213252-001.00001 - 5.0

Extended Safety Data Sheet

SR350

Last data update : 2014-05-23

SARTOMER ARKEMA GROUP

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Product: **SR350** Page: 1 / 8

SDS No.: 213252-001 (Version 3.1) Date 04.04.2014 (*Cancel and replace* : 31.03.2014)

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Identification of the product

Substance name:
REACH Registration Name: Propylidynetrimethyl trimethacrylate
REACH Registration Number: 01-2119542176-41-0000
EC Nr: 221-950-4
CAS-No.: 3290-92-4

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

Use of the Substance/Mixture :

Sector of use :	Product category :
Industrial formulation of the substance **SU 10:** Formulation	
Industrial use of formulations **SU 3**: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Industrial use of the substance as cross-linking agent. **SU 3**: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Professional use of formulations **SU 22**: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Industrial manufacture of polymers **SU 3**: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Industrial use as cross-linking agent in rubbers and plastics **SU 3**: Industrial uses: Uses of substances as such or in preparations at industrial sites	

1.3. Details of the supplier of the safety data sheet

Supplier	Arkema PHOTOCURE RESINS Arkema France 420, rue d'Estienne d'Orves F-92705 Colombes Cedex France Tel : +33 (0)1 49 00 80 80 Fax : +33 (0)1 49 00 83 96 http://www.sartomereurope.com http://www.arkema.com
E-mail address	pars-drp-fds@arkema.com
E-mail address : Exposure scenario	Arkema-Reach-Uses-Photocure@arkema.com

1.4. Emergency telephone number

+33 1 49 00 77 77
European emergency phone number : 112
National Chemical Emergency Centre Tel: 01865 407 333

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification (Regulation (EC) No 1272/2008):

Chronic aquatic toxicity, 2, H411

Classification (Directive 67/548/EEC):

N; R51/53

Additional information:
For the full text of the R, H, EUH-phrases mentioned in this Section, see Section 16.

2.2. Label elements

Label elements (Regulation (EC) No 1272/2008):

Hazardous components which must be listed on the label:
CAS-No. : 3290-92-4 Propylidynetrimethyl trimethacrylate

Hazard pictograms:

Hazard statements:
H411 : Toxic to aquatic life with long lasting effects.

Precautionary statements:
Prevention:
P273 : Avoid release to the environment.
Response:
P391 : Collect spillage.
Disposal:
P501 : Dispose of contents/ container to an approved incineration plant.

2.3. Other hazards

Environmental Effects:
Toxic to fish. Toxic to daphnia. Toxic to algae. Not readily biodegradable. Potentially bioaccumulable

Physical and chemical hazards:
Formation of toxic products through combustion
Decomposition products: See chapter 10

Other:
Results of PBT and vPvB assessment : According to REACH regulation, annex XIII, the substance does not meet PBT and vPvB criteria.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Chemical Name[1]	EC-No.	CAS-No.	Concentration	Classification Directive 67/548/EEC	Classification Regulation (EC) No 1272/2008
Propylidynetrimethyl trimethacrylate	221-950-4	3290-92-4		N; R51/53	Aquatic Chronic 2; H411

[1]: See chapter 14 for Proper Shipping Name

4. FIRST AID MEASURES

4.1. & 4.2. Description of necessary first-aid measures & Most important symptoms/effects, acute and delayed:

General advice:
Show this safety data sheet to the doctor in attendance.

Inhalation:
Move to fresh air. Oxygen or artificial respiration if needed. In case of problems : Consult a physician.

Skin contact:
Wash immediately, abundantly and thoroughly with soap and water. If skin irritation occurs, seek medical advice/attention.

Eye contact:
Wash open eyes immediately, abundantly and thoroughly for at least 15 minutes. Seek advice of an ophthalmologist if necessary.

Ingestion:
Do NOT induce vomiting. Rinse mouth. Consult a physician if necessary.

Protection of first-aiders:
Protective suit. In case of insufficient ventilation, wear suitable respiratory equipment.

4.3.Indication of immediate medical attention and special treatment needed, if necessary : No data available.

5. FIREFIGHTING MEASURES

5.1.Extinguishing media

Suitable extinguishing media: Carbon dioxide (CO_2), foam, Dry chemical

Unsuitable extinguishing media: High volume water jet

5.2. Special hazards arising from the substance or mixture:
Formation of toxic products through combustion:, Carbon oxides

5.3. Advice for firefighters:

Specific methods:
In the event of fire and/or explosion do not breathe fumes. Use water spray to cool unopened containers. Do not allow run-off from fire fighting to enter drains or water courses.

