



Safety Data Sheet

In accordance with Regulation (EC) 1907/2006, Art. 31

Version No. 02 Revision Date 30/01/2025 Replaces Version 20/03/2024

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND THE COMPANY/UNDERTAKING

1.1 Product Identifier

TITAN BOND SUPER CLEAR SOLIDO

UFI: 2F10-X0E8-3001-9P2J

1.2 Relevant identified uses of the substance or mixture and uses not recommended

Mastic for natural and synthetic stone (Professional and industrial use)

1.3 Safety Data Sheet Supplier Information

CHIM-ITALIA GROUP srl,

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42124 Reggio Emilia

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e-mail: info@chim-italiagroup.eu

1.4 Emergency telephone number

Poison Control Centers

CAVp "Osp. Bambino Gesù Paediatric Hospital – Rome – Tel. 06 68593726

That. Osp. Univ. Foggia – Foggia – Tel. 800183459

That. Osp. "A. Cardarelli" – Napoli – Tel. 081 5453333

CAV Policlinico "Umberto I" – Rome – Tel. 06 49978000

CAV Policlinico "A. Gemelli" – Rome – Tel. 06 3054343

Az. Osp. "Careggi" U.O. Medical Toxicology – Florence – Tel. 055 7947819

CAV National Centre for Toxicological Information – Pavia – Tel. 0382 24444

Osp. Niguarda Ca' Granda – Milan – Tel. 02 66101029

Azienda Ospedaliera Papa Giovanni XXII – Bergamo – Tel. 800883300

Azienda Ospedaliera Integrata Verona – Verona – Tel. 800011858

SECTION 2: HAZARD IDENTIFICATION

2.1 Classification of the substance or mixture

Classification under Regulation (EC) No 1272/2008

Flammable liquid (category 3), H226

Skin irritation (category 2), H315

Skin sensitization (category 1), H317

Eye irritation (category 2), H319

Reproductive toxicity (category 2), H361d

Specific Target Organ Toxicity - Single Exposure (Category 3), H335

Specific target organ toxicity - repeated exposure (category 1), H372

The full texts of the hazard statements can be found in section 16

2.2 Label Elements



Hazard pictogram:

Warning: Danger

Hazard statements:

H226: Flammable liquid and vapour

H315: Causes skin irritation

H317: May cause an allergic skin reaction.

H319: Causes severe eye irritation

H335: May cause respiratory irritation

H361d: Suspected of damaging the unborn child.

H372: Causes damage to organs through prolonged or repeated inhalation exposure

H412: Harmful to aquatic life with long lasting effects

Precautionary Statements:

P201 Obtain specific instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P210 Keep away from heat, hot surfaces, sparks, open flames, or other ignition sources. No smoking.

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

P370+P378 In case of fire: Use CO₂, Foam, chemical dusts to extinguish.

P403+P235 Store in a well-ventilated place. Keep Cool.

Contains: Styrene, 2-Methyl Propenenoic Acid, Methyl Methacrylate

2.3 Other Hazards

Based on the available data, the product does not contain any PBT or vPvB substances or substances with endocrine disrupting properties in a percentage greater than 0.1%.

SECTION 3: COMPOSITION/INGREDIENT INFORMATION

3.2 Mixtures

Contains:

Substance	Conc.	Classification according to Reg. 1272/2008/EC	
Styrene CAS 100-42-5 CE 202-851-5	40 ≤ C < 50	Flam. Liq. 3 H226 Reaper. 2H361D Acute Tox. 4 H332	Classification note according to Annex VI of the CLP Regulation: D LC50 Inal. Vapor: 11,8 mg/l/4h

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Nr. Reg. 01-2119457861-32-XXXX		Stott Ray 1H372 Asp. Tox. 1 H304 Eye Irrit. 2 H319 Skin Irrit. 2 H315 Stott SE 3 H335 Aquatic Chronic 3 H412	
Methyl methacrylate INDEX 607-035-00-6 CE 201-297-1 CAS 80-62-6 Spread. Reg. 01-2119542498-28-XXXX	$1 \leq C < 2.5$	Flam. Liq. 2 H225 Skin Irrit. 2 H315 Stott SE 3 H335 Skin Sens. 1 H317	Classification note according to Annex VI of the CLP Regulation: D
2-methyl propenoic acid INDEX - CE 201-204-4 CAS 79-41-4	$1 \leq C < 2.5$	Acute Tox. 3 H311 Acute Tox. 4 H302 Acute Tox. 4 H332 Skin Corr. 1A H314 Eye Dam. 1 H318 Stott SE 3 H335	Skin Corr. 1A H314: $\geq 10\%$ Skin Irrit. 2 H315: $\geq 1\%$ Stott se 3H335: $\geq 1\%$ LD50 Oral: 1320 mg/kg STA Cutaneous: 500 mg/kg STA Inal. Mists/dusts: 1.5 mg/l
Dipropossi-p-toluidina INDEX - CE 254-075-1 CAS 38668-48-3 Nr. Reg. 01-2119980937-17-xxxx	$0.5 \leq C < 1$	Acute Tox. 2 H300 Eye Irrit. 2 H319 Aquatic Chronic 3 H412	LD50 Oral: 25 mg/kg
2-hydroxy-4-methoxy-benzophenone INDEX - CE 205-031-5 CAS 131-57-7 Nr. Reg. 01-2119976330-39-xxxx	$0.5 \leq C < 1$	Aquatic Acute 1 H400 Aquatic Chronic 2 H411	M=1
Xylene INDEX 601-022-00-9 CE 215-535-7 CAS 1330-20-7 Nr. Reg. 01-2119488216-32-xxxx	$C < 0.3$	Flam. Liq. 3 H226 Acute Tox. 4 H312 Acute Tox. 4 H332 Asp. Tox. 1 H304 Stott Ray 2H373 Skin Irrit. 2 H315 Stott SE 3 H335	Classification note according to Annex VI of the CLP Regulation: C STA Cutaneous: 1100 mg/kg STA Inhalation vapours: 11 mg/l
Etilbenzene INDEX 601-023-00-4 CE 202-849-4 CAS 100-41-4	$C < 0.1$	Flam. Liq. 2 H225 Acute Tox. 4 H332 Asp. Tox. 1 H304 Stott Ray 2H373	LC50 Inal. Vapor: 17,2 mg/l/4h
Dipropylene glycol monomethylether INDEX - CE 252-104-2 CAS 34590-94-8	$C < 0.05$	-	Substance with exposure limit in Community workplaces



The full texts of the hazard statements and classifications can be found in section 16

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

In case of contact with eyes

Discard any contact lenses. Wash immediately and thoroughly with water, opening the eyelids well. Seek medical attention immediately.

In case of skin contact

Take off contaminated clothes. Immediately wash with soap and water the areas that have come into contact with the product. Seek medical attention immediately.

In case of inhalation

Call a doctor right away. Move the subject to fresh air, away from the scene of the accident. If breathing ceases, practice artificial respiration. Take proper precautions for the rescuer.

In case of ingestion

Seek medical attention immediately. Do not induce vomiting unless specifically authorized by your doctor.

4.2 Main symptoms and effects, both acute and delayed

No specific information is known about the symptoms and effects caused by the product.

4.3 Indication of whether you need to seek immediate medical attention and special treatment

Treat symptomatically.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

The extinguishing media are: carbon dioxide, foam, chemical dust.

Unsuitable extinguishing media

Do not use water jets.

5.2 Special hazards arising from the substance or mixture

Overpressure can occur in containers exposed to fire and there is a risk of explosion. Vapors can spread over long distances and catch fire. Avoid breathing in combustion products which may include aldehydes and organic acids.

5.3 Recommendations for Fire Extinguishers

General information

Cool the containers with water jets to avoid the decomposition of the product and the development of substances that are potentially dangerous to health. Always wear full fire protection equipment. Collect extinguishing water that should not be discharged into sewers. Dispose of contaminated water used for extinguishing and fire residue in accordance with current regulations.

Equipment

Normal clothing for firefighting, such as an open-circuit compressed air breathing apparatus (EN 137), flame retardant suit (EN469), flame retardant gloves (EN 659) and firefighters' boots (HO A29 or A30).

SECTION 6: MEASURES IN CASE OF ACCIDENTAL RELEASE

6.1 Personal Precautions, Protective Equipment, and Emergency Procedures

Block the leak if there is no danger.



Wear appropriate protective equipment (including personal protective equipment referred to in section 8) to prevent contamination of the skin, eyes and personal clothing. These indications are valid for both processing workers and emergency interventions.

Move away from unequipped persons. Use explosion-proof equipment. Eliminate any source of ignition (cigarettes, flames, sparks, etc.) or heat from the area where the leak occurred. Beware of thickened vapours that can form explosive concentrations.

6.2 Environmental Precautions

Prevent the product from entering sewers, surface waters, groundwater.

6.3 Methods and materials for containment and remediation

Vacuum the spilled product into a suitable container. Assess the compatibility of the vessel to be used with the product, checking section 10. Absorb the remainder with inert absorbent material.

Ensure sufficient ventilation of the leak site. Disposal of contaminated material shall be carried out in accordance with the provisions of section 13.

6.4 Reference to other sections

For information on IPR, please refer to Section 8.

For disposal, refer to Section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Keep away from heat, sparks and open flames, do not smoke or use matches or lighters. Without adequate ventilation, vapours can accumulate on the ground and ignite even at a distance, if triggered, with the danger of backfire. Avoid the build-up of electrostatic charges.

Do not eat, drink or smoke while in use. Remove contaminated clothing and protective equipment before entering eating areas. Avoid dispersion of the product into the environment.

7.2 Conditions for safe storage, including possible incompatibilities

Store only in the original container. Store at temperatures below 25°C. Avoid direct exposure to the sun. Store in a cool, well-ventilated place, away from heat sources, open flames, sparks and other sources of ignition. Store containers away from any incompatible materials, checking section 10.

7.3 Special end-uses

See section 16.

SECTION 8: EXPOSURE/PERSONAL PROTECTION CONTROLS

8.1 Control Parameters

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STIRENE

Valore limite di soglia

Tipo	Stato	TWA/8h	STEL/15min	Note / Osservazioni
		mg/m3	ppm	

TLV-ACGIH

10

20

Concentrazione prevista di non effetto sull'ambiente - PNEC

Valore di riferimento in acqua dolce

0,028

mg/l

Valore di riferimento in acqua marina

0,014

mg/l

Valore di riferimento per sedimenti in acqua dolce

0,614

mg/kg

Valore di riferimento per sedimenti in acqua marina

0,307

mg/kg

Valore di riferimento per l'acqua, rilascio intermittente

0,04

mg/l

Valore di riferimento per i microorganismi STP

5

mg/l

Valore di riferimento per il compartimento terrestre

0,2

mg/kg

Salute - Livello derivato di non effetto - DNEL / DMEL

Via di Esposizione	Effetti sui consumatori				Effetti sui lavoratori			
	Locali acuti	Sistemici acuti	Locali cronici	Sistemici cronici	Locali acuti	Sistemici acuti	Locali cronici	Sistemici cronici
Orale				2,1 mg/kg bw/d				
Inalazione	10 mg/m3	174,25 mg/m3	182,75 mg/m3	10,2 mg/m3	306 mg/m3	289 mg/m3	306 mg/m3	85 mg/m3
Dermica				343 mg/kg bw/d				406 mg/kg bw/d

METIL-METACRILATO

Valore limite di soglia

Tipo	Stato	TWA/8h	STEL/15min	Note / Osservazioni
		mg/m3	ppm	

VLEP

ITA

50

100

OEL

EU

50

100

TLV-ACGIH

205

50

410

100

Concentrazione prevista di non effetto sull'ambiente - PNEC

Valore di riferimento in acqua dolce

0,94

mg/l

Valore di riferimento in acqua marina

0,094

mg/l

Valore di riferimento per sedimenti in acqua dolce

10,2

mg/kg/d

Valore di riferimento per sedimenti in acqua marina

1,02

mg/kg/d

Valore di riferimento per i microorganismi STP

10

mg/l

Valore di riferimento per il compartimento terrestre

1,48

mg/kg

Salute - Livello derivato di non effetto - DNEL / DMEL

Via di Esposizione	Effetti sui consumatori				Effetti sui lavoratori			
	Locali acuti	Sistemici acuti	Locali cronici	Sistemici cronici	Locali acuti	Sistemici acuti	Locali cronici	Sistemici cronici
Inalazione			105 mg/m3	74,3 mg/m3			208 mg/m3	348,4 mg/m3
Dermica			1,5 mg/kg bw/d	8,2 mg/kg bw/d			1,5 mg/kg bw/d	13,67 mg/kg bw/d

