DISPERPLAST-I

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

1.1 Product identifier

Trade name : DISPERPLAST-I

Product code : 000000000000106541

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

Use of the Substance/Mixture : Wetting & Dispersing Additive

1.3 Details of the supplier of the safety data sheet

Company : BYK-Chemie GmbH
Abelstrasse 45
46483 Wesel
Telephone : +49 281 670-0
Telefax : +49 281 65735

Information : Regulatory Affairs
Telephone : +49 281 670-23532
Telefax : +49 281 670-23533
E-mail address : GHS.BYK@altana.com

1.4 Emergency telephone number

+44 1235 239670

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Skin irritation, Category 2	H315: Causes skin irritation.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Warning

Hazard statements : H315 Causes skin irritation.
H317 May cause an allergic skin reaction.

Precautionary statements : **Prevention:**

P261 Avoid breathing mist or vapours.
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves.

Response:

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Hazardous components which must be listed on the label:

- \- Fatty acids, C14-18 and C16-18-unsatd., maleated, reaction products with oleylamine
- 108-31-6 maleic anhydride

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : Solution of a partial amide of an unsaturated polycarboxylic acid polymer

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Fatty acids, C14-18 and C16-18-unsatd., maleated, reaction products with oleylamine	- 288-307-8 01-2120097630-54-0000	Skin Sens. 1; H317	>= 30 - < 50
octamethylcyclotetrasiloxane	556-67-2 209-136-7 01-2119529238-36	Repr. 2; H361f Aquatic Chronic 1; H410	>= 0,0025 - < 0,025

		M-Factor (Chronic aquatic toxicity): 10	
maleic anhydride	108-31-6 203-571-6 01-2119472428-31	Acute Tox. 4; H302 Skin Corr. 1B; H314 Eye Dam. 1; H318 Resp. Sens. 1; H334 Skin Sens. 1A; H317 STOT RE 1; H372 (Respiratory system) EUH071 specific concentration limit Skin Sens. 1A; H317 >= 0,001 % Acute toxicity esti-mate Acute oral toxicity: 1.090 mg/kg	>= 0,001 - < 0,1

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

If inhaled : If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.

In case of skin contact : If skin irritation persists, call a physician.
If on skin, rinse well with water.
If on clothes, remove clothes.

In case of eye contact : Flush eyes with water as a precaution.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms	:	No information available.
Risks	:	No information available.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment	:	No information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	Foam Carbon dioxide (CO2) Dry chemical
Unsuitable extinguishing media	:	High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	Nitrogen oxides (NOx) Carbon oxides Oxides of phosphorus

5.3 Advice for firefighters

Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary.
Further information	:	Standard procedure for chemical fires. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Use personal protective equipment.

6.2 Environmental precautions

Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up	:	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal considerations see section 13., For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling	:	Do not breathe vapours/dust. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations. Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Hygiene measures	:	When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Keep container tightly closed in a dry and well-ventilated place. Electrical installations / working materials must comply with the technological safety standards.
Further information on storage stability	:	No decomposition if stored and applied as directed.

7.3 Specific end use(s)

Specific use(s)	:	No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
maleic anhydride	108-31-6	TWA	0,1 ppm 0,4 mg/m3	CH SUVA
	Further information: Sensitizers; Substances marked with an S can lead to very strong allergic reactions., National Institute for Occupational Safety and Health, Occupational Safety and Health Administration, Harm to the unborn child is not to be expected when the OEL-value is respected			
		STEL	0,1 ppm 0,4 mg/m3	CH SUVA
	Further information: Sensitizers; Substances marked with an S can lead to very strong allergic reactions., National Institute for Occupational Safety and Health, Occupational Safety and Health Administration, Harm to the unborn child is not to be expected when the OEL-value is respected			

