid slip hazard.

Prevention of fire and explosion: Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or earthing procedures. However, bonding and earthing may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator. A liquid is typically considered a non-conductive, static accumulator if its conductivity is below 100 pS/m (100x10E-12 Siemens per meter), and is considered a semi-conductive, static accumulator, if its conductivity is below 10,000 pS/m. Whether a liquid is non-conductive or semi-conductive, the precautions are the same. A number of factors, for example: liquid temperature, presence of contaminants, anti-static additives and filtration, can greatly influence the conductivity of a liquid.

Precautions while moving the product:
Loading/Unloading Temperature: [Ambient]
Transport Temperature: [Ambient]
Transport Pressure: N/D

7.2 Conditions for safe storage, including any incompatibilities

Technical measures: The container choice, for example storage vessel, may effect static accumulation and dissipation. Keep container tightly closed and in a well ventilated place. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area. Storage containers should be earthed and bonded. Fixed storage containers, transfer containers and associated equipment should be grounded and bonded to prevent accumulation of static discharge. Keep away from direct sunlight and other sources of ignition. Do not smoke in storage areas.

7.3. **Specific end use(s):**

Cleaning product for industrial use only.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Name of Substance: Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, <2% aromatics

Occupational exposure limit values:

UK Workplace Exposure Limits
In the absence of occupational exposure standards for this product, it is recommended that the following are adopted.

Material	Source	Type	ppm	mg/m3	Notation
RCP Dearom. Mineral spirits 175 - 220	UK SIA	TWA (8 h)	150 ppm	1,000 mg/m3	

Biological Exposure Index (BEI)
Biological Limit Values (BLV) have not been established for this material.

Derived No Effect Levels
(DNEL/DMEL) Table: No DNEL value has been established.

PNEC related information: Substance is a hydrocarbon with a complex, unknown or variable composition. Conventional methods of deriving PNECs are not appropriate and it is not possible to identify a single representative PNEC for such substances.

Name of Substance: Hydrocarbons, C9, aromatics

Occupational Exposure Limits

Material	Source	Type	ppm	mg/m^3	Notation
1,2,4-Trimethyl benzene	ACGIH	TWA	25 ppm		
	EH40 WEL	TWA	25 ppm	125 mg/m^3	
1,3,5-Trimethyl benzene	ACGIH	TWA	25 ppm		
	EH40 WEL	TWA	25 ppm	125 mg/m^3	
Cumene	ACGIH	TWA	50 ppm		
	EH40 WEL	TWA	25 ppm	125 mg/m^3	
	EH40 WEL	SKIN_DES			Can be absorbed through the skin
	EH40 WEL	STEL	50 ppm	250 mg/m^3	
1,2,3-Trimethyl benzene	ACGIH	TWA	25 ppm		
	OSHA Z1A	TWA	25 ppm	125 mg/m^3	
Xylene, Mixed Isomers	ACGIH	TWA	100 ppm		
	ACGIH	STEL	150 ppm		
	EH40 WEL	SKIN_DES			Can be absorbed through the skin
	EH40 WEL	STEL	100 ppm	441 mg/m^3	
	EH40 WEL	TWA	50 ppm	220 mg/m^3	

Additional Information: Wash hands before eating, drinking, smoking and using the toilet.

Biological Exposure Index (BEI)

Material	Determinant	Sampling time	BEI	Reference
Benzene	t,t-Muconic acid in Creatinine in urine	Sampling time: End of shift.	500 µg/g	ACGIH BEL (2011)
	S-Phenylmercapturic acid in Creatinine in urine	Sampling time: End of shift.	25 µg/g	ACGIH BEL (2011)
Xylene, Mixed Isomers	Methylhippuric acids in Creatinine in urine	Sampling time: End of shift.	1.5 g/g	ACGIH BEL (2009)
	Methylhippuric acids in Creatinine in urine	Sampling time: End of shift.	650 mmol/mol	UKEH40BMGV (2005)

Derived No Effect Levels (DNEL/DMEL) Table

Component	Exposure Route	Exposure Type (long/short)	Application Area	Value
Hydrocarbons, C8-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	Dermal	long term, systemic effects	Worker	25 mg/kg/d
	Inhalation	long term, systemic effects	Worker	150 mg/m^3
	Inhalation	long term, systemic effects	Consumer	32 mg/m^3
	Dermal	long term, systemic effects	Consumer	11 mg/kg/d
	Oral	long term, systemic effects	Consumer	11 mg/kg/d

PNEC related information
Substance is a hydrocarbon with a complex, unknown or variable composition. Conventional methods of deriving PNECs are not appropriate and it is not possible to identify a single representative PNEC for such substances.