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acido 2-metil propenoico

Concentrazione prevista di non effetto sull'ambiente - PNEC

Valore di riferimento in acqua dolce	0,82	mg/l
Valore di riferimento in acqua marina	0,82	mg/l
Valore di riferimento per i microorganismi STP	10	mg/l
Valore di riferimento per il compartimento terrestre	1,2	mg/kg

Salute - Livello derivato di non effetto - DNEL / DMEL

Via di Esposizione	Effetti sui consumatori				Effetti sui lavoratori			
	Locali acuti	Sistemici acuti	Locali cronici	Sistemici cronici	Locali acuti	Sistemici acuti	Locali cronici	Sistemici cronici
Inalazione							88 mg/m3	29,6 mg/m3
Dermica								4,25 mg/kg bw/d

Dipropossi-p-toluidina

Concentrazione prevista di non effetto sull'ambiente - PNEC

Valore di riferimento in acqua dolce	0,017	mg/l
Valore di riferimento in acqua marina	0,002	mg/l
Valore di riferimento per sedimenti in acqua dolce	0,078	mg/kg
Valore di riferimento per sedimenti in acqua marina	0,008	mg/kg
Valore di riferimento per l'acqua, rilascio intermittente	0,17	mg/l
Valore di riferimento per i microorganismi STP	199,5	mg/l
Valore di riferimento per il compartimento terrestre	0,005	mg/kg

Salute - Livello derivato di non effetto - DNEL / DMEL

Via di Esposizione	Effetti sui consumatori				Effetti sui lavoratori			
	Locali acuti	Sistemici acuti	Locali cronici	Sistemici cronici	Locali acuti	Sistemici acuti	Locali cronici	Sistemici cronici
Orale				0,3 mg/kg bw/d				
Inalazione				0,4 mg/m3				2,47 mg/m3
Dermica				0,3 mg/kg bw/d				0,7 mg/kg bw/d

2-idrossi-4-metossi-benzofenone

Concentrazione prevista di non effetto sull'ambiente - PNEC

Valore di riferimento in acqua dolce	0,00067	mg/l
Valore di riferimento in acqua marina	0,00006	mg/l
Valore di riferimento per sedimenti in acqua dolce	0,0667	mg/kg
Valore di riferimento per sedimenti in acqua marina	0,0066	mg/kg
Valore di riferimento per l'acqua, rilascio intermittente	0,0037	mg/l
Valore di riferimento per i microorganismi STP	10	mg/l
Valore di riferimento per il compartimento terrestre	0,013	mg/kg

Salute - Livello derivato di non effetto - DNEL / DMEL

Via di Esposizione	Effetti sui consumatori				Effetti sui lavoratori			
	Locali acuti	Sistemici acuti	Locali cronici	Sistemici cronici	Locali acuti	Sistemici acuti	Locali cronici	Sistemici cronici
Orale				2 mg/kg bw/d				
Inalazione				6,8 mg/m3				27,7 mg/m3
Dermica				20 mg/kg bw/d				39 mg/kg bw/d

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XILENE

Valore limite di soglia

Tipo	Stato	TWA/8h		STEL/15min		Note / Osservazioni
		mg/m3	ppm	mg/m3	ppm	
VLEP	ITA	221	50	442	100	PELLE
OEL	EU	221	50	442	100	PELLE
TLV-ACGIH			20			

Concentrazione prevista di non effetto sull'ambiente - PNEC

Valore di riferimento in acqua dolce	0,327	mg/l
Valore di riferimento in acqua marina	0,327	mg/l
Valore di riferimento per sedimenti in acqua dolce	12,46	mg/kg
Valore di riferimento per sedimenti in acqua marina	12,46	mg/kg
Valore di riferimento per i microorganismi STP	6,58	mg/l
Valore di riferimento per il compartimento terrestre	2,31	mg/kg

Salute - Livello derivato di non effetto - DNEL / DMEL

Via di Esposizione	Effetti sui consumatori			Effetti sui lavoratori				
	Locali acuti	Sistemici acuti	Locali cronici	Sistemici cronici	Locali acuti	Sistemici acuti	Locali cronici	Sistemici cronici
Orale				5 mg/kg bw/d				
Inalazione	260 mg/m3	260 mg/m3	65,3 mg/m3	65,3 mg/m3	442 mg/m3	442 mg/m3	221 mg/m3	221 mg/m3
Dermica				125 mg/kg bw/d				212 mg/kg bw/d

DIPROPILEN GLICOL MONOMETILETERE

Valore limite di soglia

Tipo	Stato	TWA/8h		STEL/15min		Note / Osservazioni
		mg/m3	ppm	mg/m3	ppm	
VLEP	ITA	308	50			PELLE
OEL	EU	308	50			PELLE
TLV-ACGIH			50			

8.2 Exposure Controls

General Occupational Hygiene and Protective Regulations

Considering that the use of appropriate technical measures should always take precedence over personal protective equipment, ensure good ventilation in the workplace by means of effective local extraction.

When choosing personal protective equipment, seek advice from your chemical suppliers.

In the workplace, it is suggested to evaluate the need to use hearing protectors since the ototoxic action of STYRENE is amplified in the presence of noise and by the simultaneous presence of several ototoxic substances (see Sect. 11).

Personal protective equipment must bear the CE market certifying its compliance with current standards.

Provide an emergency shower with a face shower.

Exposure levels should be kept as low as possible to avoid significant build-up in the body. Manage personal protective equipment in such a way as to ensure maximum protection (e.g. reduction of replacement times).

Eye/face protection

Wear protective goggles with side shields (ref. EN 166). Do not use contact lenses.



If there is a risk of being exposed to splashes or splashes in relation to the work carried out, adequate protection of the mucous membranes (mouth, nose, eyes) must be provided in order to avoid accidental absorption.

Hand protection

Protect your hands with category III work gloves (ref. EN 374).

For the final choice of the material of work gloves, the following must be considered: compatibility, degradation, breaking time and permeation.

In the case of preparations, the resistance of work gloves to chemical agents must be checked before use as it is not foreseeable. Gloves have a wear time that depends on the duration and mode of use.

Styrene

Materials limited to the suitability of protective gloves; EN 374:

Viton: thickness $\geq 0.7\text{mm}$; Permeation time: 240 - 480 min

Contaminated and/or damaged gloves should be replaced.

Nitrile rubber: thickness $\geq 0.4\text{mm}$; Permeation time: < 60 min

Contaminated and/or damaged gloves should be replaced.

Skin protection

Wear long-sleeved work clothes and category III safety footwear for professional use (ref. Regulation 2016/425 and EN ISO 20344). Wash with soap and water after removing protective clothing.

Consider providing anti-static clothing if there is a risk of explosiveness in the work environment.

Styrene: Use suitable protective clothing; if necessary, a full-body protective suit Use appropriate undressing techniques to remove potentially contaminated clothing.

The equipment must comply with EN 1149

Respiratory protection

If the threshold value (e.g. TLV-TWA) of the substance or one or more of the substances present in the product is exceeded, it is recommended to wear a type A filter mask (ref. EN 14387). If gases or vapours of different nature and/or gases or vapours with particles (aerosols, fumes, mists, etc.) are present, combined filters must be provided.

The use of respiratory protective equipment is necessary if the technical measures taken are not sufficient to limit the exposure of the worker to the threshold values taken into account. However, the protection offered by masks is limited.

In the event that the substance in question is odourless or its olfactory threshold is higher than the relevant TLV-TWA and in case of emergency, wear an open-circuit compressed air breathing apparatus (ref. EN 137) or an external air intake respirator (ref. EN 138). For the correct choice of respiratory protective equipment, refer to EN 529.

Environmental Exposure Control

Emissions from production processes, including those from ventilation equipment, should be controlled in order to comply with environmental protection legislation.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Fundamental Physical and Chemical Properties

a) Physical state: paste-like liquid

b) Color: colorless



- c) Smell: characteristic of styrene
- (d) melting point/freezing point: $> 1^{\circ}\text{C}$ / $< 0^{\circ}\text{C}$; -31°C (Styrene); -48°C (methyl methacrylate)
- (e) boiling point or initial boiling point and boiling range: $> 55^{\circ}\text{C}$; 145°C (Styrene); 101°C (methyl methacrylate)
- f) Flammability: flammable
- g) Lower and upper explosive limits: LEL 1.1 Vol-%; UEL 6.1 Vol-% (Styrene); LEL 2.1 Vol-%; UEL 12.5 Vol-% (methyl methacrylate)
- h) flash point: 32°C (Styrene); 10°C (methyl methacrylate)
- i) auto-ignition temperature: 490°C (Styrene); 435°C (methyl methacrylate)
- j) Decomposition temperature: not applicable
- k) pH: not applicable, not soluble in water
- l) Kinematic viscosity: $> 20.5 \text{ mm}^2/\text{s}$
- m) Solubility: Insoluble in water
- n) n-octanol/water partition coefficient (logarithmic value): 2.96 (Styrene)
- o) vapor pressure: 6.7 hPa (20°C , Styrene); 37 hPa (20°C , methyl methacrylate)
- p) density and/or relative density: 1.06
- q) Relative vapor density: not available
- r) Particle characteristics: not applicable, liquid

9.2 Other information

Unavailable.

SECTION 10: STABILITY AND RESPONSIVENESS

10.1 Reactivity

Under normal conditions of use and storage, there is no particular danger of reaction with other substances. Methyl-methacrylate: cures easily with heat development.

10.2 Chemical stability

The product is stable under normal conditions of use and storage.

10.3 Possibility of dangerous reactions

Vapors can form explosive mixtures with air.

Methyl-methacrylate: cures easily at $T > 55^{\circ}\text{C}$ with heat development.

10.4 Conditions to avoid

Avoid overheating. Avoid the build-up of electrostatic charges. Avoid any source of ignition.

10.5 Incompatible materials

Avoid contact with oxidizing materials. The product may become inflamed.

Avoid contact with strong acids and bases, strong oxidizing agents, metal oxides, metal salts, organic nitrocompounds.

10.6 Hazardous decomposition products

Thermal decomposition or fire can release gases and vapours that are potentially harmful to health.

SECTION 11: TOXICOLOGICAL INFORMATION

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



In the absence of experimental toxicological data on the product itself, the possible health hazards of the product have been assessed on the basis of the properties of the substances contained, according to the criteria provided for by the reference legislation for classification.

Therefore, the concentration of the individual hazardous substances mentioned in section 3 should be taken into account in order to assess the toxicological effects of exposure to the product.

Acute toxicity

On the basis of the available data, the classification criteria are not met:

ATE (Inhalation - mists/powders) of the mixture: > 5 mg/l

ATE (Inhalation - vapours) of the mixture: > 20 mg/l

ATE (Oral) of the mixture: >2000 mg/kg

ATE (Cutaneous) of the mixture: >2000 mg/kg

Styrene LC50 Rat Inhalation = 11.8 mg/l 4h

LD50 Oral Rat = 2650 mg/kg

LD50 Rat Skin > 2000 mg/kg

2-methyl propenoic acid STA (Cutaneous): 300 mg/kg estimate from Table 3.1.2 of Annex I to CLP

(data used to calculate the estimate of the acute toxicity of the mixture)

LD50 (Oral): 1320 mg/kg Rat, male, OECD401

LC50 (Inhalation of mists/dust): 7.1 mg/l/4h OECD 403

STA (Mist/dust inhalation): 1.5 mg/l estimated from Table 3.1.2 of Annex I of CLP

(data used to calculate the estimate of the acute toxicity of the mixture)

Dipropossi-p-toluidina LD50 (Oral): 25 mg/kg rat

Xylene LD50 (Skin): 4350 mg/kg Rabbit

STA (Cutaneous): 1100 mg/kg estimate from Table 3.1.2 of Annex I to

CLP

(data used to calculate the estimate of the acute toxicity of the mixture)

LD50 (Oral): 3523 mg/kg Rat

LC50 (Vapor Inhalation): 26 mg/l/4h Rat

Etilbenzene LD50 (Skin): 15354 mg/kg Rabbit

LD50 (Oral): 3500 mg/kg Rat

LC50 (Vapor Inhalation): 17.2 mg/l/4h Rat

Skin corrosion/irritation

It causes skin irritation.

Severe eye injury/severe eye irritation

It causes severe eye irritation.

Respiratory or skin sensitization

Skin sensitizer.

Germ cell mutagenicity

It does not meet the classification criteria for this hazard class.

Carcinogenicity

It does not meet the classification criteria for this hazard class.



Reproductive toxicity

Suspected of harming the fetus.

Specific Target Organ Toxicity (STOT) — Single Exposure

It can irritate the respiratory tract.

Specific Target Organ Toxicity (STOT) — Repeated Exposure

It causes damage to the hearing organs in case of prolonged or repeated inhalation exposure.

Danger in case of suction

On the basis of the available data, the classification criteria are not met.