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
Fatty acids, C14-18 and C16-18-unsatd., maleated, reaction products with oleylamine	Workers	Dermal	Long-term systemic effects	0,5 mg/kg
	Consumers	Dermal	Long-term systemic effects	0,25 mg/kg
	Consumers	Oral	Long-term systemic effects	0,25 mg/kg
octamethylcyclotetrasiloxane	Consumers	Oral	Acute systemic effects, Long-term systemic effects	3,7 mg/kg
	Consumers	Inhalation		
	Consumers	Inhalation	Acute systemic effects, Acute local effects, Long-term systemic effects, Long-term local effects	13 mg/m3
	Workers	Inhalation	Acute systemic effects, Acute local effects, Long-term systemic effects, Long-term local effects	73 mg/m3
maleic anhydride	Workers	Inhalation	Systemic effects, Short-term exposure, Local effects	0,8 mg/m3
	Workers	Skin contact	Short-term exposure, Systemic effects, Local effects, Long-term exposure	0,04 mg/kg
	Workers	Inhalation	Systemic effects, Local effects, Long-term exposure	0,4 mg/m3

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
Fatty acids, C14-18 and C16-18-unsatd., maleated, reaction products with oleylamine	Hazard for predators: secondary poisoning	10 mg/kg
octamethylcyclotetrasiloxane	Fresh water	1,5 µg/l
	Marine water	0,15 µg/l
	Fresh water sediment	0,64 mg/kg
	Soil	0,84 mg/kg
	Sewage treatment plant	10 mg/l
	Marine sediment	0,064 mg/kg
	Hazard for predators: secondary poisoning	41 mg/kg
maleic anhydride	Fresh water	0,04281 mg/l
	Marine water	0,004281 mg/l
	Intermittent releases	0,4281 mg/l

	Soil	0,0415 mg/l
	Fresh water sediment	0,334 mg/kg
	Marine sediment	0,0334 mg/kg
	Sewage treatment plant	44,6 mg/l

8.2 Exposure controls

Personal protective equipment

Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles

Hand protection
Material : butyl-rubber
Break through time : 120,00 min

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Environmental exposure controls

General advice : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state : liquid
Colour : light brown
Odour : none
Odour Threshold : No data available

Melting point/freezing point : < 0 °C
Method: derived

Initial boiling point : > 200,00 °C
Method: derived

Upper explosion limit / Upper flammability limit : No data available

Lower explosion limit / Lower flammability limit : No data available

Flash point : 190,00 °C
Method: 49 (Pensky-Martens)

Auto-ignition temperature : > 200 °C
Method: DIN 51794

pH : 6 (20 °C)
Concentration: 1 %
Method: Universal pH-value indicator

Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Solubility(ies)		
Water solubility	:	immiscible
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Vapour pressure	:	< 1,0000000 hPa (20,00 °C) Method: derived
Relative density	:	No data available
Density	:	0,9650 g/cm3 (20,00 °C) Method: 4 (20°C oscillating U-tube)
Bulk density	:	Not applicable
Relative vapour density	:	No data available

9.2 Other information

Evaporation rate	:	No data available
Surface tension	:	No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No decomposition if stored and applied as directed.

10.2 Chemical stability

No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions

Hazardous reactions : No decomposition if stored and applied as directed.

10.4 Conditions to avoid

Conditions to avoid : No data available

10.5 Incompatible materials

Materials to avoid : Strong oxidizing agents

10.6 Hazardous decomposition products

No data available

SECTION 11: Toxicological information

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

Acute toxicity

Product:

Acute oral toxicity : LD50 (Rat, male and female): > 5.000,000000 mg/kg
Method: OECD Test Guideline 401

Components:

Fatty acids, C14-18 and C16-18-unsatd., maleated, reaction products with oleylamine:

Acute oral toxicity : LD50 Oral (Rat, female): > 2.000 mg/kg
Method: OECD Test Guideline 423
GLP: yes

maleic anhydride:

Acute oral toxicity : LD50 (Rat, male and female): 1.090 mg/kg
Method: OECD Test Guideline 401

Acute toxicity estimate: 1.090 mg/kg
Method: Calculation method

Acute dermal toxicity : LD50 (Rabbit, female): 2.620 mg/kg
GLP: No information available.