Name of Substance: 2-Propylheptanol Ethoxylate

Contains no substances with occupational exposure limit values.

Name of Substance: 2-aminoethanol

TWA value 2.5 mg/m3 ; 1 ppm (OEL (EU)) indicative
STEL value 7.6 mg/m3 ; 3 ppm (OEL (EU)) indicative
Skin Designation (OEL (EU))
The substance can be absorbed through the skin.

PNEC
Freshwater: 0.085 mg/l
Marine water: 0.0085 mg/l
Intermittent release: 0.025 mg/l
Sediment (freshwater): 0.425 mg/kg
Sediment (marine water): 0.0425 mg/kg
Soil: 0.035 mg/kg
STP: 100 mg/l

Worker:
Long-term exposure- systemic effects, dermal: 1 mg/kg
Worker:
Long-term exposure - systemic and local effects, Inhalation: 3.3 mg/m^3
Consumer:
Long-term exposure- systemic effects, dermal: 0.24 mg/kg
Consumer:
Long-term exposure - systemic and local effects, Inhalation: 2 mg/m^3
Consumer:
Long-term exposure- systemic effects, oral: 3.75 mg/kg

Name of Substance: Phosphoric acid, 2-ethylhexyl ester

EXPOSURE LIMITS

Derived No Effect Level (DNEL)
No information available.

Predicted No Effect Concentration (PNEC)
No information available.
Exposure limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Name of Substance: 2-butoxyethanol

Skin Designation (OEL (EU))
The substance can be absorbed through the skin.
TWA value 98 mg/m3 ; 20 ppm (OEL (EU)) indicative
STEL value 246 mg/m3 ; 50 ppm (OEL (EU)) indicative

PNEC
freshwater: 8.8 mg/l
marine water: 0.88 mg/l
intermittent release: 9.1 mg/l
sediment (freshwater): 34.6 mg/kg
sediment (marine water): 3.46 mg/kg
soil: 3.13 mg/kg
STP: 463 mg/l
oral (secondary poisoning): 20 mg/kg

DNEL
worker:
Long-term exposure- systemic effects, dermal: 75 mg/kg
worker:
Long-term exposure- systemic effects, Inhalation: 20 ppm
consumer:
Long-term exposure- systemic effects, dermal: 38 mg/kg
consumer:
Long-term exposure- systemic effects, oral: 3.2 mg/kg
consumer:
Short-term exposure - local effects, Inhalation: 123 mg/m^3
consumer:
Long-term exposure- systemic effects, Inhalation: 49 mg/m^3

8.2 Exposure controls

PERSONAL PROTECTION

Eye and face protection: Wear safety glasses. Contact lenses should not be worn. Chemical goggles and face shield should be worn where splashing is a possibility.

Skin protection: Wear solvent resistant gloves such as Viton, polyvinyl alcohol or equivalent and solvent resistant boots, safety shower and eyewash station should be available.