11.2 Information on Other Hazards

According to the available data, the product does not contain substances with endocrine disrupting properties in a percentage greater than 0.1%.

SECTION 12: ECOLOGICAL INFORMATION

Since no specific data on the preparation is available, use according to good working practices, avoiding dispersing the product into the environment. Avoid dispersing the product into soil or waterways. Notify the relevant authorities if the product has reached waterways or if it has contaminated soil or vegetation. Take steps to minimize the effects on the aquifer.

12.1 Toxicity

STYRENE

LC50 - Pisces	4.02 mg/l/96h P
EC50 - Crostacei	4.7 mg/l/48h
EC50 - Algae / Aquatic Plants	4.9 mg/l/72h

2-HYDROXY-4-METHOXY-BENZOPHENONE

LC50 - Pisces	3,8 mg/l/96h OECD 203
EC50 - Crostacei	1,87 mg/l/48h OECD 202
EC50 - Algae / Aquatic Plants	0.41 mg/l/72h

12.2 Persistence and degradability

Biodegradability

STYRENE

Test Type: Aerobic

Inoculum: activated sludge

Biodegradation: 70.9 %, 28 d, i.e. easily degradable.

Metodo: ISO DIN 9408

2-METHYL PRENOIC ACID

Test Type: Aerobic

Biodegradation: 86 %, 28 d, i.e. easily degradable.

Method: OECD TG 301 D

Photodegradation

STYRENE

Type of test: Phototransformation in air

Sensitizer: OH Radicals

Half-life (Indirect photolysis): 0.31 d



Following evaporation or exposure to air, the product degrades rapidly through photochemical processes.

Type of test: Phototransformation to water

Sensitizer: OH Radicals

Half-life (Indirect photolysis): 237 d

Following evaporation or exposure to air, the product slowly degrades through photochemical processes.

12.3 Bioaccumulation potential

STYRENE

Bioconcentration Factor (BCF): 74 (calculated)

Due to the reduced n-octanol-water partition coefficient, no accumulation in organisms is expected.

12.4 Mobility in the soil

STYRENE

Adsorption in Soil

Koc Value: 352

Koc log value: 2.55 (calculated)

Moderately mobile in soils.

12.5 PBT and vPvB Assessment Results

According to the available data, the product does not contain PBT or vPvB substances in a percentage greater than 0.1%.

12.6 Endocrine disrupting properties

According to the available data, the product does not contain substances with endocrine disrupting properties in a percentage greater than 0.1%.

12.7 Other Adverse Effects

No information available.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Reuse, if possible. Product residues are to be considered special hazardous waste. The hazardousness of waste containing some of this product must be assessed in accordance with the legal provisions in force.

Disposal must be entrusted to an authorized waste management company, in compliance with national and, if necessary, local legislation.

The transport of waste may be subject to ADR.

CONTAMINATED PACKAGING

Contaminated packaging must be sent for recovery or disposal in compliance with national waste management regulations.



SECTION 14: TRANSPORTATION INFORMATION

If shipped as a Polyester Resin KIT (with hardener):	If shipped as Resin solution, (without hardener):
14.1 UN number or ID number	
3269	1866
14.2 Official UN Transport Designation	
POLYESTER RESIN KIT	RESIN SOLUTION, FLAMMABLE
14.3 Classi di pericolo connesso al trasporto	
Class: 3 Label: 3	Class: 3 Label: 3
14.4 Packaging group	
III	III
14.5 Hazards to environment	
Not dangerous No marine pollutant	Not dangerous No marine pollutant
14.6 Special precautions for users	
Gallery code: E Limited quantity: 5 L IMGD-EMS: F-E, S-D	Gallery code: E Limited quantity: 5 L IMGD-EMS: F-E, S-E
14.7 Bulk shipping in accordance with IMO acts	
Not applicable	Not applicable

SECTION 15: REGULATORY INFORMATION

15.1 Health, safety and environmental laws and regulations specific to the substance or mixture Regulation (EC) 1907/2006 (REACH) and subsequent amendments

Annex XIV – Substances subject to authorisation: none

Annex XVII – Restrictions on the product or substances contained:

Product restrictions: point 3, 40

Restrictions on substances contained: 75

Substances on the candidate list (Art. 59 of Regulation (EC) 1907/2006/ (REACH): none in concentrations higher than 0.1%

Category Seveso – Directive 2012/18/EC: None

15.2 Chemical Safety Assessment

A chemical safety assessment has not been prepared for the mixture. The relevant exposure scenarios of the substances causing the classification of the mixture: Styrene (integrated scenarios), Methyl methacrylate (attached scenarios).

SECTION 16: OTHER INFORMATION

This Safety Data Sheet has been prepared in accordance with Regulations 1907/2006/EC as amended by Regulation 878/2020/EU.



Identified Uses

Identified Uses	Main user group	End-use sector	Chemical Category	Process Category	Item Category	Environmental Release Category
ES 1: Methylmethacrylate Industrial Use End-use as a monomer or formulation	SU3	-	-	-	-	ERC6b ERC6d
ES 2: Methylmethacrylate Industrial Use End-use as a monomer	SU3	-	-	-	-	ERC6c
ES 3: Methylmethacrylate Professional use End-use in formulations	SU22	-	-	-	-	ERC8a ERC8d
EN 4: Methylmethacrylate Professional use End-use in formulations	SU22	-	-	-	-	ERC8b ERC8c ERC8e ERC8f

Descriptors of use

ERC2	Formulation of mixtures
ERC6b	Industrial Use of Reactive Processing Aids
ERC6c	Industrial Use of Monomers in Polymerization Processes
ERC6d	Industrial Use of Reaction Process Regulators in Polymerization (with or without embedding in or on the surface of an article)
ERC8a	Extensive dispersive use of processing aids in open systems in indoor environments
ERC8b	Generalized use of reactive processing aids (without inclusion in or on the surface of an item, indoor use)
ERC8c	Generalized use resulting in embedding in or on the surface of an item (indoor use)
ERC8d	Extensive dispersive outdoor use of processing aids in open systems
ERC8e	Extensive dispersive use of reactive substances in open systems.
ERC8f	Generalized use resulting in inclusion in or on the surface of an item (outdoor use)
SU3	Industrial Uses
SU22	Professional uses: public sector (administration, education, entertainment, services, crafts)

Full texts of hazard statements and classifications

Flam. Liq. 2 Flammable liquid, category 2

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Flam. Liq. 3	Flammable liquid, category 3
Repr. 2	Reproductive toxicity, category 2
Acute Tox. 2	Acute toxicity, category 2
Acute Tox. 3	Acute toxicity, category 3
Acute Tox. 4	Acute toxicity, category 4
STOT RE 1	Specific Target Organ Toxicity - Repeated Exposure, Category 1
Asp. Tox. 1	Suction hazard, category 1
STOT RE 2	Specific Target Organ Toxicity - Repeated Exposure, Category 2
Skin Corr. 1A	Skin corrosion, category 1A
Eye Irrit. 2	Eye irritation, category 2
Skin Irrit. 2	Skin irritation, category 2
STOT SE 3	Specific Target Organ Toxicity - Single Exposure, Category 3
Skin Sens. 1	Skin sensitization, category 1
Aquatic Acute 1	Hazardous to the aquatic environment, acute toxicity, category 1
Aquatic Chronic 2	Hazardous to the aquatic environment, chronic toxicity, category 2
Aquatic Chronic 3	Hazardous to the aquatic environment, chronic toxicity, category 3
H225	Easily flammable liquid and vapours.
H226	Flammable liquid and vapors.
H361d	Suspected of harming the fetus.
H300	Lethal if swallowed.
H311	Toxic in contact with skin.
H302	harmful was ingested.
H312	Harmful in contact with the skin.
H332	Harmful if inhaled.
H372	It causes damage to organs in case of prolonged or repeated exposure.
H304	It can be fatal if swallowed and penetrated into the respiratory tract.
H373	It can cause damage to organs if exposed to it for prolonged or repeated time.
H314	It causes severe skin burns and severe eye damage.
H319	It causes severe eye irritation.
H315	It causes skin irritation.
H335	It can irritate the respiratory tract.
H317	It can cause an allergic skin reaction.
H400	Very toxic to aquatic organisms.
H411	Toxic to aquatic organisms with long-lasting effects.
H412	Harmful to aquatic organisms with long-lasting effects.

Abbreviations and acronyms

- ADR: European Agreement for the Carriage of Dangerous Goods by Road
- EC50: Concentration that gives effect to 50% of the test population



- DNEL: Derived layer with no effect
- IC50: Immobilization concentration of 50% of the test population
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent, bioaccumulative and toxic according to REACH
- PEC: Predictable Environmental Concentration
- PNEC: Predictable concentration with no effect
- TLV: Threshold limit value
- TLV CEILING: Concentration that must not be exceeded during any time of occupational exposure.
- TWA STEL: Short-Term Exposure Limit
- TWA: Weighted Average Exposure Limit
- vPvB: Very persistent and very bioaccumulative according to REACH

Bibliography and sources of information

Regulation (EC) 1907/2006 of the European Parliament (REACH) and subsequent amendments

Regulation (EC) 1272/2008 of the European Parliament (CLP) and subsequent ATP

- IFA GESTIS website
- ECHA Agency website

Limits for exposure to chemical agents in the workplace:

- Italy Legislative Decree no. 81 of 9 April 2008.
- OEL EU Directive 2019/130/EU; 2017/2398/EU; 2017/164/EU; 2009/161/EU; 2006/15/EC; 2004/37/EC; 2000/39/EC.

CLASSIFICATION CALCULATION METHODS

Chemical and physical hazards: The classification of the product has been derived from the criteria established by the CLP Regulation Annex I Part 2. Methods for evaluating physicochemical properties are given in section 9.

Health hazards: The classification of the product shall be based on the calculation methods set out in Annex I of CLP Part 3, unless otherwise stated in section 11.

Environmental hazards: The classification of the product shall be based on the calculation methods set out in Annex I of CLP Part 4, unless otherwise stated in section 12.

Training tips

In addition to environmental, health and safety training programs for their workers, companies must ensure that workers read, understand and apply the requirements of this SDS.

Liberatory

The information contained in this sheet reflects the knowledge currently available and it is certain that the product will be used under the prescribed conditions and in accordance with the application specified on the packaging and/or in the technical guidance literature. Any other use of the product, including the use of the product in conjunction with any other product or in any other process, is the responsibility of the user. It is



implied that the user is responsible for defining security measures and enforcing legislation that covers his activities.



ES 1: METHYL-METHACRYLATE. Title of the exposure scenario : End-use as intermediate (industrial)

SU 3: Industrial uses: uses of substances on their own or in preparations at industrial sites	
<p>Ambient Release Category:</p> <p>ERC6b: Industrial Use of Reactive Processing Aids,</p> <p>ERC6d: Industrial use of process controllers for polymerization processes in the production of resins, rubbers, polymers.</p>	<p>Process Category:</p> <p>PROC1: Use in a closed process, unlikely exposure, PROC2: Use in a closed, continuous process, with occasional controlled exposure, PROC3: Use in a closed batch process (synthesis or formulation), PROC4: Use in batch and other processes (synthesis), where exposure occasions occur, PROC5: Mixing or mixing in batch processes for the formulation of preparations and articles (contact in different phases and/or important contact), PROC6: Calendaring operations, PROC7: Industrial spray application, PROC8a: Transfer of a substance or preparation (filling/emptying) from/to containers/large containers, in non-dedicated facilities, PROC8b: Transfer of a substance or preparation (filling/emptying) from/to containers/large containers, in dedicated facilities, PROC9: Transfer of a substance or preparation into small containers (dedicated filling line, including weighing), PROC10: Application with rollers or brushes, PROC12: Use of blowing agents in foam production, PROC13: Processing of articles for immersion and casting, PROC14: Production of preparations or articles for compression in tablets, compression, extrusion, pelletizing, PROC15: Use as laboratory reagents, PROC17: Lubrication under conditions of high energy consumption and as part of a partially open process, PROC18: Greasing under conditions of high energy consumption, PROC19: Manual mixing with direct contact, with only the use of personal protective equipment, PROC21: Energy-efficient handling of substances present in materials and/or articles, PROC22: Machining operations in potentially closed processes with minerals/metals at elevated temperatures; industrial environment, PROC23: Processing and transfer operations in open processes with minerals/metals at elevated temperatures, PROC24: High energy (mechanical) processing of substances integrated into materials and/or articles.</p>