Skin corrosion/irritation

Product:

Species : Rabbit
Assessment : Irritating to skin.
Method : OECD Test Guideline 404
Result : Skin irritation

Remarks : May irritate skin.
May cause skin irritation and/or dermatitis.

Components:

Fatty acids, C14-18 and C16-18-unsatd., maleated, reaction products with oleylamine:

Species : Rabbit
Result : No skin irritation
GLP : yes

Species : EPISKIN human epidermis skin constructs
Method : OECD Test Guideline 439
Result : No skin irritation
GLP : yes

maleic anhydride:

Species	:	Rabbit
Method	:	No information available.
Result	:	Corrosive to skin
GLP	:	no

Serious eye damage/eye irritation

Product:

Species	:	Rabbit
Assessment	:	No eye irritation
Method	:	OECD Test Guideline 405
Result	:	No eye irritation
Remarks	:	Vapours may cause irritation to the eyes, respiratory system and the skin.

Components:

Fatty acids, C14-18 and C16-18-unsatd., maleated, reaction products with oleylamine:

Species	:	Rabbit
Result	:	No eye irritation
GLP	:	yes

Species	:	Rabbit
Method	:	OECD Test Guideline 405
Result	:	No eye irritation
GLP	:	yes

maleic anhydride:

Species	:	Rabbit
Result	:	Corrosive to eyes
GLP	:	yes

Respiratory or skin sensitisation

Product:

Remarks	:	Causes sensitisation.

Components:

Fatty acids, C14-18 and C16-18-unsatd., maleated, reaction products with oleylamine:

Test Type	:	Mouse Local Lymph Node assay (LLNA)
Species	:	Mouse
Assessment	:	May cause sensitisation by skin contact.
Method	:	OECD Test Guideline 429
Result	:	May cause sensitisation by skin contact.
GLP	:	yes

octamethylcyclotetrasiloxane:

Species	:	Guinea pig
Method	:	OECD Test Guideline 406

Result	:	Does not cause skin sensitisation.
GLP	:	yes

maleic anhydride:

Test Type	:	Buehler Test
Exposure routes	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Causes sensitisation.
GLP	:	yes

Germ cell mutagenicity

Components:

Fatty acids, C14-18 and C16-18-unsatd., maleated, reaction products with oleylamine:

Genotoxicity in vitro : Test Type: Ames test
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

Test Type: Chromosome aberration test in vitro
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
GLP: yes

Test Type: In vitro mammalian cell gene mutation test (mouse lymphoma)

Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
GLP: yes

Repeated dose toxicity

Product:

Remarks : No data available

Components:

Fatty acids, C14-18 and C16-18-unsatd., maleated, reaction products with oleylamine:

Species	:	Rat, female
NOAEL	:	400 mg/kg
Application Route	:	Oral
Method	:	OECD Test Guideline 422
GLP	:	yes
Target Organs	:	Gastro-intestinal system

Species	:	Rat, male
NOAEL	:	150 mg/kg
Application Route	:	Oral
Method	:	OECD Test Guideline 422
GLP	:	yes
Target Organs	:	Gastro-intestinal system

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Further information

Product:

Remarks : No data available

SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to fish : Remarks: No data available

Components:

Fatty acids, C14-18 and C16-18-unsatd., maleated, reaction products with oleylamine:

Toxicity to fish : LL50 (Leuciscus idus (Golden orfe)): > 150 mg/l
Exposure time: 48 h
Test Type: static test
Method: DIN 38412
GLP: no

LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l
Exposure time: 96 h
Test Type: semi-static test
Method: OECD Test Guideline 203
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic : ErL50 (Pseudokirchneriella subcapitata (microalgae)): 98 mg/l

plants		Exposure time: 72 h Method: OECD Test Guideline 201 GLP: yes
Toxicity to microorganisms	:	EC50 (Pseudomonas putida): > 520 mg/l Exposure time: 16 h Test Type: Cell multiplication inhibition test Method: DIN 38412, L 8 GLP: no EC50 (activated sludge): > 1.000 mg/l Exposure time: 3 h Method: OECD Test Guideline 209 GLP: yes

maleic anhydride:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 75 mg/l Exposure time: 96 h Test Type: static test GLP: no
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 42,81 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 GLP: yes
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata): 74,35 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 GLP: yes
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 10 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) GLP: no

12.2 Persistence and degradability

Product:

Biodegradability	:	Remarks: No data available

Components:

Fatty acids, C14-18 and C16-18-unsatd., maleated, reaction products with oleylamine:

Biodegradability	:	Result: Readily biodegradable. Method: OECD Test Guideline 301 GLP: no Result: Partially biodegradable. Method: OECD Test Guideline 301F GLP: yes

maleic anhydride:

Biodegradability	:	Result: Readily biodegradable. Method: OECD Test Guideline 301B GLP: yes

12.3 Bioaccumulative potential

Product:

Bioaccumulation	:	Remarks: No data available

Components:

maleic anhydride:

Partition coefficient: n-octanol/water	:	log Pow: -2,61 (19,8 °C) pH: 4 - 9 Method: OECD Test Guideline 107 GLP: yes

12.4 Mobility in soil

Components:

maleic anhydride:

Distribution among environmental compartments	:	Koc: 42, log Koc: 1,63

12.5 Results of PBT and vPvB assessment

Product:

Assessment	:	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Components:

octamethylcyclotetrasiloxane:

Assessment	:	This substance is considered to be very persistent and very bioaccumulating (vPvB).
	:	This substance is considered to be persistent, bioaccumulating and toxic (PBT).

12.6 Endocrine disrupting properties

Product:

Assessment	:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

Product:

Additional ecological information : No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

SECTION 14: Transport information

14.1 UN number or ID number

Not regulated as a dangerous good

14.2 UN proper shipping name

Not regulated as a dangerous good

14.3 Transport hazard class(es)

Not regulated as a dangerous good

14.4 Packing group

Not regulated as a dangerous good

14.5 Environmental hazards

Not regulated as a dangerous good

14.6 Special precautions for user

Not applicable

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

Seveso III: Directive 2012/18/EU of the Euro- Not applicable

pean Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

Volatile organic compounds	:	Law on the incentive tax for volatile organic compounds (VOCV) Volatile organic compounds (VOC) content: < 0,01 % no VOC duties

15.2 Chemical safety assessment

Not applicable

SECTION 16: Other information

Items where relevant changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

Full text of H-Statements

H302	:	Harmful if swallowed.
H314	:	Causes severe skin burns and eye damage.
H317	:	May cause an allergic skin reaction.
H318	:	Causes serious eye damage.
H334	:	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H361f	:	Suspected of damaging fertility.
H372	:	Causes damage to organs through prolonged or repeated exposure if inhaled.
H410	:	Very toxic to aquatic life with long lasting effects.
EUH071	:	Corrosive to the respiratory tract.

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Eye Dam.	:	Serious eye damage
Repr.	:	Reproductive toxicity
Resp. Sens.	:	Respiratory sensitisation
Skin Corr.	:	Skin corrosion
Skin Sens.	:	Skin sensitisation
STOT RE	:	Specific target organ toxicity - repeated exposure
CH SUVA	:	Switzerland. Limit values at the work place
CH SUVA / TWA	:	Time Weighted Average
CH SUVA / STEL	:	Short Term Exposure Limit

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air

Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Classification of the mixture:		**Classification procedure:**
Skin Irrit. 2	H315	Based on product data or assessment
Skin Sens. 1	H317	Calculation method

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

CH / EN

Annex: Exposure Scenarios

Table of Contents

Number	Title
ES 1	Polymerisation; Industrial uses (SU3).
ES 2	Use as an intermediate; Industrial uses (SU3).

ES 1: Polymerisation; Industrial uses (SU3).