Respiratory protection: If engineering controls do not maintain airborne concentrations to a

level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for organic gases and vapours [boiling point >65 °C (149 °F)] meeting EN141. Where air-filtering respirators are unsuitable (e.g., airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

9.1.1. Appearance

Physical State:	Liquid
Color:	Colorless, clear
Odor:	Odorless

9.1.2. Basic data

Initial Boiling Point:	<240^{o}C
Final Boiling Point:	>262^{o}C
Flash Point:	>61^{o}C
Autoignition Temperature:	>220^{o}C
Lower Explosion Limit (vol %):	<0.6% (v/v)
Upper Explosion Limit (vol %):	>5.5% (v/v)
Vapour Pressure:	<0.0003 kPa at 20^{o}C
Relative vapor density (air= 1) :	<0.01
Specific Gravity (gr/cm^{3}):	0.80 – 0.90 at 20^{0}C
pH value:	-

Pour point (at 0îC) : < - 30^0C

Cloud Point: < - 5^0C

Viscosity: < 100 cSt at 15^0C

9.2 Other Information: No further relevant information available.

10. STABILITY AND REACTIVITY

10.1 Chemical stability
Material is stable under normal conditions of use and storage.

10.2 Conditions to avoid
Avoid open flames, sparks, heating and high energy ignition sources.

10.3 Materials to avoid
Keep it away from strong oxidizing materials.

10.4 Hazardous Decomposition products
Material does not decompose at ambient temperatures.
Possible the formation of toxic Carbon monoxide when no proper combustion takes place.

10.5 Hazardous polymerization
Will not occur.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

EXPOSURE LIMITS

Name of Substance: Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, <2% aromatics

Basis for Assessment
Information given is based on product testing, and/or similar products, and/or components.

Routes of Exposure
Exposure may occur via inhalation, ingestion, skin absorption, skin or eye contact, and accidental ingestion.

Acute Oral Toxicity
Low toxicity: LD50 >5000 mg/kg.

Acute Dermal Toxicity
Low toxicity: LD50 >5000 mg/kg.

Acute Inhalation Toxicity
Low toxicity: LC50 greater than near-saturated vapour concentration. / 4 hours, rat.

Skin Irritation
Causes mild skin irritation. Prolonged/repeated contact may cause defatting of the skin which can lead to dermatitis.

Eye Irritation
Expected to be non-irritating to eyes.

Respiratory Irritation
Not expected to be a respiratory irritant.

Sensitisation
Not a skin sensitiser.

Name of Substance: Hydrocarbons, C9, aromatics

Basis for Assessment: Information given is based on product testing, and/or similar products, and/or components.
Routes of Exposure: Exposure may occur via inhalation, ingestion, skin absorption, skin or eye contact, and accidental ingestion.
Acute Oral Toxicity: May be harmful if swallowed. LD50 >2000 - <=5000 mg/kg, Rat
Acute Dermal Toxicity: Low toxicity: LD50 >2000 mg/kg, Rabbit
Acute Inhalation Toxicity: Low toxicity: LC50 greater than near-saturated vapour concentration.
Skin corrosion/irritation: Causes mild skin irritation. Prolonged/repeated contact may cause defatting of the skin which can lead to dermatitis.
Serious eye damage/irritation: Expected to be non-irritating to eyes.
Respiratory or skin sensitisation: Not expected to be a sensitiser.
Aspiration hazard: Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.
Germ cell mutagenicity: Not mutagenic.
Carcinogenicity: Not expected to be carcinogenic. Tumours produced in animals are not considered relevant to humans. (Cumene)

Material	**Carcinogenicity Classification**
Hydrocarbons, C9, Aromatics	GHS / CLP: No carcinogenicity classification
1,2,4-Trimethyl benzene	GHS / CLP: No carcinogenicity classification
1,3,5-Trimethyl benzene	GHS / CLP: No carcinogenicity classification
1,2,3-Trimethyl benzene	GHS / CLP: No carcinogenicity classification
Cumene	IARC 2B: Possibly carcinogenic to humans.
Cumene	GHS / CLP: No carcinogenicity classification

Reproductive and Developmental Toxicity: Does not impair fertility. Not a developmental toxicant. Causes foetotoxicity in animals at doses which are maternally toxic.
Specific target organ toxicity - single exposure: May cause drowsiness or dizziness. May cause respiratory irritation.
Specific target organ toxicity - repeated exposure: Auditory system: prolonged and repeated exposures to high concentrations have resulted in hearing loss in rats. Solvent abuse and noise interaction in the work environment may cause hearing loss. (Xylene)
Kidney: caused kidney effects in male rats which are not considered relevant to humans.