2. Terms of Use - Assessment of Exposure and Reference to Its Origin	3. Risk Characterization Report:
<p>Environmental Exposure Control:</p> <p>GENERAL INFORMATION</p> <p>Characteristic:</p> <p>Liquid, vapor pressure <0.5kPa</p> <p>Non-hydrophobic, Easily biodegradable, Virtually non-bioaccumulative</p> <p>Frequency and duration of use: Continuous exposure: Continuous release.</p> <p>Number of issuing days per year = 300 Operating Conditions:</p> <p>The risk from environmental exposure is determined by freshwater., The risk from environmental exposure is determined by sediments in freshwater., The risk from environmental exposure is determined by seawater., The risk from environmental exposure is determined by marine sediments. Generalised risk management measures applicable to all activities:</p> <p>Air : Treat air emissions in a manner that ensures the required disposal efficiency of (%): (99.9 %) Water : Recommended on-site wastewater treatment Typical on-site wastewater treatment technologies provide an elimination efficiency of (%): (87 %)</p> <p>Soil : Soil emission controls are not applicable because there are no direct emissions to the soil.</p> <p>Waste treatment : See section 13. Disposal Considerations</p> <p>Recovery: Measures in case of accidental release: See section 6</p>	<p>Compartment: Exposure Assessment Method:</p> <p>All(-e) (environment) EUSES</p>

TAXPAYER SCENARIO	Annual quantity per site	Issuance or Factor of Release : Air	Maximum Concentration/Release:		Emission or Release Factor : Soil	Characterization Report Risk Assessment:		Remarks
			Seawater	Fresh water		Water	Soil	

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Industrial use of reactive processing aids, Industrial use of process controllers for polymerization processes in the production of resins, rubbers, polymers.	25,000 tons/year	4,140 kg/day	0.094 mg/l	0.94 mg/l	0	< 1	< 0.1	In addition to direct emissions to industrial land, the soil contamination risk characterization ratio is influenced by the deposition of emissions in the air and the application of sludge (if permitted) to the soil.
Additional Good Practice Advice in addition to the REACH Chemical Safety Assessment The guidance is based on assumed operating conditions, which may not be applicable to all sites; It may therefore be necessary to apply a scale factor to define appropriate site-specific risk management measures. Further details on scale factors and control technologies are provided in the SpERC briefing paper (http://cefic.org/en/reach-for-industries-libraries.html). If the adoption of scaling factors points to an unsafe use condition (i.e. Risk Characterisation Reports (RCRs) > 1)], additional risk management measures (RMMs) or a site-specific chemical safety assessment will need to be carried out.								
Exposure control of insiders:						Exhibition route:		Exposure Assessment Method:
General information Characteristic: Liquid, vapor pressure <0.5kPa Causes skin irritation., May irritate the respiratory tract., May cause an allergic skin reaction. Frequency and duration of use: Includes daily exposures of up to 8 hours (unless otherwise indicated). Concentration of the substance in the Mixture/Article: Includes percentages of substance in the product up to 100% (unless otherwise stated). Generalised risk management measures applicable to all activities: It is assumed that good basic standards of occupational hygiene are applied. Wear gloves/ protective clothing/ Protect eyes/ face. If there is a risk of splashing, wear: Personal protective equipment including: appropriate protective gloves, safety goggles and protective clothing Gloves should be discarded and replaced if there are signs of degradation or passage of chemicals. Activities inside, (unless otherwise noted)						All(-e) (workers)		ECETOC TRA, Long-term exposure assessment includes short-term effects., PROC21 - 24: A qualitative approach was used to conclude that use is safe.

Specific conditions :

Taxpayer Scenario	PROC	Operating Conditions	Concentration of the substance in the Blend/Article	Risk management measures	Conditions and measures relating to personal protection, hygiene and health assessment	Risk Characterization Ratio: (Long-term)			Risk Characterization Report: (Short-term)		
						Inhalation	Dermal	Combined routes	Inhalation	Dermal	Combined routes
Use in a closed process, unlikely exposure	PROC1			No special precautions identified.		< 0.1	< 0.1	< 0.1			
Use in a closed, continuous process, with occasional controlled exposure	PROC2			No special precautions identified.		0,1 - 0,5	0,1	0,1 - 0,5			
Use in a closed batch process (synthesis or formulation)	PROC3			No special precautions identified.		0,5	< 0.1	0,5 - 0,75			
Use in batch and other processes (synthesis), where Occasions of exposure occur	PROC4			No special precautions identified.		0,1 - 0,5	0,5	0,75 - 1			
Use in batch and other processes (synthesis), where Occasions of exposure occur	PROC4	OUTDOORS		Make sure the operation is done outdoors. (30 %)		0,1 - 0,5	0,5	0,75 - 1			
Use in batch and other processes (synthesis), where Occasions of exposure occur	PROC4	INDOOR		Adopt suction ventilation at the points where the emission occurs. (90 %)		< 0.1	0,5	0,5 - 0,75			
Mixing or stirring in batch processes for formulation of preparations and articles (contact in stages and/or important contact)	PROC5	INDOOR		Adopt suction ventilation at the points where the emission occurs. (90 %) or Avoid engaging in activities involving exposure for more than 1 hour.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1	0,1 - 0,5			

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Mixing or Blending in Processes in batches for the formulation of preparations and articles (contact at different stages and/or important contact) Transfer of a substance or preparation (filling/emptying)from/ to Vessels/ Large containers, in non-dedicate	PROC5, PROC8a	INDOOR			Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %) Wear a respirator in Compliance with EN140 with Type A filter or better. (90 %)	0,1	0,1	0,1 - 0,5			
Mixing or stirring in batch processes for formulation of preparations and articles (contact in stages and/or important contact) Transfer of a substance or preparation (filling/emptying)from/ to Vessels/ Large containers, in non-dedicated facilities.	PROC5, PROC8a	INDOOR	It includes percentages of substance in the product up to 25%.	Avoid engaging in activities involving exposure for more than 4 hours.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1	0,1 - 0,5			
Mixing or Blending in Processes in batches for the formulation of preparations and articles (contact at different stages and/or important contact) Transfer of a substance or preparation (filling/emptying)from/ to Vessels/ Large containers, in non-dedicated facilities.	PROC5, PROC8a	INDOOR	Savvies Percentages of substance in the product up to 5%.		Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1	0,1 - 0,5			
Mixing or Blending in Processes in batches for the formulation of preparations and articles (contact at different stages and/or important contact) Transfer of a substance or preparation (filling/emptying)from/ to Vessels/ Large containers, in non-dedicated facilities.	PROC5, PROC8a	OUTDOORS		Make sure the operation is done outdoors. (30 %)	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,5 - 0,75	0,1	0,75 - 1			

Taxpayer Scenario	PROC	Operating Conditions	Concentration of the substance in the Blend/Article	Risk management measures	Conditions and measures relating to personal protection, hygiene and health assessment	Risk Characterization Ratio: (Long-term)			Risk Characterization Report: (Short-term)		
						Inhalation	Dermal	Combined routes	Inhalation	Dermal	Combined routes
Transfer of a substance or Preparation (filling/emptying)from/ to Vessels/ Large containers, in non-dedicated facilities.	PROC8a	INDOOR		Make sure that material transfers are subject to containment measures or under suction ventilation. (90%) or Avoid engaging in activities involving exposure for more than 1 hour.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1	0,1 - 0,5			

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Transfer of a substance or preparation (filling/emptying)from/ to Vessels/ Large containers, in structures Transfer of a substance or preparation into small containers (dedicated filling, including weighing) Production of preparations or articles for compression in tablets, compression, extrusion, pelletizing.	PROC8b, PROC9, PROC14	INDOOR			Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %) Wear a respirator in Compliance with EN140 with Type A filter or better. (90 %)	0,1 - 0,5	0,1	0,1 - 0,5			
Transfer of a substance or preparation (filling/emptying)from/ to Vessels/ Large containers, in structures Transfer of a substance or preparation into small containers (dedicated filling, including weighing) Production of preparations or articles for tablet compression, compression, extrusion, pelletizing.	PROC8b, PROC9, PROC14	INDOOR		Make sure that material transfers are subject to containment measures or under suction ventilation. (90%) or Avoid engaging in activities involving exposure for more than 1 hour.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	< 0,1	0,1 - 0,5			
Transfer of a substance or Preparation (filling/emptying)from/ to Vessels/ Large containers, in structures Transfer of a substance or preparation into small containers (dedicated filling, including weighing) Production of preparations or articles for tablet compression, compression, extrusion, pelletizing.	PROC8b, PROC9, PROC14	INDOOR	Savvies Percentages of substance in the product up to 25%.	Avoid engaging in activities involving exposure for more than 4 hours.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	< 0,1	0,1 - 0,5			
Transfer of a substance or Preparation (filling/emptying)from/ to Vessels/ Large containers, in structures Transfer of a substance or preparation into small containers (dedicated filling, including weighing) Production of preparations or articles for tablet compression, compression, extrusion, pelletizing	PROC8b, PROC9, PROC14	INDOOR	Savvies Percentages of substance in the product up to 5%.		Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	< 0,1	0,1 - 0,5			
Taxpayer Scenario	PROC	Operating Conditions	Concentration of the substance in the Blend/Article	Risk management measures	Conditions and measures relating to personal protection, hygiene and health assessment	Risk Characterization Ratio: (Long-term)			Risk Characterization Report: (Short-term)		
						Inhalation	Dermal	Combined routes	Inhalation	Dermal	Combined routes

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Transfer of a substance or Preparation (filling/emptying) from/ to Vessels/ Large containers, in structures Transfer of a substance or preparation into small containers (dedicated filling, including weighing) Production of preparations or articles for tablet compression, compression, extrusion, pelletizing.	PROC8b, PROC9, PROC14	OUTDOORS		Make sure the operation is done outdoors. (30 %)	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,5 - 0,75	< 0,1	0,5 - 0,75			
Calendering operations Application with rollers or brushes Lubrication under high pressure conditions power consumption and as part of a partially open process.	PROC6, PROC10, PROC17	INDOOR	Savvies Percentages of substance in the product up to 25%.	Avoid engaging in activities involving exposure for more than 4 hours.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1 - 0,5	0,5 - 0,75			
Calendering operations Application with rollers or brushes Lubrication under high pressure conditions power consumption and as part of a partially open process.	PROC6, PROC10, PROC17	INDOOR	It includes percentages of substance in the product up to 5%.		Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1 - 0,5	0,1 - 0,5			
Calendering operations Application with rollers or brushes Lubrication under high pressure conditions power consumption and as part of a partially open process.	PROC6, PROC10, PROC17	OUTDOORS		Make sure the operation is done outdoors. (30 %)	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,5 - 0,75	0,1 - 0,5	0,75 - 1			
Calendering operations Application with rollers or brushes Lubrication under high pressure conditions power consumption and as part of a partially open process.	PROC6, PROC10, PROC17	INDOOR			Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %) Wear a respirator in Compliance with EN140 with Type A filter or better. (90 %)	0,1	0,1 - 0,5	0,1 - 0,5			
Calendering operations Application with rollers or brushes Lubrication under high pressure conditions power consumption and as part of a partially open process.	PROC6, PROC10, PROC17	INDOOR		Adopt suction ventilation at the points where the emission occurs. (90 %) or Avoid engaging in activities involving exposure for more than 1 hour.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1 - 0,5	0,1 - 0,5			
Industrial spray application.	PROC7	INDOOR		Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %) Wear a respirator in Compliance with EN140 with Type A filter or better. (90 %)		0,5	0,1 - 0,5	0,75 - 1			
Industrial spray application.	PROC7	INDOOR		Avoid engaging in activities that involve exposure for more than 15 minutes. or Run in ventilated cabin supported by laminar airflow. (90%)	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,5	0,1 - 0,5	0,75 - 1			
Industrial spray application.	PROC7	INDOOR	It includes percentages of substance in the product up to 5%.	Avoid engaging in activities involving exposure for more than 1 hour.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1 - 0,5	0,5 - 0,75			
Industrial spray application.	PROC7	INDOOR	Savvies Percentages of substance in the product up to 1%.		Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,5	0,1 - 0,5	0,75 - 1			