Special protective actions for fire-fighters:
In the event of fire, wear self-contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures:
Use personal protective equipment. Ensure adequate ventilation. Evacuate personnel to safe areas. Remove all sources of ignition. Avoid contact with the skin and the eyes.

6.2. Environmental precautions:
Do not flush into surface water or sanitary sewer system. Do not release into the environment.

6.3. Methods and materials for containment and cleaning up:

Methods for cleaning up:
After cleaning, flush away traces with water. Recover waste water for processing later.

Recovery:
Shovel into suitable container for disposal. Absorb the remainder with an inert absorbent material (sand, vermiculite, perlite). No sparking tools should be used.

Elimination: See chapter 13

6.4. Reference to other sections: None.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling:

Technical measures/Precautions:
Storage and handling precautions applicable to products: Liquid. Dangerous for the environment. Provide appropriate exhaust ventilation at machinery. Provide showers, eye-baths

Safe handling advice:
Remove all sources of ignition. Avoid static electricity build up with connection to earth. In case of insufficient ventilation, wear suitable respiratory equipment

Hygiene measures:
Take off immediately all contaminated clothing. Avoid contact with the skin and the eyes. Wash hands before breaks and at the end of workday. When using do not eat, drink or smoke.
Wash hands after handling. Remove contaminated clothing and protective equipment before entering eating areas.

7.2. Conditions for safe storage, including any incompatibilities:
Keep tightly closed in a dry, cool and well-ventilated place. Store in original container. Protect from frost, heat and sunlight. Keep away from open flames, hot surfaces and sources of ignition. Make sure of the presence of air and inhibitor in the drums. Provide impermeable floor. Provide a catch-tank in a bunded area.

Storage period: 6 Months, Storage temperature: < 45 °C

Incompatible products:
Acids, Bases, Oxidizing agents, Reducing agents

Packaging material:
Recommended: Baked phenolic lined carbon steel drums, Plastic drum
To be avoided: copper, Iron

7.3. Specific end use(s): None.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters:
Exposure Limit Values Not relevant

Derived No Effect Level (DNEL):
No adverse effects have been observed at the highest recommended concentrations/doses tested , thus no DNELs were derived

Predicted No Effect Concentration:

Compartment:	Value:
Fresh water	0,00276 mg/l
Marine water	0,000276 mg/l
Water (Intermittent release)	0,02 mg/l
Fresh water sediment	0,4951 mg/kg
Marine sediment	0,04951 mg/kg
Soil	0,0974 mg/kg

8.2. Exposure controls:

Appropriate engineering controls: When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment.

Personal protective equipment:
Respiratory protection: In case of insufficient ventilation, wear suitable respiratory equipment
Hand protection: Gloves nitrile rubber
Products used with solvents Do not use:, Natural Rubber, Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
Eye/face protection: Safety glasses with side-shields, Do not wear contact lenses.
Skin and body protection: Long sleeved clothing

Environmental exposure controls: See chapter 6

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance:
Physical state (20°C): liquid (20 °C) (1.013 hPa)
Colour: colorless to light yellow
Odour: No data available.
Olfactory threshold: No data available.
pH: No data available.
Melting point/freezing point : -41 °C (OECD Test Guideline 102)
Melting point/freezing point : -29 °C (OECD Test Guideline 102)

Boiling point/boiling range :	> 161 °C Decomposes on heating. (OECD Test Guideline 103)
Flash point:	> 130 °C (A9 Method (D. 92/69/ECC))
Evaporation rate:	No data available.
Flammability (solid, gas):	
Flammability:	Non flammable product (Flammability (contact with water))
Vapour pressure:	0,00598 Pa , at 25 °C (OECD Test Guideline 104)
	0,00345 Pa , at 20 °C (OECD Test Guideline 104)
Vapour density:	No data available.
Relative density (Water=1):	1,0659 at 20 °C (OECD Test Guideline 109)
Water solubility:	20,1 mg/l at 20 °C (OECD Test Guideline 105)
Partition coefficient: n-octanol/water:	log Kow : 2,75 - 4,2 , at 25 °C (OECD Test Guideline 117)
Auto-ignition temperature:	360 °C at 1.013 hPa (Standard: A15)
Decomposition temperature:	No data available.
Viscosity, dynamic:	65.725 mPa.s , at 20 °C (OECD Test Guideline 114)
Explosive properties:	
Explosivity:	Not relevant (due to the chemical structure)
Oxidizing properties:	Not relevant (due to the chemical structure)

9.2. Other data:

Surface tension:	53 mN/m at 20 °C / 951,3 mg/l (OECD Test Guideline 115)

10. STABILITY AND REACTIVITY

10.1. & 10.2. Reactivity & Chemical stability:
The product is stable under normal handling and storage conditions.