Name of Substance: 2-Propylheptanol Ethoxylate

Acute oral toxicity: LD50: > 2,000 - 5,000 mg/kg
Species: rat
The value is estimated from tests on similar products.

Acute inhalation toxicity: LC50: > 20 mg/l

Acute dermal toxicity: LD50: > 2,000 - 5,000 mg/kg

Skin irritation: No skin irritation

Eye irritation: Risk of serious damage to eyes.

Sensitisation: Not sensitizing.

Repeated dose toxicity: NOEL: 250 mg/kg

Germ cell mutagenicity

Genotoxicity in vitro: Negative
Genotoxicity in vivo: Negative

Target Organ Systemic Toxicant - Repeated exposure: NOEL: 250 mg/kg

Name of Substance: 2-aminoethanol

Acute toxicity

Assessment of acute toxicity:
Of moderate toxicity after short-term inhalation. Of moderate toxicity after short-term skin contact. Of moderate toxicity after single ingestion. Inhalation-risk test (IRT): No mortality within 8 hours as shown in animal studies. The inhalation of a highly saturated vapor-air mixture represents no acute hazard.
Experimental/calculated data:
LD50 rat (oral): 1,515 mg/kg (OECD Guideline 401)

LC50 rat (by inhalation): > 1.3 mg/l 6 h (IRT)

LD50 rabbit (dermal): 2,504 mg/kg (OECD Guideline 402)

Irritation

Assessment of irritating effects:
Damages skin and eyes. May cause severe damage to the eyes.

Experimental/calculated data:
Skin corrosion/irritation rabbit: Corrosive. (OECD Guideline 404)
Serious eye damage/irritation rabbit: Irritant. (OECD Guideline 405)
Respiratory/Skin sensitization

Assessment of sensitization:
No sensitizing effect.
Experimental/calculated data:
Guinea pig maximization test guinea pig: Non-sensitizing. (OECD Guideline 406)
Germ cell mutagenicity

Assessment of mutagenicity:
In the majority of studies performed with microorganisms and in mammalian cell culture, a mutagenic effect was not found. A mutagenic effect was also not observed in in vivo tests.

Carcinogenicity
Assessment of carcinogenicity:
The whole of the information available provides no indication of a carcinogenic effect.

Reproductive toxicity
Assessment of reproduction toxicity:
The product has not been tested. The statement has been derived from products of a similar structure or composition. The potential to impair fertility cannot be excluded when given at maternally toxic doses. Because the relevance of the results to human health is unclear, further tests will be initiated.

Developmental toxicity
Assessment of teratogenicity:
In animal studies the substance did not cause malformations.

Specific target organ toxicity (single exposure)

Assessment of STOT single:
The available information is not sufficient for evaluation.

Assessment of repeated dose toxicity:

After repeated exposure the prominent effect is local irritation. The substance may cause damage to the upper respiratory tract even after repeated inhalation, as shown in animal studies.
Aspiration hazard
No aspiration hazard expected.

Name of Substance: Phosphoric acid, 2-ethylhexyl ester

No data available.

Name of Substance: 2-butoxyethanol

Acute toxicity

Assessment of acute toxicity:
Of moderate toxicity after short-term inhalation. Of moderate toxicity after short-term skin contact. Of moderate toxicity after single ingestion. EU-classification.

Experimental/calculated data:
LD50 rat (oral): 1,746 mg/kg
LC50 rat (by inhalation): 2 - 20 mg/l 4 h (IRT)
LD50 guinea pig (dermal): > 2,000 mg/kg (OECD Guideline 402)

Irritation

Assessment of irritating effects:
Eye contact causes irritation. Skin contact causes irritation.
Experimental/calculated data:
Skin corrosion/irritation rabbit: Irritant. (BASF-Test)
Serious eye damage/irritation rabbit: Irritant. (OECD Guideline 405)

Respiratory/Skin sensitization.

Assessment of sensitization:
Skin sensitizing effects were not observed in animal studies.
Experimental/calculated data:
Guinea pig maximization test guinea pig: Non-sensitizing. (similar to OECD guideline 406)

Germ cell mutagenicity
Assessment of mutagenicity:
In the majority of tests performed (bacteria/microorganisms/cell cultures) a mutagenic effect was not found. A mutagenic effect was also not observed in in-vivo assays.