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Taxpayer Scenario	PROC	Operating Conditions	Concentration of the substance in the Blend/Article	Risk management measures	Conditions and measures relating to personal protection, hygiene and health assessment	Risk Characterization Ratio: (Long-term)			Risk Characterization Report: (Short-term)		
						Inhalation	Dermal	Combined routes	Inhalation	Dermal	Combined routes
Industrial spray application.	PROC7	INDOOR	Savvies Percentages of substance in the product up to 1%.		Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,5	0,1 - 0,5	0,75 - 1			
Industrial spray application.	PROC7	OUTDOORS		Avoid engaging in activities that involve exposure for more than 15 minutes. Make sure the operation is done outdoors. (30 %)	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of white-collar workers(90 %)	0,1 - 0,5	0,1 - 0,5	0,5 - 0,75			
Use of Blowing Agents In the production of foams.	PROC12			No special precautions identified.		0,1 - 0,5	< 0,1	0,1 - 0,5			
Treatment of articles for immersion and casting Greasing in conditions of high energy consumption.	PROC13, PROC18	INDOOR		Adopt suction ventilation at the points where the emission occurs. (90 %) or Avoid engaging in activities involving exposure for more than 1 hour.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1	0,1 - 0,5			
Processing of diving articles and casting Greasing in conditions of high energy consumption.	PROC13, PROC18	INDOOR			Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %) Wear a respirator in Compliance with EN140 with Type A filter or better. (90 %)	0,1	0,1	0,1 - 0,5			
Treatment of articles for immersion and casting Greasing in conditions of high energy consumption.	PROC13, PROC18	INDOOR	It includes percentages of substance in the product up to 25%.	Avoid engaging in activities involving exposure for more than 4 hours.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1	0,1 - 0,5			
Treatment of articles for immersion and casting Greasing in conditions of high energy consumption.	PROC13, PROC18	INDOOR	Savvies Percentages of substance in the product up to 5%.		Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1	0,1 - 0,5			
Treatment of articles for immersion and casting Greasing in conditions of high energy consumption.	PROC13, PROC18	OUTDOORS		Make sure the operation is done outdoors. (30 %)	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,5 - 0,75	0,1	0,75 - 1			
Use as laboratory reagents.	PROC15	INDOOR			Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	< 0,1	0,1 - 0,5			
Manual mixing with direct contact, with only the use of personal protective equipment.	PROC19	INDOOR			Wear chemically resistant gloves (tested with EN374) in combination with intensive supervisory management controls. (98 %) Wear a respirator in Compliance with EN140 with Type A filter or better. (90 %)	0,1 - 0,5	0,1 - 0,5	0,1 - 0,5			
Manual mixing with direct contact, with only the use of personal protective equipment.	PROC19	INDOOR	It includes percentages of substance in the product up to 25%.	Avoid engaging in activities involving exposure for more than 4 hours.	Wear chemically resistant gloves (tested with EN374) in combination with intensive supervisory management controls. (98 %)	0,1 - 0,5	0,1 - 0,5	0,5 - 0,75			
Manual mixing with direct contact, with only the use of personal protective equipment.	PROC19	OUTDOORS		Make sure the operation is done outdoors. (30 %)	Wear chemically resistant gloves (tested with EN374) in combination with intensive supervisory management controls. (98 %)	0,5 - 0,75	0,1 - 0,5	0,75 - 1			



Manual mixing with direct contact, with only the use of personal protective equipment.	PROC19	INDOOR	It includes percentages of substance in the product up to 5%.		Wear chemically resistant gloves (tested with EN374) in combination with intensive supervisory management controls. (98 %)	0,1 - 0,5	0,1 - 0,5	0,1 - 0,5			
Manual mixing with direct contact, with only the use of personal protective equipment.	PROC19	INDOOR		Avoid engaging in activities involving exposure for more than 1 hour.	Wear chemically resistant gloves (tested with EN374) in combination with intensive supervisory management controls. (98 %)	0,1 - 0,5	0,1 - 0,5	0,1 - 0,5			

Taxpayer Scenario	PROC	Operating Conditions	Concentration of the substance in the Blend/Article	Risk management measures	Conditions and measures relating to personal protection, hygiene and health assessment	Risk Characterization Ratio: (Long-term)			Risk Characterization Report: (Short-term)		
						Inhalation	Dermal	Combined routes	Inhalation	Dermal	Combined routes
Energy-efficient handling of substances present in Materials and/or articles In-Scope Machining Operations of potentially closed processes with minerals/ metals at temperatures High; Industrial environment Machining and transfer operations in open processes with Minerals/metals at elevated temperatures High-energy machining (mechanics) of substances integrated into Materials and/or items.	PROC21, PROC22, PROC23, PROC24		It includes percentages of substance in the product up to 5%.	No special precautions identified.		Irrelevant	Irrelevant	Irrelevant			

LE : Local effects, ES : Systemic effects

4. Guide for downstream users to assess whether it is working within the limits set by the Exposure Scenario

For a given contribution scenario, different risk management measures can be proposed. It is up to the user to choose the configuration that best suits their business.

Diction

ary:

PROC : Process Category SU : End-Use Sector.

PC : Product category.

ERC : Category to release into the environment.

RCR : Risk Characterization Ratio: DNEL : Derived Level with No Effect (DNEL). PNEC : The predictable no-effect concentration (PNEC).

NB: In this document, the digital thousands separator is "." (period), the decimal separator is "," (comma).

This exposure scenario may not be comprehensive. For additional information, please contact your supplier.



ES 2: METHYL-METHACRYLATE. Title of the exposure scenario : End-use as intermediate (industrial)

SU 3: Industrial uses: uses of substances on their own or in preparations at industrial sites	
<p>Ambient Release Category: ERC6c: Industrial use of monomers for the production of thermoplastics.</p>	<p>Process Category: PROC1: Use in a closed process, unlikely exposure, PROC2: Use in a closed, continuous process, with occasional controlled exposure, PROC3: Use in a closed batch process (synthesis or formulation), PROC4: Use in batch and other processes (synthesis), where exposure occasions occur, PROC5: Mixing or mixing in batch processes for the formulation of preparations and articles (contact in different phases and/or important contact), PROC6: Calendaring operations, PROC7: Industrial spray application, PROC8a: Transfer of a substance or preparation (filling/emptying) from/to containers/large containers, in non-dedicated facilities, PROC8b: Transfer of a substance or preparation (filling/emptying) from/to containers/large containers, in dedicated facilities, PROC9: Transfer of a substance or preparation into small containers (dedicated filling line, including weighing), PROC10: Application with rollers or brushes, PROC12: Use of blowing agents in foam production, PROC13: Processing of articles for immersion and casting, PROC14: Production of preparations or articles for compression in tablets, compression, extrusion, pelletizing, PROC15: Use as laboratory reagents, PROC17: Lubrication under conditions of high energy consumption and as part of a partially open process, PROC18: Greasing under conditions of high energy consumption, PROC19: Manual mixing with direct contact, with only the use of personal protective equipment, PROC21: Energy-efficient handling of substances present in materials and/or articles, PROC22: Machining operations in potentially closed processes with minerals/metals at elevated temperatures; industrial environment, PROC23: Processing and transfer operations in open processes with minerals/metals at elevated temperatures, PROC24: High energy (mechanical) processing of substances integrated into materials and/or articles.</p>

2. Terms of Use - Assessment of Exposure and Reference to Its Origin	3. Risk Characterization Report:
<p>Environmental Exposure Control:</p> <p>GENERAL INFORMATION</p> <p>Characteristic: Liquid, vapor pressure <0.5kPa Non-hydrophobic, Easily biodegradable, Virtually non-bioaccumulative Frequency and duration of use: Continuous exposure: Continuous release. Number of issuing days per year = 300 Operating Conditions: The risk from environmental exposure is determined by freshwater., The risk from environmental exposure is determined by sediments in freshwater., The risk from environmental exposure is determined by seawater., The risk from environmental exposure is determined by marine sediments. Generalised risk management measures applicable to all activities: Air : Treat air emissions in a manner that ensures the required disposal efficiency of (%): (99.9 %) Water : Recommended on-site wastewater treatment Typical on-site wastewater treatment technologies provide an elimination efficiency of (%): (87 %) Soil : Soil emission controls are not applicable because there are no direct emissions to the soil.</p> <p>Sheets: Treat air emissions in such a way as to ensure the required elimination efficiency of (%): (95 %) Recommended on-site wastewater treatment Typical on-site wastewater treatment technologies provide an elimination efficiency of (%): (87 %) Soil emission controls are not applicable because there are no direct emissions to the soil.</p> <p>Emulsion, polymerization : Treat air emissions in such a way as to ensure the required elimination efficiency of (%): (95 %) Recommended on-site wastewater treatment Typical on-site wastewater treatment technologies provide an elimination efficiency of (%): (87 %) Soil emission controls are not applicable because there are no direct emissions to the soil.</p> <p>Waste treatment : See section 13. Disposal Considerations</p>	<p>Compartment: Exposure Assessment Method:</p> <p>All(-e) (environment) EUSES</p>



Recovery: Measures in case of accidental release: See section 6		
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TAXPAYER SCENARIO	Annual quantity per site	Issuance or Factor of Release : Air	Maximum Concentration/Release:		Emission or Release Factor : Soil	Risk Characterization Report:		Remarks
			Seawater	Fresh water		Water	Soil	
Industrial use of monomers for the production of thermoplastics and thermosets, Stamping.	50,000 tons/year	837 kg/day	0.094 mg/l	0.94 mg/l	0	< 1	< 0.1	In addition to direct emissions to industrial land, the soil contamination risk characterization ratio is influenced by the deposition of emissions in the air and the application of sludge (if permitted) to the soil.
Industrial use of monomers for the production of thermoplastics and thermosets, sheets.	50,000 tons/year	8.390 kg/day	0.094 mg/l	0.94 mg/l	0	< 1	< 0.1	In addition to direct emissions to industrial land, the soil contamination risk characterization ratio is influenced by the deposition of emissions in the air and the application of sludge (if permitted) to the soil.
Industrial use of monomers for the production of thermoplastics and thermosets, emulsion.	25,000 tons/year	4,140 kg/day	0.094 mg/l	0.94 mg/l	0	< 1	< 0.1	In addition to direct emissions to industrial land, the soil contamination risk characterization ratio is influenced by the deposition of emissions in the air and the application of sludge (if permitted) to the soil.
Industrial use of monomers for the production of thermoplastics and thermosets, polymerization.	15,000 tons/year	2,510 kg/day	0.094 mg/l	0.94 mg/l	0	< 1	< 0.1	In addition to direct emissions to industrial land, the soil contamination risk characterization ratio is influenced by the deposition of emissions in the air and the application of sludge (if permitted) to the soil.

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<p>Additional Good Practice Advice in addition to the REACH Chemical Safety Assessment</p> <p>The guidance is based on assumed operating conditions, which may not be applicable to all sites; It may therefore be necessary to apply a scale factor to define appropriate site-specific risk management measures. Further details on scale factors and control technologies are provided in the SpERC briefing paper (http://cefic.org/en/reach-for-industries-libraries.html). If the adoption of scaling factors points to an unsafe use condition (i.e. Risk Characterisation Reports (RCRs) > 1), additional risk management measures (RMMs) or a site-specific chemical safety assessment will need to be carried out.</p>					
<p>Exposure control of insiders:</p>			Exhibition route:		Exposure Assessment Method:
<p>General information Characteristic: Liquid, vapor pressure <0.5kPa</p> <p>Causes skin irritation., May irritate the respiratory tract., May cause an allergic skin reaction. Frequency and duration of use: Includes daily exposures of up to 8 hours (unless otherwise indicated).</p> <p>Concentration of the substance in the Mixture/Article: Includes percentages of substance in the product up to 100% (unless otherwise stated).</p> <p>Generalised risk management measures applicable to all activities:</p> <p>It is assumed that good basic standards of occupational hygiene are applied.</p> <p>Wear gloves/ protective clothing/ Protect eyes/ face. If there is a risk of splashing, wear: Personal protective equipment including: appropriate protective gloves, safety goggles and protective clothing Gloves should be discarded and replaced if there are signs of degradation or passage of chemicals.</p> <p>Activities inside, (unless otherwise noted)</p>			All(-e) (workers)		ECETOC TRA, Long-term exposure assessment includes short-term effects., PROC21 - 24: A qualitative approach was used to conclude that use is safe.

