

according to Regulation (EC) No 1907/2006

### ARC HT-S(E) Part B

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

#### 1.1. Product identifier

ARC HT-S(E) Part B

UFI: Y9SW-5WTE-J41R-3XYV

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

#### Use of the substance/mixture

ARC Polymer Composite to be mixed with ARC HT-S(E) (Part A) to provide a corrosion resistant coating for hot water/steam environment.

#### Uses advised against

No data available

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

Company name: Chesterton International GmbH

Street: Am Lenzenfleck 23

Place: D-85737 Ismaning GERMANY

Telephone: +49 89 99 65 46 - 0 Telefax: +49 89 99 65 46 - 50

e-mail: eu-sds@chesterton.com
e-mail (Contact person): eu-sds@chesterton.com
Internet: www.chesterton.com
Responsible Department: eu-sds@chesterton.com

**1.4. Emergency telephone** +49(0) 551 - 1 92 40 (GIZ-Nord, 24h)

number:

# **SECTION 2: Hazards identification**

## 2.1. Classification of the substance or mixture

### Regulation (EC) No 1272/2008

Acute Tox. 4; H302 Skin Corr. 1; H314 Eye Dam. 1; H318 Skin Sens. 1; H317 STOT RE 2; H373 Aquatic Chronic 3; H412

Full text of hazard statements: see SECTION 16.

## 2.2. Label elements

#### Regulation (EC) No 1272/2008

#### Hazard components for labelling

Copolymer of benzenamine and formaldehyde, hydrogenated

4,4'-methylenebis(cyclohexylamine)

3,6-diazaoctanethylenediamin; triethylenetetramine

Signal word: Danger



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#### Pictograms:







#### **Hazard statements**

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H373 May cause damage to organs through prolonged or repeated exposure.

H412 Harmful to aquatic life with long lasting effects.

#### **Precautionary statements**

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P273 Avoid release to the environment.

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

protection.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with

water or shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if

present and easy to do. Continue rinsing.

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P310 Immediately call a POISON CENTER/doctor.
P363 Wash contaminated clothing before reuse.

## 2.3. Other hazards

No information available.

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

### 3.2. Mixtures



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#### **Hazardous components**

CAS No	Chemical name		Quantity	
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No	1272/2008)		
135108-88-2	Copolymer of benzenamine and for	maldehyde, hydrogenated		45 - < 50 %
	603-894-6		01-2119983522-33	
	Acute Tox. 3, Skin Corr. 1, Eye Dar H318 H317 H373 H412	atic Chronic 3; H301 H314		
1761-71-3	4,4'-methylenebis(cyclohexylamine		45 - < 50 %	
	217-168-8		01-2119541673-38	
	Acute Tox. 4, Skin Corr. 1B, Eye Da	02 H314 H318 H317		
112-24-3	3,6-diazaoctanethylenediamin; triet	hylenetetramine		1 - < 5 %
	203-950-6	612-059-00-5		
	Acute Tox. 4, Acute Tox. 4, Skin Corr. 1B, Eye Dam. 1, Skin Sens. 1, Aquatic Chronic 3; H312 H302 H314 H318 H317 H412			

Full text of H and EUH statements: see section 16.

#### Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity	
	Specific Conc. I	Limits, M-factors and ATE		
135108-88-2	603-894-6	Copolymer of benzenamine and formaldehyde, hydrogenated	45 - < 50 %	
	dermal: LD50 = > 1000 mg/kg; oral: LD50 = 300 mg/kg			
1761-71-3	217-168-8	4,4'-methylenebis(cyclohexylamine)	45 - < 50 %	
	dermal: LD50 = 2110 mg/kg; oral: LD50 = 480 mg/kg			
112-24-3	203-950-6	3,6-diazaoctanethylenediamin; triethylenetetramine		
	dermal: LD50 =	= 805 mg/kg; oral: LD50 = 2500 mg/kg		

#### **SECTION 4: First aid measures**

## 4.1. Description of first aid measures

#### **General information**

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

First aider: Pay attention to self-protection! Remove affected person from the danger area and lay down.

#### After inhalation

In case of accident by inhalation: remove casualty to fresh air and keep at rest. If breathing is irregular or stopped, administer artificial respiration. Immediately call a doctor.