Carcinogenicity
Assessment of carcinogenicity:
Indication of possible carcinogenic effect in animal tests. A clear indication of an increased risk of cancer in humans has so far not been shown. IARC Group 3 (not classifiable as to human carcinogenicity).

Reproductive toxicity
Assessment of reproduction toxicity:
The results of animal studies gave no indication of a fertility impairing effect.

Developmental toxicity
Assessment of teratogenicity:
The substance did not cause malformations in animal studies; however, toxicity to development was observed at high doses that were toxic to the parental animals. After the uptake of small doses toxicity to development will not be expected in humans.

Specific target organ toxicity (single exposure)
Assessment of STOT single:
Based on the available information there is no specific target organ toxicity to be expected after a single exposure.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure)
Assessment of repeated dose toxicity:
No substance-specific organ toxicity was observed after repeated administration to animals.
Aspiration hazard not applicable

Other relevant toxicity information
Skin resorption hazard.

HEALTH EFFECTS

Inhalation: Exposure to high concentrations of vapour or mist can cause dizziness, headache, drowsiness, nausea, cough and unconsciousness.

Skin contact: Prolonged or repeated contact of liquid can cause dry skin and defats of skin.

Eye contact: Liquid in eyes produces pain and irritation with mild temporary damage, vapour slightly irritating to eyes.

Ingestion: It can be aspired into lungs, which can cause Cough, Diarrhoea, Sore throat and vomiting.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL DATA

12.1 Toxicity

Name of Substance: Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, <2% aromatics

Acute Toxicity

Fish: Practically non toxic: LL/EL/IL50 > 100 mg/l

Aquatic crustacea: Practically non toxic: LL/EL/IL50 > 100 mg/l
Algae/aquatic plants: Practically non toxic: LL/EL/IL50 > 100 mg/l
Microorganisms: Practically non toxic: LL/EL/IL50 > 100 mg/l

Chronic Toxicity

Fish: NOEC/NOEL expected to be > 0.1 - <= 1.0 mg/l (based on modeled data).
Aquatic crustacea: NOEC/NOEL expected to be > 0.1 - <= 1.0 mg/l (based on modeled data).

Name of Substance: 2-aminoethanol

Toxicity to fish

LC50 (96 h) 349 mg/l, Cyprinus carpio (Directive 92/69/EEC, C.1, semistatic)
Nominal values (confirmed by concentration control analytics)
LC50 (96 h) 170 mg/l, Carassius auratus (APHA 1971, static)
The statement of the toxic effect relates to the analytically determined concentration. Literature data.

Aquatic invertebrates

EC50 (48 h) 65 mg/l, Daphnia magna (Directive 84/449/EEC, C.2, static)
Nominal values (confirmed by concentration control analytics).

Aquatic plants

EC50 (72 h) 2.5 mg/l (growth rate), Selenastrum capricornutum (OECD Guideline 201)
Literature data.
EC50 (72 h) 22 mg/l (growth rate), Scenedesmus subspicatus (Guideline 92/69/EEC, C.3)
Nominal values (confirmed by concentration control analytics).

Microorganisms/Effect on activated sludge

EC20 (0.5 h) > 1,000 mg/l, activated sludge, domestic (DIN EN ISO 8192-OECD 209-88/302/EEC,P. C, aquatic)
Nominal concentration.
EC50 (16 h) 110 mg/l, Pseudomonas putida (DIN 38412 Part 8)
The details of the toxic effect relate to the nominal concentration.
EC50 (3 h) > 1,000 mg/l, activated sludge, domestic (OECD Guideline 209, aquatic).

Chronic toxicity to fish

No observed effect concentration (30 d) 1.2 mg/l, Oryzias latipes (OECD Guideline draft).

Chronic toxicity to aquatic invertebrates

No observed effect concentration (21 d), 0.85 mg/l, Daphnia magna (OECD Guideline 211)
Assessment of terrestrial toxicity: Study scientifically not justified.