Specific conditions :

Taxpayer Scenario	PROC	Operating Conditions	Concentration of the substance in the Blend/Article	Risk management measures	Conditions and measures relating to personal protection, hygiene and health assessment	Risk Characterization Ratio: (Long-term)			Risk Characterization Report: (Short-term)		
						Inhalation	Dermal	Combined routes	Inhalation	Dermal	Combined routes
Use in a closed process, unlikely exposure	PROC1			No special precautions identified.		< 0.1	< 0.1	< 0.1			
Use in a closed, continuous process, with occasional controlled exposure	PROC2			No special precautions identified.		0,1 - 0,5	0,1	0,1 - 0,5			
Use in a closed batch process (synthesis or formulation)	PROC3			No special precautions identified.		0,5	< 0.1	0,5 - 0,75			
Use in batch and other processes (synthesis), where Occasions of exposure occur	PROC4			No special precautions identified.		0,1 - 0,5	0,5	0,75 - 1			
Use in batch and other processes (synthesis), where Occasions of exposure occur	PROC4	OUTDOORS		Make sure the operation is done outdoors. (30 %)		0,1 - 0,5	0,5	0,75 - 1			
Use in batch and other processes (synthesis), where Occasions of exposure occur	PROC4	INDOOR		Adopt suction ventilation at the points where the emission occurs. (90 %)		< 0.1	0,5	0,5 - 0,75			
Mixing or stirring in batch processes for formulation of preparations and articles (contact in stages and/or important contact)	PROC5	INDOOR		Adopt suction ventilation at the points where the emission occurs. (90 %) or Avoid engaging in activities involving exposure for more than 1 hour.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1	0,1 - 0,5			
Mixing or Blending in Processes in batches for the formulation of preparations and articles (contact at different stages and/or important contact) Transfer of a substance or preparation (filling/emptying)from/ to Vessels/ Large containers, in non-dedicate	PROC5, PROC8a	INDOOR			Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1	0,1	0,1 - 0,5			
					Wear a respirator in Compliance with EN140 with Type A filter or better. (90 %)						

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Mixing or stirring in batch processes for formulation of preparations and articles (contact in stages and/or important contact) Transfer of a substance or preparation (filling/emptying)from/ to Vessels/ Large containers, in non-dedicated facilities.	PROC5, PROC8a	INDOOR	It includes percentages of substance in the product up to 25%.	Avoid engaging in activities involving exposure for more than 4 hours.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1	0,1 - 0,5			
Mixing or Blending in Processes in batches for the formulation of preparations and articles (contact at different stages and/or important contact) Transfer of a substance or preparation (filling/emptying)from/ to Vessels/ Large containers, in non-dedicated facilities.	PROC5, PROC8a	INDOOR	Savvies Percentages of substance in the product up to 5%.		Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1	0,1 - 0,5			
Mixing or Blending in Processes in batches for the formulation of preparations and articles (contact at different stages and/or important contact) Transfer of a substance or preparation (filling/emptying)from/ to Vessels/ Large containers, in non-dedicated facilities.	PROC5, PROC8a	OUTDOORS		Make sure the operation is done outdoors. (30 %)	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,5 - 0,75	0,1	0,75 - 1			

Taxpayer Scenario	PROC	Operating Conditions	Concentration of the substance in the Blend/Article	Risk management measures	Conditions and measures relating to personal protection, hygiene and health assessment	Risk Characterization Ratio: (Long-term)			Risk Characterization Report: (Short-term)		
						Inhalation	Dermal	Combined routes	Inhalation	Dermal	Combined routes
Transfer of a substance or Preparation (filling/emptying)from/ to Vessels/ Large containers, in non-dedicated facilities.	PROC8a	INDOOR		Make sure that material transfers are subject to containment measures or under suction ventilation. (90%) or Avoid engaging in activities involving exposure for more than 1 hour.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1	0,1 - 0,5			
Transfer of a substance or preparation (filling/emptying)from/ to Vessels/ Large containers, in structures Transfer of a substance or preparation into small containers (dedicated filling, including weighing) Production of preparations or articles for compression in tablets, compression, extrusion, pelletizing.	PROC8b, PROC9, PROC14	INDOOR			Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %) Wear a respirator in Compliance with EN140 with Type A filter or better. (90 %)	0,1 - 0,5	0,1	0,1 - 0,5			

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Transfer of a substance or preparation (filling/emptying)from/ to Vessels/ Large containers, in structures Transfer of a substance or preparation into small containers (dedicated filling, including weighing) Production of preparations or articles for tablet compression, compression, extrusion, pelletizing.	PROC8b, PROC9, PROC14	INDOOR		Make sure that material transfers are subject to containment measures or under suction ventilation. (90%) or Avoid engaging in activities involving exposure for more than 1 hour.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	< 0.1	0,1 - 0,5			
Transfer of a substance or Preparation (filling/emptying)from/ to Vessels/ Large containers, in structures Transfer of a substance or preparation into small containers (dedicated filling, including weighing) Production of preparations or articles for tablet compression, compression, extrusion, pelletizing.	PROC8b, PROC9, PROC14	INDOOR	Savvies Percentages of substance in the product up to 25%.	Avoid engaging in activities involving exposure for more than 4 hours.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	< 0.1	0,1 - 0,5			
Transfer of a substance or Preparation (filling/emptying)from/ to Vessels/ Large containers, in structures Transfer of a substance or preparation into small containers (dedicated filling, including weighing) Production of preparations or articles for tablet compression, compression, extrusion, pelletizing.	PROC8b, PROC9, PROC14	INDOOR	Savvies Percentages of substance in the product up to 5%.		Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	< 0.1	0,1 - 0,5			

Taxpayer Scenario	PROC	Operating Conditions	Concentration of the substance in the Blend/Article	Risk management measures	Conditions and measures relating to personal protection, hygiene and health assessment	Risk Characterization Ratio: (Long-term)			Risk Characterization Report: (Short-term)		
						Inhalation	Dermal	Combined routes	Inhalation	Dermal	Combined routes
Transfer of a substance or Preparation (filling/emptying)from/ to Vessels/ Large containers, in structures Transfer of a substance or preparation into small containers (dedicated filling, including weighing) Production of preparations or articles for tablet compression, compression, extrusion, pelletizing.	PROC8b, PROC9, PROC14	OUTDOORS		Make sure the operation is done outdoors. (30 %)	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,5 - 0,75	< 0.1	0,5 - 0,75			
Calendering operations Application with rollers or brushes Lubrication under high pressure conditions power consumption and as part of a partially open process.	PROC6, PROC10, PROC17	INDOOR	Savvies Percentages of substance in the product up to 25%.	Avoid engaging in activities involving exposure for more than 4 hours.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1 - 0,5	0,5 - 0,75			

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Calendering operations Application with rollers or brushes Lubrication under high pressure conditions power consumption and as part of a partially open process.	PROC6, PROC10, PROC17	INDOOR	It includes percentages of substance in the product up to 5%.		Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1 - 0,5	0,1 - 0,5			
Calendering operations Application with rollers or brushes Lubrication under high pressure conditions power consumption and as part of a partially open process.	PROC6, PROC10, PROC17	OUTDOORS		Make sure the operation is done outdoors. (30 %)	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,5 - 0,75	0,1 - 0,5	0,75 - 1			
Calendering operations Application with rollers or brushes Lubrication under high pressure conditions power consumption and as part of a partially open process.	PROC6, PROC10, PROC17	INDOOR			Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %) Wear a respirator in Compliance with EN140 with Type A filter or better. (90 %)	0,1	0,1 - 0,5	0,1 - 0,5			
Calendering operations Application with rollers or brushes Lubrication under high pressure conditions power consumption and as part of a partially open process.	PROC6, PROC10, PROC17	INDOOR		Adopt suction ventilation at the points where the emission occurs. (90 %) or Avoid engaging in activities involving exposure for more than 1 hour.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1 - 0,5	0,1 - 0,5			
Industrial spray application.	PROC7	INDOOR		Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %) Wear a respirator in Compliance with EN140 with Type A filter or better. (90 %)		0,5	0,1 - 0,5	0,75 - 1			
Industrial spray application.	PROC7	INDOOR		Avoid engaging in activities that involve exposure for more than 15 minutes. or Run in ventilated cabin supported by laminar airflow. (90%)	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,5	0,1 - 0,5	0,75 - 1			
Industrial spray application.	PROC7	INDOOR	It includes percentages of substance in the product up to 5%.	Avoid engaging in activities involving exposure for more than 1 hour.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1 - 0,5	0,5 - 0,75			
Industrial spray application.	PROC7	INDOOR	Savvies Percentages of substance in the product up to 1%.		Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,5	0,1 - 0,5	0,75 - 1			

Taxpayer Scenario	PROC	Operating Conditions	Concentration of the substance in the Blend/Article	Risk management measures	Conditions and measures relating to personal protection, hygiene and health assessment	Risk Characterization Ratio: (Long-term)			Risk Characterization Report: (Short-term)		
						Inhalation	Dermal	Combined routes	Inhalation	Dermal	Combined routes
Industrial spray application.	PROC7	INDOOR	Savvies Percentages of substance in the product up to 1%.		Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,5	0,1 - 0,5	0,75 - 1			
Industrial spray application.	PROC7	OUTDOORS		Avoid engaging in activities that involve exposure for more than 15 minutes. Make sure the operation is done outdoors. (30 %)	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of white-collar workers(90 %)	0,1 - 0,5	0,1 - 0,5	0,5 - 0,75			

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Use of Blowing Agents In the production of foams.	PROC12			No special precautions identified.		0,1 - 0,5	< 0,1	0,1 - 0,5			
Treatment of articles for immersion and casting Greasing in conditions of high energy consumption.	PROC13, PROC18	INDOOR		Adopt suction ventilation at the points where the emission occurs. (90 %) or Avoid engaging in activities involving exposure for more than 1 hour.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1	0,1 - 0,5			
Processing of diving articles and casting Greasing in conditions of high energy consumption.	PROC13, PROC18	INDOOR			Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %) Wear a respirator in Compliance with EN140 with Type A filter or better. (90 %)	0,1	0,1	0,1 - 0,5			
Treatment of articles for immersion and casting Greasing in conditions of high energy consumption.	PROC13, PROC18	INDOOR	It includes percentages of substance in the product up to 25%.	Avoid engaging in activities involving exposure for more than 4 hours.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1	0,1 - 0,5			
Treatment of articles for immersion and casting Greasing in conditions of high energy consumption.	PROC13, PROC18	INDOOR	Savvies Percentages of substance in the product up to 5%.		Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1	0,1 - 0,5			
Treatment of articles for immersion and casting Greasing in conditions of high energy consumption.	PROC13, PROC18	OUTDOORS		Make sure the operation is done outdoors. (30 %)	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,5 - 0,75	0,1	0,75 - 1			
Use as laboratory reagents.	PROC15	INDOOR			Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	< 0,1	0,1 - 0,5			
Manual mixing with direct contact, with only the use of personal protective equipment.	PROC19	INDOOR			Wear chemically resistant gloves (tested with EN374) in combination with intensive supervisory management controls. (98 %) Wear a respirator in Compliance with EN140 with Type A filter or better. (90 %)	0,1 - 0,5	0,1 - 0,5	0,1 - 0,5			
Manual mixing with direct contact, with only the use of personal protective equipment.	PROC19	INDOOR	It includes percentages of substance in the product up to 25%.	Avoid engaging in activities involving exposure for more than 4 hours.	Wear chemically resistant gloves (tested with EN374) in combination with intensive supervisory management controls. (98 %)	0,1 - 0,5	0,1 - 0,5	0,5 - 0,75			
Manual mixing with direct contact, with only the use of personal protective equipment.	PROC19	OUTDOORS		Make sure the operation is done outdoors. (30 %)	Wear chemically resistant gloves (tested with EN374) in combination with intensive supervisory management controls. (98 %)	0,5 - 0,75	0,1 - 0,5	0,75 - 1			
Manual mixing with direct contact, with only the use of personal protective equipment.	PROC19	INDOOR	It includes percentages of substance in the product up to 5%.		Wear chemically resistant gloves (tested with EN374) in combination with intensive supervisory management controls. (98 %)	0,1 - 0,5	0,1 - 0,5	0,1 - 0,5			
Manual mixing with direct contact, with only the use of personal protective equipment.	PROC19	INDOOR		Avoid engaging in activities involving exposure for more than 1 hour.	Wear chemically resistant gloves (tested with EN374) in combination with intensive supervisory management controls. (98 %)	0,1 - 0,5	0,1 - 0,5	0,1 - 0,5			

Taxpayer Scenario	PROC	Operating Conditions	Concentration of the substance in the Blend/Article	Risk management measures	Conditions and measures relating to personal protection, hygiene and health assessment	Risk Characterization Ratio: (Long- term)			Risk Characterization Report: (Short-term)		
						Inhalation	Dermal	Combined routes	Inhalation	Dermal	Combined routes



Energy-efficient handling of substances present in Materials and/or articles In-Scope Machining Operations of potentially closed processes with minerals/ metals at temperatures High; Industrial environment Machining and transfer operations in open processes with Minerals/metals at elevated temperatures High-energy machining (mechanics) of substances integrated into Materials and/or items.	PROC21, PROC22, PROC23, PROC24		It includes percentages of substance in the product up to 5%.	No special precautions identified.		Irrelevant	Irrelevant	Irrelevant			

LE : Local effects, ES : Systemic effects

4. Guide for downstream users to assess whether it is working within the limits set by the Exposure Scenario

For a given contribution scenario, different risk management measures can be proposed. It is up to the user to choose the configuration that best suits their business.

Diction

ary:

PROC : Process Category SU : End-Use Sector.

PC : Product category.

ERC : Category to release into the environment.

RCR : Risk Characterization Ratio: DNEL : Derived Level with No Effect (DNEL). PNEC : The predictable no-effect concentration (PNEC).

NB: In this document, the digital thousands separator is "." (period), the decimal separator is "," (comma).