10.3. Possibility of hazardous reactions:
Inhibitors have been added to stabilize this product Maintaining air in the storage containers is important to keep inhibitors active

10.4. Conditions to avoid:
Heat, flames and sparks. Remove all sources of ignition. Take precautionary measures against static discharges.

10.5. Incompatible materials to avoid:
Acids, Bases, Oxidizing agents, Reducing agents

10.6. Hazardous decomposition products:
Formation of toxic products through combustion:, Carbon oxides

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects:

Acute toxicity:

Inhalation:	
	No data available:
Ingestion:	**Slightly or not harmful by ingestion**
• In animals :	No mortality/rat: 2.000 mg/kg (Method: OECD Test Guideline 423)
Dermal:	**Slightly or not harmful in contact with skin**
• In animals :	No mortality/rat: 2.000 mg/kg (Method: OECD Test Guideline 402)

Local effects (Corrosion / Irritation / Serious eye damage):

Skin contact:	**Non irritating to skin**
• In animals :	No skin irritation (OECD Test Guideline 404, rabbit)
Eye contact:	**Not irritating to the eyes.**
• In animals :	No eye irritation (OECD Test Guideline 405, rabbit)

Respiratory or skin sensitisation:

Inhalation: No data available.

Skin contact: **Not a skin sensitizer**

• In animals : Not a skin sensitizer (Method: OECD Test Guideline 406 Guinea pig maximization test, guinea pig)

CMR effects :

Mutagenicity: **Overall not genotoxic**

In vitro

Ames test in vitro: Inactive (Method: OECD Test Guideline 471)
In vitro chromosomal abnormality test on human lymphocytes: Active (Method: OECD Test Guideline 473)
In vitro gene mutations test on mammalian cells: Inactive (Method: OECD Test Guideline 476)

In vivo

Micronucleus test in vivo rat: Inactive (Method: OECD Test Guideline 474)
DNA repair test on rats hepatocytes: Inactive

Carcinogenicity: No data available.

Reproductive toxicity:

Fertility: **Based on the available data, the substance is not suspected of having reprotoxic potential.**
• In animals : No toxic effects for reproduction
NOAEL (Parental toxicity): 900 mg/kg bw/day
NOAEL (Fertility): > 900 mg/kg bw/day
(Method: OECD Test Guideline 422, rat, By oral route)

Foetal development: No data available.

Specific target organ toxicity :

Single exposure : No data available.

Repeated exposure: **The substance or mixture is not classified as specific target organ toxicant, repeated exposure.**
• In animals : By oral route: No effect is reported.
NOAEL= 900 mg/kg (Method: OECD Test Guideline 422, rat, 4 Weeks)

Aspiration hazard: Not applicable

12. ECOLOGICAL INFORMATION

Ecotoxicology Assessment: All available data on this product and/or the components quoted in section 3 and/or the analogue substances/metabolites have been taken into account for the hazard assessment.

12.1. Toxicity :

Fish: **Toxic to fish.**
LC50, 96 h (Oncorhynchus mykiss) : 2 mg/l (Method: OECD Test Guideline 203)

Aquatic invertebrates: **No effect up to the limit of solubility**
EC50, 48 h (Daphnia magna (Water flea)) : > 9,22 mg/l (Method: OECD Test Guideline 202)

Aquatic plants: **Toxic to algae.**
EC50, 72 h (Pseudokirchneriella subcapitata) : 3,88 mg/l (Method: OECD Test Guideline 201, Growth inhibition)

Microorganisms: EC50, 3 h (Activated sludge) : > 1.000 mg/l (Method: OECD Test Guideline 209)

Aquatic toxicity / Long term toxicity:

Fish: NOEC, 21 d (Pimephales promelas) : 0,138 mg/l (Method: OECD Test Guideline 210, Early-life Stage)

Aquatic plants:
NOEC, 72 h (Pseudokirchneriella subcapitata) : 0,177 mg/l (Method: OECD Test Guideline 201, Growth inhibition)

12.2. Persistence and degradability :

In water: **Not hydrolysable**

Stability in water:
Half-life: > 9.999 h at 25 °C and pH 7
Method: OECD Test Guideline 111

Biodegradation (In water): **Not readily biodegradable.**
53 % after 28 d (Method: OECD Test Guideline 301B)

12.3. Bioaccumulative potential :

Bioaccumulation: **Potentially bioaccumulable.**
Partition coefficient: n-octanol/water: log Kow : 2,75 - 4,2 , at 25 °C (Method: OECD Test Guideline 117)

12.4. Mobility in soil - Distribution among environmental compartments:
Surface tension: 53 mN/m mg/l 20 °C /951,3 mg/l (Method: OECD Test Guideline 115)

Absorption / desorption:
Strong adsorption
log Koc: 2,07 - 3,25 (Method: OECD Test Guideline 121)

12.5. Results of PBT and vPvB assessment :

According to REACH regulation, annex XIII, the substance does not meet PBT and vPvB criteria.