Name of Substance: Hydrocarbons, C9, aromatics

Acute Toxicity
Fish: Expected to be toxic: LC/EC/IC50 > 1 - <=10 mg/l
Aquatic crustacea: Expected to be toxic: LC/EC/IC50 > 1 - <=10 mg/l
Algae/aquatic plants: Expected to be toxic: LC/EC/IC50 > 1 - <=10 mg/l
Microorganisms: Expected to be practically non toxic: LC/EC/IC50 > 100 mg/l

Chronic Toxicity
Fish: Data not available.

Aquatic crustacea: Data not available.

Name of Substance: 2-Propylheptanol Ethoxylate

Toxicity to fish

LC50: > 10 - 100 mg/l
Exposure time: 96 h
Species: Oncorhynchus mykiss (rainbow trout)

Toxicity to daphnia and other aquatic invertebrates

EC50: > 10 - 100 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)

Toxicity to algae

EC50: > 10 - 100 mg/l
Exposure time: 72 h
Species: algae

Name of Substance: Phosphoric acid, 2-ethylhexyl ester

The toxicity data listed, below, is based on a similar product:

Ecotoxicity effects
The environmental impact of this product has not been fully investigated.

LC50 189 - 355 mg/L (Danio rerio; 96hrs, OECD 203A).

EC50/96hr/48hr/24hr: EC20: 56.9 mg/L (bioluminescence method; NVN 6516).

Name of Substance: 2-butoxyethanol

Toxicity to fish:
LC50 (96 h) 1,474 mg/l, Oncorhynchus mykiss (OECD Guideline 203, static)
Nominal concentration. Literature data.

Aquatic invertebrates:
EC50 (48 h) 1,550 mg/l, Daphnia magna (OECD Guideline 202, part 1, static)
Nominal concentration. Literature data.

Aquatic plants:
EC50 (72 h) 1,840 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201, static)
Nominal concentration. Literature data.

Microorganisms/Effect on activated sludge:
Toxic limit concentration (16 h) > 700 mg/l, Pseudomonas putida (DIN 38412 Part 8, static)
Nominal concentration. Literature data.

Chronic toxicity to fish:
No observed effect concentration (21 d) > 100 mg/l, Brachydanio rerio (semistatic)
Nominal concentration. Literature data.

Chronic toxicity to aquatic invertebrates:
No observed effect concentration (21 d) 100 mg/l, Daphnia magna (OECD Guideline 211, semistatic)

Nominal concentration. Literature data.

Assessment of terrestrial toxicity:
Study scientifically not justified.

12.2 Persistence and Degradability

Name of Substance: Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, <2% aromatics

The substance is readily biodegradable. Oxidises rapidly by photo-chemical reactions in air.

Name of Substance: Hydrocarbons, C9, aromatics

Readily biodegradable. Oxidises rapidly by photo-chemical reactions in air.

Name of Substance: 2-Propylheptanol Ethoxylate

Degradation: Readily biodegradable. >60% BOD, 28 days, Closed Bottle Test (OECD 301D).

Name of Substance: 2-aminoethanol

Assessment biodegradation and elimination (H_2O):

Readily biodegradable (according to OECD criteria).
Readily biodegradable (according to OECD criteria).

Elimination information: > 90 % DOC reduction (21 d) (OECD 301 A (new version)) (aerobic, activated sludge, domestic)

Assessment of stability in water:
According to structural properties, hydrolysis is not expected/probable.

Name of Substance: Phosphoric acid, 2-ethylhexyl ester

Inherently biodegradable.

Name of Substance: 2-butoxyethanol

Assessment biodegradation and elimination (H_2O):
Readily biodegradable (according to OECD criteria).

Elimination information:
90 % TIC of the ThIC (28 d) (OECD 301B; ISO 9439; 92/69/EEC, C.4-C) (aerobic, activated sludge)

Assessment of stability in water:
Study scientifically not justified.

12.3 Bioaccumulative potential

Name of Substance: Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, <2% aromatics

Has the potential to bioaccumulate.