This exposure scenario may not be comprehensive. For additional information, please contact your supplier.





ES3: METHYL-METHACRYLATE. Title of the exposure scenario : End-use formulation (professional use)

Situation description: GEST2_I: Formulation and (re)packaging of substances and mixtures.

SU 22: Professional uses: public sector (administration, education, entertainment, services, crafts)	
<p>Ambient Release Category:</p> <p>ERC8a: Extensive dispersive use of processing aids in open systems in an indoor environment,</p> <p>ERC8d: Extensive dispersive outdoor use of processing aids in open systems.</p>	<p>Process Category:</p> <p>PROC2: Use in a closed, continuous process, with occasional controlled exposure, PROC3: Use in a closed batch process (synthesis or formulation), PROC4: Use in batch and other processes (synthesis), where exposure occasions occur, PROC5: Mixing or mixing in batch processes for the formulation of preparations and articles (contact in different steps and/or important contact), PROC6: Calendaring operations, PROC8a: Transfer of a substance or preparation (filling/emptying) from/to containers/large containers, in non-dedicated facilities, PROC8b: Transfer of a substance or preparation (filling/emptying) from/to containers/large containers, in dedicated facilities, PROC9: Transfer of a substance or preparation into small containers (dedicated filling line, including weighing), PROC10: Application with rollers or brushes, PROC11: Non-industrial spray application, PROC12: Use of blowing agents in foam production, PROC13: Treatment of articles by immersion and casting, PROC14: Production of preparations or articles for compression in tablets, compression, extrusion, pelletizing, PROC15: Use as laboratory reagents, PROC17: Lubrication under conditions of high energy consumption and as part of a process partially open, PROC18: Greasing under high energy consumption conditions, PROC19: Manual mixing with direct contact, using only personal protective equipment, PROC21: Energy-efficient handling of substances in materials and/or articles, PROC23: Processing and transfer operations in open processes with minerals/metals at high temperatures, PROC24: High-energy (mechanical) processing of substances integrated into materials and/or articles.</p>

2. Terms of Use - Assessment of Exposure and Reference to Its Origin	3. Risk Characterization Report:
Environmental Exposure Control:	
GENERAL INFORMATION	Compartment: Exposure Assessment Method:
<p>Characteristic:</p> <p>Liquid, vapor pressure <0.5kPa</p> <p>Non-hydrophobic, Easily biodegradable, Virtually non-bioaccumulative</p> <p>Frequency and duration of use:</p> <p>Continuous Exposure: Continuous release.</p> <p>Number of issuing days per year = 300</p> <p>Operating Conditions:</p> <p>The risk from environmental exposure is determined by humans through indirect exposure (mainly inhalation).</p> <p>Generalised risk management measures applicable to all activities:</p> <p>Waste treatment : See section 13. Disposal Considerations</p> <p>Recovery: Measures in the event of accidental release: See section 6</p>	<p>All(-e) (environment)</p> <p>According to REACH Titles II and VI, An exposure assessment is not required for polymers.</p>

Exposure control of insiders:	Exhibition route:	Exposure Assessment Method:
<p>General information Characteristic: Liquid, vapor pressure <0.5kPa</p> <p>Causes skin irritation., May irritate the respiratory tract., May cause an allergic skin reaction. Frequency and duration of use: Includes daily exposures of up to 8 hours (unless otherwise indicated).</p> <p>Concentration of the substance in the Mixture/Article: Includes percentages of substance in the product up to 100% (unless otherwise stated).</p> <p>Generalised risk management measures applicable to all activities:</p> <p>It is assumed that good basic standards of occupational hygiene are applied.</p>	All(-e) (workers)	ECETOC TRA, Long-term exposure assessment includes short-term effects., PROC21 - 24: A qualitative approach was used to conclude that use is safe.

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Wear gloves/ protective clothing/ Protect eyes/ face. If there is a risk of splashing, wear:
Personal protective equipment including: appropriate protective gloves, safety goggles and protective clothing Gloves
should be discarded and replaced if there are signs of degradation or passage of chemicals.

Activities inside, (unless otherwise noted).

Specific conditions :

Taxpayer Scenario	PROC	Operating Conditions	Concentration of the substance in the Blend/Article	Risk management measures	Conditions and measures relating to personal protection, hygiene and health assessment	Risk Characterization Ratio: (Long-term)			Risk Characterization Report: (Short-term)		
						Inhalation	Dermal	Combined routes	Inhalation	Dermal	Combined routes
Use in a closed, continuous process, with occasional controlled exposure	PROC2			No special precautions identified.		0,1 - 0,5	0,1	0,1 - 0,5			
Use in a closed batch process (synthesis or formulation)	PROC3			No special precautions identified.		0,5	< 0,1	0,5 - 0,75			
Use in batch and other processes (synthesis), where there are occasions of Exposure Transfer of a substance or Preparation (filling/emptying)from/ to Vessels/ Large containers, in structures Transfer of a substance or preparation into small containers (dedicated filling, including weighing) Use of Blowing Agents in Foam Production Production of preparations or articles for tablet compression, compression, extrusion, pelletizing.	PROC4, PROC8b, PROC9, PROC12, PROC14	INDOOR			Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %) Wear a respirator in Compliance with EN140 with Type A filter or better. (90 %)	0,1 - 0,5	< 0,1	0,1 - 0,5			
Use in batch and other processes (synthesis), where there are occasions of Exposure Transfer of a substance or Preparation (filling/emptying)from/ to Vessels/ Large containers, in structures Transfer of a substance or preparation into small containers (dedicated filling, including weighing) Use of Blowing Agents in Foam Production Production of preparations or articles for tablet compression, compression, extrusion, pelletizing.	PROC4, PROC8b, PROC9, PROC12, PROC14	INDOOR		Adopt suction ventilation at the points where the emission occurs. (90 %) or Avoid engaging in activities involving exposure for more than 1 hour.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	< 0,1	0,1 - 0,5			

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Use in batch and other processes (synthesis), where Occasions of exposure occur Transfer of a substance or preparation (filling/emptying)from/ to Vessels/ Large containers, in structures Transfer of a substance or preparation into small containers (dedicated filling, including weighing) Use of Blowing Agents in Foam Production Production of preparations or articles for tablet compression, compression, extrusion, pelletizing.	PROC4, PROC8b, PROC9, PROC12, PROC14	INDOOR	It includes percentages of substance in the product up to 5%.		Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	< 0,1	0,1 - 0,5			
Use in batch and other processes (synthesis), where there are occasions of Exposure Transfer of a substance or Preparation (filling/emptying)from/ to Vessels/ Large containers, in dedicated facilities.	PROC4, PROC8b	INDOOR	Savvies Percentages of substance in the product up to 25%.	Avoid engaging in activities involving exposure for more than 4 hours.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	< 0,1	0,1 - 0,5			

Taxpayer Scenario	PROC	Operating Conditions	Concentration of the substance in the Blend/Article	Risk management measures	Conditions and measures relating to personal protection, hygiene and health assessment	Risk Characterization Ratio: (Long-term)			Risk Characterization Report: (Short-term)		
						Inhalation	Dermal	Combined routes	Inhalation	Dermal	Combined routes
Use in batch and other processes (synthesis), where there are occasions of Exposure Transfer of a substance or Preparation (filling/emptying)from/ to Vessels/ Large containers, in dedicated facilities.	PROC4, PROC8b	OUTDOORS		Make sure the operation is done outdoors. (30 %)	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,5 - 0,75	< 0,1	0,75			
Use of Blowing Agents In the production of foams Production of preparations or articles for tablet compression, compression, extrusion, pelletizing.	PROC12, PROC14	OUTDOORS	Savvies Percentages of substance in the product up to 25%.	Avoid engaging in activities involving exposure for more than 4 hours. Make sure the operation is done outdoors.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,5	< 0,1	0,1 - 0,5			
Transfer of a substance or Prepared in small containers (dedicated filling, including weighing)	PROC9	OUTDOORS	Savvies Percentages of substance in the product up to 25%.	Avoid engaging in activities involving exposure for more than 4 hours. Make sure the operation is done outdoors.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	< 0,1	0,1 - 0,5			
Mixing or stirring in batch processes for formulation of preparations and articles (contact in stages and/or important contact) Calendering operations Transfer of a substance or preparation (filling/emptying)from/ to Vessels/ Large containers, in non-dedicated facilities Application with rollers or brushes Treatment of articles for immersion and casting.	PROC5, PROC6, PROC8a, PROC10, PROC13	INDOOR		Adopt suction ventilation at the points where the emission occurs. (90 %) or Avoid engaging in activities involving exposure for more than 1 hour.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1 - 0,5	0,5 - 0,75			

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Mixing or Blending in Processes in batches for the formulation of preparations and articles (contact at different stages and/or important contact) Calendering operations Transfer of a substance or preparation (filling/emptying)from/ to Vessels/ Large containers, in non-dedicated facilities Application with rollers or brushes Treatment of articles for immersion and casting.	PROC5, PROC6, PROC8a, PROC10, PROC13	OUTDOORS	Savvies Percentages of substance in the product up to 25%.	Avoid engaging in activities involving exposure for more than 4 hours. Make sure the operation is done outdoors.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,5	0,1 - 0,5	0,5 - 0,75			
Mixing or Blending in Processes in batches for the formulation of preparations and articles (contact at different stages and/or important contact) Calendering operations Transfer of a substance or preparation (filling/emptying)from/ to Vessels/ Large containers, in non-dedicated facilities Application with rollers or brushes Treatment of articles for immersion and casting.	PROC5, PROC6, PROC8a, PROC10, PROC13	INDOOR			Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %) Wear a respirator in accordance with EN140 with Type A filter or better. (90 %)	0,1 - 0,5	0,1 - 0,5	0,1 - 0,5			
Taxpayer Scenario	PROC	Operating Conditions	Concentration of the substance in the Blend/Article	Risk management measures	Conditions and measures relating to personal protection, hygiene and health assessment	Risk Characterization Ratio: (Long-term)			Risk Characterization Report: (Short-term)		
						Inhalation	Dermal	Combined routes	Inhalation	Dermal	Combined routes
Mixing or Blending in Processes in batches for the formulation of preparations and articles (contact at different stages and/or important contact) Calendering operations Transfer of a substance or preparation (filling/emptying)from/ to Vessels/ Large containers, in non-dedicated facilities Application with rollers or brushes Treatment of articles for immersion and casting.	PROC5, PROC6, PROC8a, PROC10, PROC13	INDOOR	Savvies Percentages of substance in the product up to 5%.		Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1 - 0,5	0,5 - 0,75			
Non-industrial spray application.	PROC11	INDOOR	It includes percentages of substance in the product up to 25%.	Perform in a ventilated cabin or in a room under suction. (90 %) or Avoid engaging in activities involving exposure for more than 1 hour.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %) Wear a respirator in accordance with EN140 with Type A filter or better. (90 %)	0,1 - 0,5	0,75 - 1	0,75 - 1			
Non-industrial spray application.	PROC11	INDOOR	Savvies Percentages of substance in the product up to 5%.	Avoid engaging in activities involving exposure for more than 4 hours.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %) Wear a respirator in accordance with EN140 with Type A filter or better. (90 %)	0,1 - 0,5	0,75 - 1	0,75 - 1			

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Non-industrial spray application.	PROC11	INDOOR	Savvies Percentages of substance in the product up to 1%.		Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %) Wear a respirator in accordance with EN140 with Type A filter or better. (90 %)	0,1 - 0,5	0,75 - 1	0,75 - 1			
Non-industrial spray application.	PROC11	INDOOR		Avoid engaging in activities involving exposure for more than 4 hours. Perform in a ventilated cabin or in a room under suction. (90 %)	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %) Wear a respirator in accordance with EN140 with Type A filter or better. (90 %)	0,1 - 0,5	0,75 - 1	0,75 - 1			
Non-industrial spray application.	PROC11	OUTDOORS		Avoid engaging in activities that involve exposure for more than 15 minutes. Make sure the operation is done outdoors. (30 %)	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of white-collar workers(90 %) Wear a respirator in accordance with EN140 with Type A filter or better. (90 %)	< 0.1	0,75 - 1	0,75 - 1			
Use as laboratory reagents.	PROC15	INDOOR			Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	< 0.1	0,1 - 0,5			
Lubrication under high pressure conditions power consumption and as part of a partially open process Greasing in conditions of high energy consumption.	PROC17, PROC18	INDOOR			Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %) Wear a respirator in accordance with EN140 with Type A filter or better. (90 %)	0,1 - 0,5	0,1 - 0,5	0,5 - 0,75			