12.6. Other adverse effects: None known.

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment:

Disposal of product: Do not release into the environment. Dispose of in accordance with local regulations.

Disposal of packaging: Empty containers should be taken to an approved waste handling site for recycling or disposal.

Local provisions: In accordance with local and national regulations. : According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. , Waste codes should be assigned by the user based on the application for which the product was used.

14. TRANSPORT INFORMATION

Regulation	UN number	Proper shipping name	Class	Label	PG	Environmentally hazardous	Other information
ADR	3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(triméthacrylate de propylidynetriméthyle)	9	9	III	yes	
ADN	3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. ()	9	9	III	yes	
RID	3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (triméthacrylate de propylidynetriméthyle)	9	9	III	yes	
IATA Cargo	3082	Environmentally hazardous substance, liquid, n.o.s. (Trimethylolpropane trimethacrylate)	9	9MI	III	yes	
IATA Passenger	3082	Environmentally hazardous substance, liquid, n.o.s. (Trimethylolpropane trimethacrylate)	9	9MI	III	yes	
IMDG	3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Trimethylolpropane trimethacrylate)	9	9	III	Marine pollutant	EmS Number: F-A, S-F Mark: MP

15. REGULATORY INFORMATION

Safety data sheets: according to Regulation (EC) No. 1907/2006

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

Additional regulations (European Union) :
Hazardous Waste Regulations 2005 Applies
UK REGULATION Chip3: Chemical (Hazard Information and Packaging for Supply) Regulations 2002

Major Accident Hazard Legislation Dangerous for the environment 9a

15.2. Chemical Safety Assessment:
A Chemical Safety Assessment has been carried out for this substance.

INVENTORIES:

EINECS:	Conforms to
TSCA:	Conforms to
AICS:	Conforms to
DSL:	Conforms to
ENCS (JP):	Conforms to
KECI (KR):	Conforms to
PICCS (PH):	Conforms to
IECSC (CN):	Conforms to
NZIOC:	Conforms to

16. OTHER INFORMATION

Full text of R, H, EUH-phrases referred to under sections 2 and 3

R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
H411	Toxic to aquatic life with long lasting effects.

Update:

Safety datasheet sections which have been updated:		Type:
1-16		Revisions
8	Predicted No Effect Concentration	Revisions
12	Long term toxicity	Revisions

Thesaurus:
NOAEL : No Observed Adverse Effect Level (NOAEL)
LOAEL : Lowest Observed Adverse Effect Level (LOAEL)
bw : Body weight
food : oral feed
dw : Dry weight
vPvB : very Persistent and very Bioaccumulative
PBT : Persistent, Bioaccumulative and Toxic

This information applies to the PRODUCT AS SUCH and conforming to specifications of ARKEMA. In case of formulations or mixtures, it is necessary to ascertain that a new danger will not appear. The information contained is based on our knowledge of the product, at the date of publishing and it is given quite sincerely. Users are advised of possible additional hazards when the product is used in applications for which it was not intended. This sheet shall only be used and reproduced for prevention and security purposes. The references to legislative, regulatory and codes of practice documents cannot be considered as exhaustive. It is the responsibility of the person receiving the product to refer to the totality of the official documents concerning the use, the possession and the handling of the product. It is also the responsibility of the handlers of the product to pass on to any subsequent persons who will come into contact with the product (usage, storage, cleaning of containers, other processes) the totality of the information contained within this safety data sheet and necessary for safety at work, the protection of health and the protection of environment.

NB: In this document the numerical separator of the thousands is the "." (point), the decimal separator is "," (comma).