Name of Substance: Hydrocarbons, C9, aromatics

Contains components with the potential to bioaccumulate.

Name of Substance: 2-Propylheptanol Ethoxylate

Bioaccumulation: Bioaccumulation is unlikely.

Name of Substance: 2-aminoethanol

Assessment bioaccumulation potential:
Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.

Name of Substance: Phosphoric acid, 2-ethylhexyl ester

No data available.

Name of Substance: 2-butoxyethanol

Assessment bioaccumulation potential:
Significant accumulation in organisms is not to be expected.

12.4 Mobility in soil

Name of Substance: Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, <2% aromatics

Floats on water. Adsorbs to soil and has low mobility.

Name of Substance: Hydrocarbons, C9, aromatics

Floats on water. Adsorbs to soil and has low mobility.

Name of Substance: 2-Propylheptanol Ethoxylate

Bioaccumulation is unlikely.

Name of Substance: 2-aminoethanol

Assessment transport between environmental compartments:
The substance will not evaporate into the atmosphere from the water surface.
Adsorption to solid soil phase is not expected.

Name of Substance: Phosphoric acid, 2-ethylhexyl ester

Mobility: Not applicable.
Biodegradability: The product is readily biodegradable
(> 60%; OECD 301B)
74% (OECD 302 B, Zahn-Wellens, 28 d)
82% (OECD 301 D, Closed bottle, 21 d)

Name of Substance: 2-butoxyethanol

Assessment transport between environmental compartments:
Volatility: The substance will not evaporate into the atmosphere from the water surface.
Adsorption in soil: Adsorption to solid soil phase is not expected. Study scientifically not justified.

12.5 Results of PBT and vPvB assessment

Name of Substance: Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, <2% aromatics

The substance does not fulfil all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB.

Name of Substance: Hydrocarbons, C9, aromatics

The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB.

Name of Substance: 2-Propylheptanol Ethoxylate

This substance is not considered to be a PBT (Persistent, Bioaccumulation, Toxic).
This substance is not considered to be vPvB (very Persistent nor very Bioaccumulating).

Name of Substance: 2-aminoethanol

According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): Not fulfilling PBT (persistent/bioaccumulative/toxic) criteria. Self classification.

According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): Not fulfilling vPvB (very persistent/very bioaccummulative) criteria. Self classification.

Name of Substance: Phosphoric acid, 2-ethylhexyl ester

Not applicable.

Name of Substance: 2-butoxyethanol

According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): The substance does not fulfil the criteria for PBT (Persistent/bioaccumulative/toxic) and vPvB (very persistent/very bioaccumulative). Self classification.

12.6 Other adverse effects

Name of Substance: Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, <2% aromatics

No data available.

Name of Substance: Hydrocarbons, C9, aromatics

None known.

Name of Substance: 2-Propylheptanol Ethoxylate

No data available.

Name of Substance: 2-aminoethanol

Biochemical oxygen demand (BOD) Incubation period 5 d: 800 mg/g.

Name of Substance: Phosphoric acid, 2-ethylhexyl ester

BOD/COD:
BOD/COD: 0.16
COD-value: 2.0 g O_2/g
BOD5-value: 0.32 g O_2/g

Name of Substance: 2-butoxyethanol

The substance is not listed in Regulation (EC) 1005/2009 on substances that deplete the ozone layer.

Adsorbable organically-bound halogen (AOX):
This product contains no organically-bound halogen.

DEGRADATION
Product readily biodegradable. Oxidizes rapidly by photochemical reaction in air.

BIOACCUMULATION
Product has the potential to bioaccumulate.

The product is not harmful to the marine environment as per paragraphs 1.7.4 and 1.7.5. of Resolution MEPC. 219 (63) /Annex 24 - 2012 adoption of IMO's MARPOL Annex V.

13. DISPOSAL CONSIDERATIONS

13.1 Waste disposal

Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal .
Disposal recommendation: Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products .
Regulatory Disposal Information: European Waste Code: 08 XX XX

NOTE: These codes are assigned based upon the most common uses for this material and may not reflect contaminants resulting from actual use. Waste producers need to assess the actual process used when generating the waste and its contaminants in order to assign the proper waste disposal code(s).