#### After contact with skin

Rinse immediately contaminated clothing and skin with plenty of water before removing clothes. In case of skin irritation, consult a physician.



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#### After contact with eyes

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

#### After ingestion

If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention. Do NOT induce vomiting.

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

Processing vapours can irritate the respiratory tracts, skin and eyes. Ingestion causes nausea, weakness and central nervous system effects.

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

First Aid, decontamination, treatment of symptoms.

#### **SECTION 5: Firefighting measures**

#### 5.1. Extinguishing media

#### Suitable extinguishing media

- alcohol resistant foam
- Water spray jet
- Carbon dioxide (CO2)
- Dry extinguishing powder

#### Unsuitable extinguishing media

Full water jet

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

In case of fire may be liberated:

- Carbon monoxide
- Carbon dioxide
- Nitrogen oxides (NOx)

### 5.3. Advice for firefighters

Co-ordinate fire-fighting measures to the fire surroundings.

In case of fire: Wear self-contained breathing apparatus.

Special protective equipment for firefighters: Protective clothing.

### Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

Dispose of waste according to applicable legislation.

Use water spray jet to protect personnel and to cool endangered containers.

#### **SECTION 6: Accidental release measures**

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

### General advice

Wear personal protection equipment (refer to section 8).

Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid contact with skin, eyes and clothes. Take off



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contaminated clothing and wash it before reuse. Contaminated work clothing should not be allowed out of the workplace. When using do not eat, drink or smoke.

#### 6.2. Environmental precautions

Do not allow to enter into surface water or drains. Cover drains. Adverse environmental effects

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

#### For containment

Take up mechanically, placing in appropriate containers for disposal. Treat the recovered material as prescribed in the section on waste disposal.

#### 6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

### **SECTION 7: Handling and storage**

## 7.1. Precautions for safe handling

#### Advice on safe handling

Wear personal protection equipment (refer to section 8).

Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid contact with skin, eyes and clothes. Take off contaminated clothing and wash it before reuse. Contaminated work clothing should not be allowed out of the workplace. When using do not eat, drink or smoke. Never use pressure to empty container. Keep/Store only in original container. Do not allow to enter into surface water or drains.

#### Advice on protection against fire and explosion

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

#### Advice on general occupational hygiene

Work in well-ventilated zones or use proper respiratory protection. Only wear fitting, comfortable and clean protective clothing. Avoid contact with skin, eyes and clothes. Wash hands and face before breaks and after work and take a shower if necessary.

#### Further information on handling

Wash hands before breaks and after work. Used working clothes should not be worn outside the work area. Street clothing should be stored separately from work clothing.

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

### Requirements for storage rooms and vessels

Keep container tightly closed in a cool, well-ventilated place. Keep/Store only in original container.

### Hints on joint storage

Keep away from food, drink and animal feedingstuffs.

### Further information on storage conditions

Keep away from:

- Frost
- Heat
- Humidity

# 7.3. Specific end use(s)



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No information available.

# **SECTION 8: Exposure controls/personal protection**

## 8.1. Control parameters

## **DNEL/DMEL values**

CAS No	Substance			
DNEL type	DNEL type		Effect	Value
135108-88-2	Copolymer of benzenamine and formaldehyde, hydrogena	ted		
Worker DNEL,	long-term	inhalation	systemic	0,2 mg/m³
Worker DNEL,	acute	inhalation	systemic	2 mg/m³
Worker DNEL,	long-term	dermal	systemic	2 mg/kg bw/day
Worker DNEL,	acute	dermal	systemic	6 mg/kg bw/day
,				
1761-71-3	4,4'-methylenebis(cyclohexylamine)			
Worker DNEL,	long-term	inhalation	systemic	0,13 mg/m³
Worker DNEL,	Worker DNEL, long-term		systemic	0,053 mg/kg bw/day
Consumer DNE	Consumer DNEL, long-term		systemic	0,21 mg/m³
Consumer DNEL, long-term		dermal	systemic	0,06 mg/kg bw/day
Consumer DNE	Consumer DNEL, long-term		systemic	0,06 mg/kg bw/day
,				