SARTOMER ARKEMA GROUP

Exposure scenario

according to Regulation (EC) No. 1907/2006

Product: **Propylidynetrimethyl trimethacrylate**

(EC-No. 221-950-4 CAS-No. 3290-92-4)

Contact person :Arkema-Reach-Uses-Photocure@arkema.com

Number: STMR-00005 (Version 3.0) REACH Registration Number: 01-2119542176-41-0000

Date 16.05.2014 (*Cancel and replace* : 11.10.2013)

1. Title of Exposure Scenario : Industrial formulation of the substance

Scenario description :GEST2_I: Formulation & (re)packing of substances and mixtures

Sector of use :

SU 10: Formulation

Environmental release category:

ERC2: Formulation of preparations

Process category:

PROC1: Use in closed process, no likelihood of exposure, **PROC2**: Use in closed, continuous process with occasional controlled exposure, **PROC3**: Use in closed batch process (synthesis or formulation), **PROC5**: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), **PROC8a**: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, **PROC8b**: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, **PROC9**: Transfer of substance or preparation into small containers (dedicated filling line, including weighing), **PROC15**: Use as laboratory reagent

2. Conditions of use - Exposure estimation and reference to its source

Control of environmental exposure :

General Information

characteristic:

Liquid, vapour pressure < 10 Pa

Toxic to aquatic life with long lasting effects., Inherently biodegradable., Slightly soluble

Frequency and duration of use:

Continuous exposure:

Continuous release.

Number of emission days per year = 120

Operational conditions:

Risk from environmental exposure is driven by freshwater., Risk from environmental exposure is driven by marine water.

Risk from environmental exposure is driven by freshwater sediment., Risk from environmental exposure is driven by marine sediment.

General risk management measures applicable to all activities:

Water : No wastewater treatment required. Domestic sewage treatment is not assumed.

Waste treatment : See chapter 13. Disposal considerations

External treatment and disposal of waste should comply with applicable local and/or national regulations.

Recovery : Accidental release measures : See chapter 6

External recovery and recycling of waste should comply with applicable local and/or national regulations.

3. Risk characterisation ratio:

Compartment:	Exposure Assessment Method:
All (environment)	CHESAR 2.2.0, Specific release scenario #22 approach according OECD : Coating Industry (Paints, Lacquers and Varnishes)(2009), CEPE SPERC 2.4b.v1, A& B Table approach from TGD 2003

Contributing Scenario	Annual amount per site	Emission or Release Factor: Air	Maximum concentration / release value: Marine water	Maximum concentration / release value: Fresh water	Emission or Release Factor: Soil	Risk characterisation ratio: Water	Risk characterisation ratio: Soil	Remarks
Formulation of preparations	120000 kg	1 kg/day	0,276 µg/l	2,76 µg/l	0 kg/day	< 1	< 0,1	In addition to direct release in industrial soil, soil risk characterization ratio is influenced by the deposition of air emission and sludge application (if permitted) to soil.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.

Control of worker exposure :

General Information

characteristic:

Liquid, vapour pressure < 10 Pa

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100 % (unless stated differently).

General risk management measures applicable to all activities:

Assumes a good basic standard of occupational hygiene is implemented. Prevention of aerosols and splashes as far as possible
Use suitable eye protection and gloves. Wear suitable coveralls to prevent exposure to the skin. See chapter : 8. Exposure controls/personal protection
Face shield or Eye protection if splashes or eye contact is possible If aerosol exposure Face shield instead of eye protection

Exposure routes:	Exposure Assessment Method:
All (worker)	As the substance doesn't meet the criteria for classification according to REACH regulation article 14(4), development of specific exposure scenarios is not required.

***LE** : Local effects, **SE** : Systemic effects*

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

For a given contributing scenario, several risk management measures can be proposed. It is your responsibility to select the configuration that best suits your activity.

Thesaurus:

PROC : Process category
SU : Sectors of end-use
PC : Product category
ERC : Environmental release category

RCR : Risk characterisation ratio:
DNEL : Derived No Effect Level (DNEL)
PNEC : Predicted No Effect Concentration

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This Exposure Scenario may not be exhaustive. Please contact your supplier should you need additional information.

SARTOMER ARKEMA GROUP

Exposure scenario

according to Regulation (EC) No. 1907/2006

Product: **Propylidynetrimethyl trimethacrylate**

(EC-No. 221-950-4 CAS-No. 3290-92-4)

Contact person :Arkema-Reach-Uses-Photocure@arkema.com

Number: STMR-00006 (Version 3.0)

REACH Registration Number: 01-2119542176-41-0000

Date 16.05.2014 (*Cancel and replace* : 11.10.2013)

1. Title of Exposure Scenario : Industrial use of formulations

SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites

Environmental release category:	Process category:
ERC5: Industrial use resulting in inclusion into or onto a matrix	**PROC1**: Use in closed process, no likelihood of exposure, **PROC2**: Use in closed, continuous process with occasional controlled exposure, **PROC3**: Use in closed batch process (synthesis or formulation), **PROC5**: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), **PROC7**: Industrial spraying, **PROC8a**: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, **PROC8b**: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, **PROC10**: Roller application or brushing, **PROC13**: Treatment of articles by dipping and pouring, **PROC15**: Use as laboratory reagent

2. Conditions of use - Exposure estimation and reference to its source

Control of environmental exposure :

General Information characteristic:

Liquid, vapour pressure < 10 Pa

Toxic to aquatic life with long lasting effects., Inherently biodegradable., Slightly soluble

Frequency and duration of use:

Continuous exposure:

Continuous release.