1.1. Title section

Exposure Scenario name	:	Polymerisation
Structured Short Title	:	Polymerisation; Industrial uses (SU3).

Environment		
CS 1	**Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article)**	ERC6c
Worker		
CS 2	**Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions**	PROC1
CS 3	**Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions**	PROC2
CS 4	**Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition**	PROC3
CS 5	**Transfer of substance or mixture (charging/discharging) at dedicated facilities**	PROC8b
CS 6	**Use as laboratory reagent**	PROC15

1.2. Conditions of use affecting exposure

1.2.1. Control of environmental exposure: Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article) (ERC6c)

Product (article) characteristics
Covers concentrations up to 100 %
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply
No specific measures identified.

1.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Product (article) characteristics

Covers concentrations up to 100 %		
Physical form of product	:	Solid
Vapour pressure	:	0,33 hPa
Temperature	:	25 °C
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	480 min
Use frequency	:	5 days per week
Technical and organisational conditions and measures		
Local exhaust ventilation		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Wear a respirator conforming to EN140. Inhalation - minimum efficiency of 95 %		
Other conditions affecting workers exposure		
Body parts exposed	:	Palm of one hand
Indoor or outdoor use	:	Indoor
Ventilation rate per hour	:	3 - 5

1.2.3. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Solid
Vapour pressure	:	0,33 hPa
Temperature	:	25 °C
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	480 min
Use frequency	:	5 days per week
Technical and organisational conditions and measures		
Local exhaust ventilation		

Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Inhalation - minimum efficiency of 95 %		
Wear a respirator conforming to EN140.		
Other conditions affecting workers exposure		
Body parts exposed	:	Palms of both hands (480 cm2)
Indoor or outdoor use	:	Indoor
Ventilation rate per hour	:	3 - 5

1.2.4. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Solid
Vapour pressure	:	0,33 hPa
Temperature	:	25 °C
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	480 min
Use frequency	:	5 days per week
Technical and organisational conditions and measures		
Local exhaust ventilation		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Inhalation - minimum efficiency of 95 %		
Wear a respirator conforming to EN140.		
Other conditions affecting workers exposure		
Body parts exposed	:	Palm of one hand
Indoor or outdoor use	:	Indoor
Ventilation rate per hour	:	3 - 5

1.2.5. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Solid
Vapour pressure	:	0,33 hPa
Temperature	:	25 °C
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	240 min
Use frequency	:	5 days per week
Technical and organisational conditions and measures		
Local exhaust ventilation		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Inhalation - minimum efficiency of 95 %		
Wear a respirator conforming to EN140.		
Other conditions affecting workers exposure		
Body parts exposed	:	Palm of both hands
Indoor or outdoor use	:	Indoor
Ventilation rate per hour	:	3 - 5

1.2.6. Control of worker exposure: Use as laboratory reagent (PROC15)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Solid
Vapour pressure	:	0,33 hPa
Temperature	:	25 °C
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	240 min
Use frequency	:	5 days per week

Technical and organisational conditions and measures		
Local exhaust ventilation		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Inhalation - minimum efficiency of 95 %		
Wear a respirator conforming to EN140.		
Other conditions affecting workers exposure		
Body parts exposed	:	Palm of one hand
Indoor or outdoor use	:	Indoor
Ventilation rate per hour	:	3 - 5

1.3. Exposure estimation and reference to its source

1.3.1. Environmental release and exposure: Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article) (ERC6c)

Additional information on exposure estimation
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

1.3.2. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal			0,001764 mg/kg bw/day	

1.3.3. Worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal			0,068576 mg/kg bw/day	

1.3.4. Worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal			0,034336 mg/kg bw/day	

1.3.5. Worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal			0,411454 mg/kg bw/day	

1.3.6. Worker exposure: Use as laboratory reagent (PROC15)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal			0,010336 mg/kg bw/day	

1.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

For scaling see
http://www.ecetoc.org/tra

ES 2: Use as an intermediate; Industrial uses (SU3).