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#### **PNEC values**

CAS No	Substance	
Environmenta	l compartment	Value
135108-88-2	Copolymer of benzenamine and formaldehyde, hydrogenated	
Freshwater		0,015 mg/l
Freshwater (ii	ntermittent releases)	0,15 mg/l
Marine water		0,002 mg/l
Freshwater se	ediment	15 mg/kg
Marine sedim	ent	1,5 mg/kg
Micro-organisms in sewage treatment plants (STP)		1,9 mg/l
Soil		1,8 mg/kg
1761-71-3	4,4'-methylenebis(cyclohexylamine)	
Freshwater		0,08 mg/l
Freshwater (ii	ntermittent releases)	0,08 mg/l
Marine water		0,008 mg/l
Freshwater sediment		136,6 mg/kg
Marine sediment		13,7 mg/kg
Secondary poisoning		0,556 mg/kg
Micro-organisms in sewage treatment plants (STP)		3,2 mg/l
Soil		27,3 mg/kg

#### 8.2. Exposure controls

### Appropriate engineering controls

Provide adequate ventilation as well as local exhaustion at critical locations. Avoid dust formation. Knock down dust with water spray jet.

### Individual protection measures, such as personal protective equipment

#### Eye/face protection

Eye glasses with side protection goggles

#### **Hand protection**

Tested protective gloves must be worn: EN ISO 374 NBR (Nitrile rubber), Butyl caoutchouc (butyl rubber)

Wearing time with permanent contact: Thickness of the glove material: >= 0,4 mm, Breakthrough time:: >480 min

Wearing time with occasional contact (splashes):: Thickness of the glove material: >= 0,1 mm, Breakthrough time: > 30 min

For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Breakthrough times and swelling properties of the material must be taken into consideration.



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#### Respiratory protection

If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn

Combination filtering device A-P2

#### Thermal hazards

No data available

#### **Environmental exposure controls**

see also

Section 6: Accidental Release Measures

Section 12: Ecological Information (non-mandatory)

### **SECTION 9: Physical and chemical properties**

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

Physical state: viscous
Colour: transparent
Odour: characteristic

Melting point/freezing point:

No data available

Flammability

Solid/liquid: No data available Gas: No data available Lower explosion limits: No data available Upper explosion limits: No data available > 100 °C Flash point: Decomposition temperature: No data available pH-Value: No data available Water solubility: **Immiscible** 

Solubility in other solvents

No information available.

Vapour pressure:

Density:

~ 1 g/cm³

Relative vapour density:

> 1

### 9.2. Other information

### Information with regard to physical hazard classes

Explosive properties

No information available.

Sustaining combustion: Not sustaining combustion

Self-ignition temperature

Solid: No data available
Gas: No data available

Oxidizing properties

No information available.

Other safety characteristics



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Evaporation rate:

< 1

Viscosity / dynamic:

~ 1500 mPa·s

(at 25 °C)

**Further Information** 

No information available.

## **SECTION 10: Stability and reactivity**

#### 10.1. Reactivity

The product is stable under storage at normal ambient temperatures.

## 10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

#### 10.3. Possibility of hazardous reactions

No hazardous reaction when handled and stored according to provisions.

#### 10.4. Conditions to avoid

Keep away from sources of heat (e.g. hot surfaces), sparks and open flames.

#### 10.5. Incompatible materials

- Strong acid
- Strong alkali
- Oxidising agent, strong
- Chlorine
- Oxygen,

### 10.6. Hazardous decomposition products

- Nitric acid,
- Nitrogen oxides (NOx),
- Carbon monoxide,
- Carbon dioxide (CO2),
- Gases/vapours, toxic

# **SECTION 11: Toxicological information**

#### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

### **Acute toxicity**

Harmful if swallowed.

### **ATEmix** calculated

ATE (oral) 371,2 mg/kg; ATE (dermal) 55110,2 mg/kg



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CAS No	Chemical name					
	Exposure route	Dose		Species	Source	Method
135108-88-2	Copolymer of benzenan	nine and forr	maldehyde, h	ydrogenated		
	oral	LD50 mg/kg	300	Rat	Study report (2005)	OECD Guideline 423
	dermal	LD50 mg/kg	> 1000	Rabbit	Study report (1988)	other: 40CFR Part 158 Series 81-2, EPA P
1761-71-3	4,4'-methylenebis(cyclohexylamine)					
	oral	LD50 mg/kg	480	Rat	Study report (1987)	EPA OPP 81-1
	dermal	LD50 mg/kg	2110	Rabbit	Study report (1986)	EPA OPP 81-2
112-24-3 3,6-diazaoctanethylenediamin; t			ıylenetetramir	ne		
	oral	LD50 mg/kg	2500	Rat		
	dermal	LD50 mg/kg	805	Rabbit		

### Irritation and corrosivity

Causes severe skin burns and eye damage.