Number of emission days per year = 30

Operational conditions:

Risk from environmental exposure is driven by freshwater., Risk from environmental exposure is driven by marine water.

Risk from environmental exposure is driven by freshwater sediment., Risk from environmental exposure is driven by marine sediment.

General risk management measures applicable to all activities:

Water : No wastewater treatment required. Domestic sewage treatment is not assumed.

Waste treatment : See chapter 13. Disposal considerations

External treatment and disposal of waste should comply with applicable local and/or national regulations.

Recovery : Accidental release measures : See chapter 6

External recovery and recycling of waste should comply with applicable local and/or national regulations.

3. Risk characterisation ratio:

Compartment:	Exposure Assessment Method:
All (environment)	CHESAR 2.2.0, Specific release scenario #22 approach according OECD : Coating Industry (Paints, Lacquers and Varnishes)(2009), EU TGD Table A 3.10

Contributing Scenario	Annual amount per site	Emission or Release Factor: Air	Maximum concentration / release value:		Emission or Release Factor: Soil	Risk characterisation ratio:		Remarks
			Marine water	Fresh water		Water	Soil	
Industrial use resulting in inclusion into or onto a matrix	30000 kg	0,01 kg/day	0,276 µg/l	2,76 µg/l	0 kg/day	< 1	< 0,01	In addition to direct release in industrial soil, soil risk characterization ratio is influenced by the deposition of air emission and sludge application (if permitted) to soil.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.

Control of worker exposure :

General Information

characteristic:

Liquid, vapour pressure < 10 Pa

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100 % (unless stated differently).

General risk management measures applicable to all activities:

Assumes a good basic standard of occupational hygiene is implemented. Prevention of aerosols and splashes as far as possible
Use suitable eye protection and gloves. Wear suitable coveralls to prevent exposure to the skin. See chapter : 8. Exposure controls/personal protection
Face shield or Eye protection if splashes or eye contact is possible If aerosol exposure Face shield instead of eye protection

Exposure routes:	Exposure Assessment Method:
All (worker)	As the substance doesn't meet the criteria for classification according to REACH regulation article 14(4), development of specific exposure scenarios is not required.

***LE** : Local effects, **SE** : Systemic effects*

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

For a given contributing scenario, several risk management measures can be proposed. It is your responsibility to select the configuration that best suits your activity.

Thesaurus:

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Exposure scenario

according to Regulation (EC) No. 1907/2006

Product: **Propylidynetrimethyl trimethacrylate**

(EC-No. 221-950-4 CAS-No. 3290-92-4)

Contact person :Arkema-Reach-Uses-Photocure@arkema.com

Number: STMR-00007 (Version 3.0) REACH Registration Number: 01-2119542176-41-0000

Date 21.05.2014 (*Cancel and replace* : 11.10.2013)

1. Title of Exposure Scenario : Industrial use of the substance as cross-linking agent

SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites

Environmental release category:

ERC6d: Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

Process category:

PROC1: Use in closed process, no likelihood of exposure, **PROC2**: Use in closed, continuous process with occasional controlled exposure, **PROC3**: Use in closed batch process (synthesis or formulation), **PROC4**: Use in batch and other process (synthesis) where opportunity for exposure arises, **PROC5**: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), **PROC7**: Industrial spraying, **PROC8a**: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, **PROC8b**: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, **PROC10**: Roller application or brushing, **PROC13**: Treatment of articles by dipping and pouring, **PROC14**: Production of preparations or articles by tabletting, compression, extrusion, pelletisation

2. Conditions of use - Exposure estimation and reference to its source

Control of environmental exposure :

General Information characteristic:

Liquid, vapour pressure < 10 Pa

Toxic to aquatic life with long lasting effects., Inherently biodegradable., Slightly soluble

Frequency and duration of use:

Continuous exposure:

Continuous release.

Number of emission days per year = 15

Operational conditions:

Risk from environmental exposure is driven by freshwater., Risk from environmental exposure is driven by marine water.