2.1. Title section

Exposure Scenario name	:	Use as an intermediate
Structured Short Title	:	Use as an intermediate; Industrial uses (SU3).

Environment		
CS 1	**Use of intermediate**	ERC6a
Worker		
CS 2	**Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions**	PROC1
CS 3	**Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions**	PROC2
CS 4	**Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition**	PROC3
CS 5	**Transfer of substance or mixture (charging/discharging) at dedicated facilities**	PROC8b
CS 6	**Use as laboratory reagent**	PROC15

2.2. Conditions of use affecting exposure

2.2.1. Control of environmental exposure: Use of intermediate (ERC6a)

Product (article) characteristics
Covers concentrations up to 100 %
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply
No specific measures identified.

2.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Product (article) characteristics
Covers concentrations up to 100 %

Physical form of product	:	Solid
Vapour pressure	:	0,33 hPa
Temperature	:	25 °C
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	480 min
Use frequency	:	5 days per week
Technical and organisational conditions and measures		
Local exhaust ventilation		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Inhalation - minimum efficiency of 95 %		
Wear a respirator conforming to EN140.		
Other conditions affecting workers exposure		
Body parts exposed	:	Palm of one hand
Indoor or outdoor use	:	Indoor
Ventilation rate per hour	:	3 - 5

2.2.3. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Solid
Vapour pressure	:	0,33 hPa
Temperature	:	25 °C
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	480 min
Use frequency	:	5 days per week
Technical and organisational conditions and measures		
Local exhaust ventilation		

Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Inhalation - minimum efficiency of 95 %		
Wear a respirator conforming to EN140.		
Other conditions affecting workers exposure		
Body parts exposed	:	Palms of both hands (480 cm2)
Indoor or outdoor use	:	Indoor
Ventilation rate per hour	:	3 - 5

2.2.4. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Solid
Vapour pressure	:	0,33 hPa
Temperature	:	25 °C
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	480 min
Use frequency	:	5 days per week
Technical and organisational conditions and measures		
Local exhaust ventilation		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Inhalation - minimum efficiency of 95 %		
Wear a respirator conforming to EN140.		
Other conditions affecting workers exposure		
Body parts exposed	:	Palm of one hand
Indoor or outdoor use	:	Indoor
Ventilation rate per hour	:	3 - 5

2.2.5. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Solid
Vapour pressure	:	0,33 hPa
Temperature	:	25 °C
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	240 min
Use frequency	:	5 days per week
Technical and organisational conditions and measures		
Local exhaust ventilation		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Inhalation - minimum efficiency of 95 %		
Wear a respirator conforming to EN140.		
Other conditions affecting workers exposure		
Body parts exposed	:	Both hands
Indoor or outdoor use	:	Indoor
Ventilation rate per hour	:	3 - 5

2.2.6. Control of worker exposure: Use as laboratory reagent (PROC15)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Solid
Vapour pressure	:	0,33 hPa
Temperature	:	25 °C
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	240 min
Use frequency	:	5 days per week

Technical and organisational conditions and measures		
Local exhaust ventilation		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Inhalation - minimum efficiency of 95 %		
Wear a respirator conforming to EN140.		
Other conditions affecting workers exposure		
Body parts exposed	:	Palm of one hand
Indoor or outdoor use	:	Indoor
Ventilation rate per hour	:	3 - 5

2.3. Exposure estimation and reference to its source

2.3.1. Environmental release and exposure: Use of intermediate (ERC6a)

Additional information on exposure estimation
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

2.3.2. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal			0,001764 mg/kg bw/day	

2.3.3. Worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal			0,068576 mg/kg bw/day	

2.3.4. Worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal			0,034336 mg/kg bw/day	

2.3.5. Worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal			0,411454 mg/kg bw/day	

2.3.6. Worker exposure: Use as laboratory reagent (PROC15)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal			0,010336 mg/kg bw/day	

2.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

For scaling see
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