Causes serious eye damage.

#### Sensitising effects

May cause an allergic skin reaction. (Copolymer of benzenamine and formaldehyde, hydrogenated;

4,4'-methylenebis(cyclohexylamine); 3,6-diazaoctanethylenediamin; triethylenetetramine)

### Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

# STOT-single exposure

Based on available data, the classification criteria are not met.

#### STOT-repeated exposure

May cause damage to organs through prolonged or repeated exposure. (Copolymer of benzenamine and formaldehyde, hydrogenated; 4,4'-methylenebis(cyclohexylamine))

#### **Aspiration hazard**

Based on available data, the classification criteria are not met.

### **SECTION 12: Ecological information**

# 12.1. Toxicity

Harmful to aquatic life with long lasting effects.



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CAS No	Chemical name							
	Aquatic toxicity	Dose		[h]   [d]	Species	Source	Method	
135108-88-2	Copolymer of benzenamine and formaldehyde, hydrogenated							
	Acute fish toxicity	LC50	63 mg/l	96 h	Poecilia reticulata	REACh Registration Dossier	OECD Guideline 203	
	Acute algae toxicity	ErC50 mg/l	43,94	72 h	Desmodesmus subspicatus	Study report (2012)	EU Method C.3	
1761-71-3	4,4'-methylenebis(cyclohe	exylamine)						
	Acute fish toxicity	LC50 mg/l	> 100	96 h	Leuciscus idus	REACh Registration Dossier	other: German industrial standard test g	
	Acute algae toxicity	ErC50 200 mg/l	140 -	72 h		Study report (1990)	other: German Industrial Standard DIN 38	
	Acute crustacea toxicity	EC50 mg/l	9,24	48 h	Daphnia magna	REACh Registration Dossier	other: Directive 79/831/EEC, Annex V, Pa	
	Fish toxicity	NOEC	> 1 mg/l	14 d	freshwater fish	REACh Registration Dossier	Estimation of a chronic NOEC according t	
	Crustacea toxicity	NOEC	4 mg/l	21 d	Daphnia magna	REACh Registration Dossier	OECD Guideline 211	
	Acute bacteria toxicity	(EC50 mg/l)	ca. 156	0,5 h	Pseudomonas putida	REACh Registration Dossier	other: German Industrial Standard DIN 38	
112-24-3	3,6-diazaoctanethylenedia	amin; triethyl	enetetramin	е				
	Acute algae toxicity	ErC50 mg/l	> 100	72 h				
	Acute crustacea toxicity	EC50	92 mg/l	48 h	Daphnia magna			

# 12.2. Persistence and degradability

CAS No	Chemical name				
	Method	Value	d	Source	
	Evaluation				
1761-71-3	4,4'-methylenebis(cyclohexylamine)				
	OECD 302B/ ISO 9888/ EEC 92/69/V, C.9	<10%	28		

## 12.3. Bioaccumulative potential



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#### Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
135108-88-2	Copolymer of benzenamine and formaldehyde, hydrogenated	2,68
1761-71-3	4,4'-methylenebis(cyclohexylamine)	2,03
112-24-3	3,6-diazaoctanethylenediamin; triethylenetetramine	-1,66

#### **BCF**

CAS No	Chemical name	BCF	Species	Source
	Copolymer of benzenamine and formaldehyde, hydrogenated	> 18 - < 22	Cyprinus carpio	Study report (1997)
1761-71-3	4,4'-methylenebis(cyclohexylamine)	< 6	Cyprinus carpio	REACh Registration D

#### 12.4. Mobility in soil

No information available.

#### 12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

#### 12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

### 12.7. Other adverse effects

No information available.

# **SECTION 13: Disposal considerations**

# 13.1. Waste treatment methods

#### **Disposal recommendations**

Dispose of waste according to applicable legislation.

#### Contaminated packaging

Non-contaminated packages may be recycled. Dispose of waste according to applicable legislation.