Risk from environmental exposure is driven by freshwater sediment., Risk from environmental exposure is driven by marine sediment.

General risk management measures applicable to all activities:

Water : No wastewater treatment required. Domestic sewage treatment is not assumed.

Waste treatment : See chapter 13. Disposal considerations

Product residual disposal complies with applicable regulations.

Recovery : Accidental release measures : See chapter 6

External recovery and recycling of waste should comply with applicable local and/or national regulations.

3. Risk characterisation ratio:

Compartment:	Exposure Assessment Method:
All (environment)	for water :, CHESAR 2.2.0, for air :, EU TGD table A3.11

Contributing Scenario	Annual amount per site	Emission or Release Factor: Air	Maximum concentration / release value: Marine water	Maximum concentration / release value: Fresh water	Emission or Release Factor: Soil	Risk characterisation ratio: Water	Risk characterisation ratio: Soil	Remarks
Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers	15000 kg	10 kg/day	0,276 µg/l	2,76 µg/l	0,01 kg/day	< 1	< 0,01	In addition to direct release in industrial soil, soil risk characterization ratio is influenced by the deposition of air emission and sludge application (if permitted) to soil.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.

Control of worker exposure :

General Information

characteristic:

Liquid, vapour pressure < 10 Pa

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100 % (unless stated differently).

General risk management measures applicable to all activities:

Assumes a good basic standard of occupational hygiene is implemented. Prevention of aerosols and splashes as far as possible
Use suitable eye protection and gloves. Wear suitable coveralls to prevent exposure to the skin. See chapter : 8. Exposure controls/personal protection
Face shield or Eye protection if splashes or eye contact is possible If aerosol exposure Face shield instead of eye protection

Exposure routes:	Exposure Assessment Method:
All (worker)	As the substance doesn't meet the criteria for classification according to REACH regulation article 14(4), development of specific exposure scenarios is not required.

***LE** : Local effects, **SE** : Systemic effects*

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

For a given contributing scenario, several risk management measures can be proposed. It is your responsibility to select the configuration that best suits your activity.

Thesaurus:

PROC : Process category
SU : Sectors of end-use
PC : Product category
ERC : Environmental release category

RCR : Risk characterisation ratio:
DNEL : Derived No Effect Level (DNEL)
PNEC : Predicted No Effect Concentration

NB: In this document the numerical separator of the thousands is the "." (point), the decimal separator is "," (comma).
This Exposure Scenario may not be exhaustive. Please contact your supplier should you need additional information.

SARTOMER ARKEMA GROUP

Exposure scenario

according to Regulation (EC) No. 1907/2006

Product: **Propylidynetrimethyl trimethacrylate**

(EC-No. 221-950-4 CAS-No. 3290-92-4)

Contact person :Arkema-Reach-Uses-Photocure@arkema.com

Number: STMR-00008 (Version 3.0) REACH Registration Number: 01-2119542176-41-0000

Date 16.05.2014 (*Cancel and replace* : 11.10.2013)

1. Title of Exposure Scenario : Professional use of formulations

SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Environmental release category:

ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix, **ERC8f**: Wide dispersive outdoor use resulting in inclusion into or onto a matrix

Process category:

PROC2: Use in closed, continuous process with occasional controlled exposure, **PROC3**: Use in closed batch process (synthesis or formulation), **PROC5**: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), **PROC8a**: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, **PROC8b**: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, **PROC10**: Roller application or brushing, **PROC11**: Non industrial spraying

2. Conditions of use - Exposure estimation and reference to its source

Control of environmental exposure :

General Information

characteristic:

Liquid, vapour pressure < 10 Pa

Toxic to aquatic life with long lasting effects., Inherently biodegradable., Slightly soluble

Frequency and duration of use:

Continuous exposure:

Continuous release.

Number of emission days per year = 365

Operational conditions:

General risk management measures applicable to all activities:

Water : Domestic sewage treatment plant is assumed (49,8 %)

Waste treatment : See chapter 13. Disposal considerationsWaste disposal methods : Can be landfilled, when in compliance with local regulations.

Product residual disposal complies with applicable regulations.

Recovery : Accidental release measures : See chapter 6

External recovery and recycling of waste should comply with applicable local and/or national regulations.