13.2 Disposal of contaminated packaging

Disposal recommendation: Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations.

DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

14. TRANSPORT INFORMATION

14.1 Not classified as dangerous for the transportation according to IMO, ADR/RID, US DOT and IATA/ICAO codes.

15. REGULATORY INFORMATION

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

If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

15.2 Chemical Safety Assessment

A CSA has been carried out for the raw materials in this product, from the raw materials manufacturers (when needed to be carried out).

16. OTHER INFORMATION

16.1 Full text of Hazard Code(s) referred in Section 3

H226: Flammable liquid and vapour.
H302: Harmful if swallowed.
H304: May be fatal if swallowed and enters airways.
H312: Harmful in contact with skin.
H314: Causes severe skin burns and eye damage.
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H332: Harmful if inhaled.
H318: Causes serious eye damage.
H335: May cause respiratory irritation.
H336: May cause drowsiness or dizziness.
H411: Toxic to aquatic life with long lasting effects.
EUH066: Repeated exposure may cause skin dryness or cracking.

16.2 Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road).
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail).
IMDG: International Maritime Code for Dangerous Goods.
IATA: International Air Transport Association.
ICAO: International Civil Aviation Organization.
bw: Body weight.
Carc.: Carcinogenicity.
CAS number: Chemical Abstracts Service number.
CLP: Classification Labelling Packaging Regulation.
CSA: Chemical Safety Assessment.
CSR: Chemical Safety Report.

DNEL: Derived No Effect Level.
dw: Dry weight.
EC number: EINECS and ELINCS number.
EC: European Commission.
EC50: Half maximal effective concentration.
EINECS: European Inventory of Existing Commercial Chemical Substances.
ELINCS: European List of Notified Chemical Substances.
EmS: Emergency Schedule.
ERC: Environmental Release Category.
ES: Exposure scenario.
food: oral feed.
GHS: Globally Harmonized System of Classification and Labelling of Chemicals.
Irrit.: Irritation.
LC50: Lethal concentration, 50 %.
LD50: Median Lethal dose.
LOAEC: Lowest Observed Adverse Effect Concentration.
LOAEL: Lowest Observed Adverse Effect Level.
MK value: Maximum Concentration value.
NCO: An international corporation that provides customer service contracting.
NOAEC: No Observed Adverse Effect Concentration.
NOAEL: No Observed Adverse Effect Level.
NOEC: No Observed Effect Concentration.
OECD: Organisation for Economic Cooperation and Development.
PBT: Persistent, Bioaccumulative and Toxic.
PNEC: Predicted No Effect Concentration.
PROC: Process category.
REACH: The Registration, Evaluation, Authorisation and Restriction of Chemicals.
Resp.: Respiratory.
Sens.: Sensitization.
STEL value: Short Term Exposure Limit value.
STOT RE: Specific target organ toxicity — repeated exposure.
STOT SE: Specific target organ toxicity — single exposure.
STOT: Specific Target Organ Toxicity.
STP: Sewage Treatment Plant.
SU: Sector of use.
Tox.: Toxicity.
TWA value: Time Weighted Average value.
vPvB: Very Persistent and Very Bioaccumulative.

16.3 Notice to reader

All information, instructions and statements contained in this Material Safety Data Sheet are compiled in accordance with European Directives, corresponding national legislation and on the basis of information given by our suppliers.
The information disclosed in this Material Safety Data Sheet (which supersedes all previous versions) is believed to be correct, at the date of issue, to the best of our current knowledge and experience. It only relates to the specific product designated herein and it may not be valid when said product is used in combination with any other products or in any processed form, unless specified in the text. This document aims to provide the necessary health and safety information of the product and is not to be considered a warranty or quality specification. It is the responsibility of the recipient of this Material Safety Data Sheet to ensure that information given here is read and understood by all who use, handle, dispose of or in any way come in contact with the product.
Also, it is the responsibility of the user to comply with local legislation relating to safety, health, environment and waste management. Data and information provided concerning the product are informative, exclusively presented to the customer.