### **SECTION 14: Transport information**

#### Land transport (ADR/RID)

14.1. UN number or ID number: UN 2735

**14.2. UN proper shipping name:** AMINES, LIQUID, CORROSIVE, N.O.S. (Cycloaliphatic Amine)

14.3. Transport hazard class(es): 8 Ш 14.4. Packing group: Hazard label: 8 Classification code: C7 Special Provisions: 274 Limited quantity: 5 L Excepted quantity: E1 Transport category: 3 Hazard No: 80 Tunnel restriction code: Ε



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Inland waterways transport (ADN)

14.1. UN number or ID number: UN 2735

14.2. UN proper shipping name: AMINES, LIQUID, CORROSIVE, N.O.S. (Cycloaliphatic Amine)

14.3. Transport hazard class(es): Ш 14.4. Packing group: Hazard label: 8 Classification code: C7 Special Provisions: 274 Limited quantity: 5 L

Excepted quantity: Marine transport (IMDG)

> UN 2735 14.1. UN number or ID number:

14.2. UN proper shipping name: AMINES, LIQUID, CORROSIVE, N.O.S. (Cycloaliphatic Amine)

E1

14.3. Transport hazard class(es): 14.4. Packing group: Ш Hazard label: 8 **Special Provisions:** 223, 274 Limited quantity: 5 L Excepted quantity: E1

F-A, S-B EmS: 18 - alkalis Segregation group:

Air transport (ICAO-TI/IATA-DGR)

UN 2735 14.1. UN number or ID number:

14.2. UN proper shipping name: AMINES, LIQUID, CORROSIVE, N.O.S. (Cycloaliphatic Amine)

14.3. Transport hazard class(es): Ш 14.4. Packing group: Hazard label: 8 **Special Provisions:** A3 A803 Limited quantity Passenger: 1 L Passenger LQ: Y841

IATA-packing instructions - Passenger: 852 5 L IATA-max. quantity - Passenger: 856 IATA-packing instructions - Cargo: 60 I

E1

IATA-max. quantity - Cargo:

14.5. Environmental hazards

Excepted quantity:

**ENVIRONMENTALLY HAZARDOUS:** No

14.6. Special precautions for user

No information available.

14.7. Maritime transport in bulk according to IMO instruments

No information available.

### **SECTION 15: Regulatory information**



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

#### **EU** regulatory information

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 75

#### **National regulatory information**

Water hazard class (D):

3 - highly hazardous to water

**Additional information** 

MAL- Code (DK): the value does apply to the "Ready for use" - mixture of Part A and Part B

### 15.2. Chemical safety assessment

For the following substances of this mixture a chemical safety assessment has been carried out:

Copolymer of benzenamine and formaldehyde, hydrogenated

4,4'-methylenebis(cyclohexylamine)

#### **SECTION 16: Other information**

#### Changes

This data sheet contains changes from the previous version in section(s): 2,5,6,7,8,9,10,12,14,15.

### 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 conernat 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

IATA-DGR: Dangerous Goods Refulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

CLP: Classification, labelling and Packaging

REACH: Registration, Evaluation and Authorization of Chemicals

GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals

**UN: United Nations** 

CAS: Chemical Abstracts Service
DNEL: Derived No Effect Level
DMEL: Derived Minimal Effect Level
PNEC: Predicted No Effect Concentration

ATE: Acute toxicity estimate

LC50: Lethal concentration, 50%

LD50: Lethal dose, 50% LL50: Lethal loading, 50% EL50: Effect loading, 50%

EC50: Effective Concentration 50%

ErC50: Effective Concentration 50%, growth rate NOEC: No Observed Effect Concentration

BCF: Bio-concentration factor



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PBT: persistent, bioaccumulative, toxic vPvB: very persistent, very bioaccumulative

MARPOL: International Convention for the Prevention of Marine Pollution from Ships

IBC: Intermediate Bulk Container SVHC: Substance of Very High Concern

#### Classification for mixtures and used evaluation method according to Regulation (EC) No 1272/2008 [CLP]

Classification	Classification procedure
Acute Tox. 4; H302	Calculation method
Skin Corr. 1; H314	Calculation method
Eye Dam. 1; H318	Calculation method
Skin Sens. 1; H317	Calculation method
STOT RE 2; H373	Calculation method
Aquatic Chronic 3; H412	Calculation method

### Relevant H and EUH statements (number and full text)

H301	Toxic if swallowed.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H373	May cause damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)