3. Risk characterisation ratio:

Compartment:	Exposure Assessment Method:
All (environment)	CHESAR 2.2.0

Contributing Scenario	Annual amount per site	Emission or Release Factor: Air	Maximum concentration / release value:		Emission or Release Factor: Soil	Risk characterisation ratio:		Remarks
			Marine water	Fresh water		Water	Soil	
Wide dispersive indoor use resulting in inclusion into or onto a matrix	3,01 kg	0,00001 kg/day	0,276 µg/l	2,76 µg/l	0,0004 kg/day	< 0,01	< 0,01	In addition to direct release in industrial soil, soil risk characterization ratio is influenced by the deposition of air emission and sludge application (if permitted) to soil.
Wide dispersive outdoor use resulting in inclusion into or onto a matrix	3,01 kg	0,00001 kg/day	0,276 µg/l	2,76 µg/l	0,0004 kg/day	< 0,01	< 0,01	In addition to direct release in industrial soil, soil risk characterization ratio is influenced by the deposition of air emission and sludge application (if permitted) to soil.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.

Control of worker exposure :

General Information

characteristic:

Liquid, vapour pressure < 10 Pa

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100 % (unless stated differently).

General risk management measures applicable to all activities:

Assumes a good basic standard of occupational hygiene is implemented. Prevention of aerosols and splashes as far as possible
Use suitable eye protection and gloves. Wear suitable coveralls to prevent exposure to the skin. See chapter : 8. Exposure controls/personal protection
Face shield or Eye protection if splashes or eye contact is possible If aerosol exposure Face shield instead of eye protection

Exposure routes:	Exposure Assessment Method:
All (worker)	As the substance doesn't meet the criteria for classification according to REACH regulation article 14(4), development of specific exposure scenarios is not required.

***LE** : Local effects, **SE** : Systemic effects*

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

For a given contributing scenario, several risk management measures can be proposed. It is your responsibility to select the configuration that best suits your activity.

Thesaurus:

PROC : Process category
SU : Sectors of end-use
PC : Product category
ERC : Environmental release category

RCR : Risk characterisation ratio:
DNEL : Derived No Effect Level (DNEL)
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SARTOMER ARKEMA GROUP

Exposure scenario

according to Regulation (EC) No. 1907/2006

Product: **Propylidynetrimethyl trimethacrylate**

(EC-No. 221-950-4 CAS-No. 3290-92-4)

Contact person :Arkema-Reach-Uses-Photocure@arkema.com

Number: STMR-00010 (Version 3.0) REACH Registration Number: 01-2119542176-41-0000

Date 16.05.2014 (*Cancel and replace* : 11.10.2013)

1. Title of Exposure Scenario : Industrial use as cross-linking agent in rubbers and plastics

SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites

Environmental release category:	Process category:
ERC6d: Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers	**PROC5**: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), **PROC7**: Industrial spraying, **PROC8b**: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, **PROC9**: Transfer of substance or preparation into small containers (dedicated filling line, including weighing), **PROC10**: Roller application or brushing, **PROC14**: Production of preparations or articles by tabletting, compression, extrusion, pelletisation, **PROC21**: Low energy manipulation of substances bound in materials and/ or articles

2. Conditions of use - Exposure estimation and reference to its source

Control of environmental exposure :

General Information

characteristic:

Liquid, vapour pressure < 10 Pa

Toxic to aquatic life with long lasting effects., Inherently biodegradable., Slightly soluble

Frequency and duration of use:

Continuous exposure:

Continuous release.

Number of emission days per year = 200

Operational conditions:

Risk from environmental exposure is driven by freshwater., Risk from environmental exposure is driven by marine water.

Risk from environmental exposure is driven by freshwater sediment., Risk from environmental exposure is driven by marine sediment.

General risk management measures applicable to all activities:

Water : No wastewater treatment required. Domestic sewage treatment is not assumed.

Waste treatment : See chapter 13. Disposal considerations

Product residual disposal complies with applicable regulations.

Recovery : Accidental release measures : See chapter 6

External recovery and recycling of waste should comply with applicable local and/or national regulations.

3. Risk characterisation ratio:

Compartment:	Exposure Assessment Method:
All (environment)	CHESAR 2.2.0, EU TGD table A3.11

Contributing Scenario	Annual amount per site	Emission or Release Factor: Air	Maximum concentration / release value:		Emission or Release Factor: Soil	Risk characterisation ratio:		Remarks
			Marine water	Fresh water		Water	Soil	
Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers	200000 kg	10 kg/day	0,276 µg/l	2,76 µg/l	0,01 kg/day	< 1	< 0,01	In addition to direct release in industrial soil, soil risk characterization ratio is influenced by the deposition of air emission and sludge application (if permitted) to soil.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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Exposure routes:	Exposure Assessment Method:
All (worker)	As the substance doesn't meet the criteria for classification according to REACH regulation article 14(4), development of specific exposure scenarios is not required.

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