Taxpayer Scenario	PROC	Operating Conditions	Concentration of the substance in the Blend/Article	Risk management measures	Conditions and measures relating to personal protection, hygiene and health assessment	Risk Characterization Ratio: (Long-term)			Risk Characterization Report: (Short-term)		
						Inhalation	Dermal	Combined routes	Inhalation	Dermal	Combined routes
Lubrication under high consumption conditions energy and in the context of a partially open process Greasing under high energy consumption conditions.	PROC17, PROC18	INDOOR		Avoid engaging in activities that involve exposure for more than 15 minutes. or Adopt suction ventilation at the points where the emission occurs. (90 %)	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1 - 0,5	0,5 - 0,75			
Lubrication under high consumption conditions energy and in the context of a partially open process Greasing under high energy consumption conditions.	PROC17, PROC18	INDOOR	It includes percentages of substance in the product up to 25%.	Avoid engaging in activities involving exposure for more than 1 hour.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1 - 0,5	0,5 - 0,75			
Lubrication under high consumption conditions energy and in the context of a partially open process Greasing under high energy consumption conditions.	PROC17, PROC18	INDOOR	It includes percentages of substance in the product up to 5%.	Avoid engaging in activities involving exposure for more than 4 hours.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1 - 0,5	0,5 - 0,75			

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Lubrication under high consumption conditions energy and in the context of a partially open process Greasing under high energy consumption conditions.	PROC17, PROC18	INDOOR	It includes percentages of substance in the product up to 1%.		Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1 - 0,5	0,1 - 0,5			
Manual mixing with direct contact, with only the use of personal protective equipment.	PROC19	INDOOR			Wear chemically resistant gloves (tested with EN374) in combination with intensive supervisory management controls. (98 %) Wear a respirator in Compliance with EN140 with Type A filter or better. (90 %)	0,1 - 0,5	0,1 - 0,5	0,1 - 0,5			
Manual mixing with direct contact, with only the use of personal protective equipment.	PROC19	INDOOR	It includes percentages of substance in the product up to 25%.	Avoid engaging in activities involving exposure for more than 4 hours. Make sure the operation is done outdoors. (30 %)	Wear chemically resistant gloves (tested with EN374) in combination with intensive management controls supervision. (98 %)	0,1 - 0,5	0,1 - 0,5	0,5 - 0,75			
Manual mixing with direct contact, with only the use of personal protective equipment.	PROC19	OUTDOORS			Wear chemically resistant gloves (tested with EN374) in combination with intensive supervisory management controls. (98 %)	0,1 - 0,5	0,1 - 0,5	0,1 - 0,5			
Manual mixing with direct contact, with only the use of personal protective equipment.	PROC19	INDOOR	It includes percentages of substance in the product up to 5%.		Wear chemically resistant gloves (tested with EN374) in combination with intensive supervisory management controls. (98 %)	0,1 - 0,5	0,1 - 0,5	0,5 - 0,75			
Manual mixing with direct contact, with only the use of personal protective equipment.	PROC19	INDOOR		Avoid engaging in activities involving exposure for more than 1 hour.	Wear chemically resistant gloves (tested with EN374) in combination with intensive supervisory management controls. (98 %)	0,1 - 0,5	0,1 - 0,5	0,5 - 0,75			
Energy-efficient handling of substances present in Materials and/or articles Machining and transfer operations to processes open with minerals/metals at elevated temperatures High-energy machining (mechanical) of substances integrated into materials and/or articles. Machining and transfer operations in open processes with Minerals/metals at elevated temperatures High-energy machining (mechanics) of substances integrated into Materials and/or items.	PROC21, PROC23, PROC24		It includes percentages of substance in the product up to 5%.	No special precautions identified.		Irrelevant	Irrelevant	Irrelevant			

LE : Local effects, ES : Systemic effects

4. Guide for downstream users to assess whether it is working within the limits set by the Exposure Scenario

For a given contribution scenario, different risk management measures can be proposed. It is up to the user to choose the configuration that best suits their business.



Diction

ary:

PROC : Process Category SU : End-Use Sector.

PC : Product category.

ERC : Category to release into the environment.

RCR : Risk Characterization Ratio: DNEL : Derived Level with No Effect (DNEL). PNEC : The predictable no-effect concentration (PNEC).

NB: In this document, the digital thousands separator is "." (period), the decimal separator is "," (comma).

This exposure scenario may not be comprehensive. For additional information, please contact your supplier.



ES4: METHYL-METHACRYLATE. Title of the exposure scenario : End-use formulation (professional use)

Situation description: GEST2_I: Formulation and (re)packaging of substances and mixtures.

SU 22: Professional uses: public sector (administration, education, entertainment, services, crafts)	
<p>Ambient Release Category:</p> <p>ERC8b: Extensive dispersive use of reactive substances in open systems in an indoor environment.</p> <p>ERC8c: Extensive internal dispersive use resulting in inclusion in a matrix or application to a matrix.</p> <p>ERC8e: Extensive external dispersive use of reactive substances in open systems.</p> <p>ERC8f: Extensive external dispersive use that results in inclusion in a matrix or application to a matrix.</p>	<p>Process Category:</p> <p>PROC2: Use in a closed, continuous process, with occasional controlled exposure, PROC3: Use in a closed batch process (synthesis or formulation), PROC4: Use in batch and other processes (synthesis), where exposure occasions occur, PROC5: Mixing or mixing in batch processes for the formulation of preparations and articles (contact in different steps and/or important contact), PROC6: Calendaring operations, PROC8a: Transfer of a substance or preparation (filling/emptying) from/to containers/large containers, in non-dedicated facilities, PROC8b: Transfer of a substance or preparation (filling/emptying) from/to containers/large containers, in dedicated facilities, PROC9: Transfer of a substance or preparation into small containers (dedicated filling line, including weighing), PROC10: Application with rollers or brushes, PROC11: Non-industrial spray application, PROC12: Use of blowing agents in foam production, PROC13: Treatment of articles by immersion and casting, PROC14: Production of preparations or articles for compression in tablets, compression, extrusion, pelletizing, PROC15: Use as laboratory reagents, PROC17: Lubrication under conditions of high energy consumption and as part of a process partially open, PROC18: Greasing under high energy consumption conditions, PROC19: Manual mixing with direct contact, using only personal protective equipment, PROC21: Energy-efficient handling of substances in materials and/or articles, PROC23: Processing and transfer operations in open processes with minerals/metals at high temperatures, PROC24: High-energy (mechanical) processing of substances integrated into materials and/or articles.</p>

2. Terms of Use - Assessment of Exposure and Reference to Its Origin	3. Risk Characterization Report:
Environmental Exposure Control:	
GENERAL INFORMATION	Compartment: Exposure Assessment Method:
<p>Characteristic:</p> <p>Liquid, vapor pressure <0.5kPa</p> <p>Non-hydrophobic, Easily biodegradable, Virtually non-bioaccumulative</p> <p>Frequency and duration of use:</p> <p>Continuous Exposure: Continuous release.</p> <p>Number of issuing days per year = 300</p> <p>Operating Conditions:</p> <p>The risk from environmental exposure is determined by humans through indirect exposure (mainly inhalation).</p> <p>Generalised risk management measures applicable to all activities:</p> <p>Air : Treat air emissions in such a way as to ensure the required elimination efficiency of (%): (95 %) Water : Negligible waste water emissions because the process takes place without contact with water.</p> <p>Soil : Soil emission controls are not applicable because there are no direct emissions to the soil.</p> <p>Recommended on-site wastewater treatment Typical on-site wastewater treatment technologies provide an elimination efficiency of (%): (87 %)</p> <p>Waste treatment : See section 13.</p> <p>Disposal Considerations Recovery: Measures in the event of accidental release: See section 6</p>	<p>All(-e) (environment) EUSES</p>

TAXPAYER SCENARIO	Annual quantity per site	Issuance or Factor of Release : Air	Maximum Concentration/Release:		Emission or Release Factor : Soil	Characterization Report Risk Assessment:		Remarks
			Seawater	Fresh water		Water	Soil	

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Extensive internal dispersive use of reactive substances in open systems, Extensive internal dispersive use resulting in inclusion in a matrix or application to a matrix, Extensive external dispersive use of reactive substances in open systems, Extensive external dispersive use resulting in inclusion in a matrix or application to a matrix.	5,4 tonnes/year	0.9 kg/day	0.094 mg/l	0.94 mg/l	0	< 1	< 0.1	In addition to direct emissions to industrial land, the soil contamination risk characterization ratio is influenced by the deposition of emissions in the air and the application of sludge (if permitted) to the soil.
Additional Good Practice Advice in addition to the REACH Chemical Safety Assessment The guidance is based on assumed operating conditions, which may not be applicable to all sites; It may therefore be necessary to apply a scale factor to define appropriate site-specific risk management measures. Further details on scale factors and control technologies are provided in the SpERC briefing paper (http://cefic.org/en/reach-for-industries-libraries.html). If the adoption of scaling factors points to an unsafe use condition (i.e. Risk Characterisation Reports (RCRs) > 1)], additional risk management measures (RMMs) or a site-specific chemical safety assessment will need to be carried out.								
Exposure control of insiders:						Exhibition route:		Exposure Assessment Method:
General information Characteristic: Liquid, vapor pressure <0.5kPa Causes skin irritation., May irritate the respiratory tract., May cause an allergic skin reaction. Frequency and duration of use: Includes daily exposures of up to 8 hours (unless otherwise indicated). Concentration of the substance in the Mixture/Article: Includes percentages of substance in the product up to 100% (unless otherwise stated). Generalised risk management measures applicable to all activities: It is assumed that good basic standards of occupational hygiene are applied. Wear gloves/ protective clothing/ Protect eyes/ face. If there is a risk of splashing, wear: Personal protective equipment including: appropriate protective gloves, safety goggles and protective clothing Gloves should be discarded and replaced if there are signs of degradation or passage of chemicals. Activities inside, (unless otherwise noted).						All(-e) (workers)		ECETOC TRA, Long-term exposure assessment includes short-term effects., PROC21 - 24: A qualitative approach was used to conclude that use is safe.

Specific conditions :

Taxpayer Scenario	PROC	Operating Conditions	Concentration of the substance in the Blend/Article	Risk management measures	Conditions and measures relating to personal protection, hygiene and health assessment	Risk Characterization Ratio: (Long-term)			Risk Characterization Report: (Short-term)		
						Inhalation	Dermal	Combined routes	Inhalation	Dermal	Combined routes
Use in a closed, continuous process, with occasional controlled exposure	PROC2			No special precautions identified.		0,1 - 0,5	0,1	0,1 - 0,5			
Use in a closed batch process (synthesis or formulation)	PROC3			No special precautions identified.		0,5	< 0.1	0,5 - 0,75			

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Use in batch and other processes (synthesis), where there are occasions of Exposure Transfer of a substance or Preparation (filling/emptying)from/ to Vessels/ Large containers, in structures Transfer of a substance or preparation into small containers (dedicated filling, including weighing) Use of Blowing Agents in Foam Production Production of preparations or articles for tablet compression, compression, extrusion, pelletizing.	PROC4, PROC8b, PROC9, PROC12, PROC14	INDOOR			Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %) Wear a respirator in Compliance with EN140 with Type A filter or better. (90 %)	0,1 - 0,5	< 0,1	0,1 - 0,5			
Use in batch and other processes (synthesis), where there are occasions of Exposure Transfer of a substance or Preparation (filling/emptying)from/ to Vessels/ Large containers, in structures Transfer of a substance or preparation into small containers (dedicated filling, including weighing) Use of Blowing Agents in Foam Production Production of preparations or articles for tablet compression, compression, extrusion, pelletizing.	PROC4, PROC8b, PROC9, PROC12, PROC14	INDOOR		Adopt suction ventilation at the points where the emission occurs. (90 %) or Avoid engaging in activities involving exposure for more than 1 hour.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	< 0,1	0,1 - 0,5			
Use in batch and other processes (synthesis), where Occasions of exposure occur Transfer of a substance or preparation (filling/emptying)from/ to Vessels/ Large containers, in structures Transfer of a substance or preparation into small containers (dedicated filling, including weighing) Use of Blowing Agents in Foam Production Production of preparations or articles for tablet compression, compression, extrusion, pelletizing.	PROC4, PROC8b, PROC9, PROC12, PROC14	INDOOR	It includes percentages of substance in the product up to 5%.		Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	< 0,1	0,1 - 0,5			
Use in batch and other processes (synthesis), where there are occasions of Exposure Transfer of a substance or Preparation (filling/emptying)from/ to Vessels/ Large containers, in dedicated facilities.	PROC4, PROC8b	INDOOR	Savvies Percentages of substance in the product up to 25%.	Avoid engaging in activities involving exposure for more than 4 hours.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	< 0,1	0,1 - 0,5			

Taxpayer Scenario	PROC	Operating Conditions	Concentration of the substance in the Blend/Article	Risk management measures	Conditions and measures relating to personal protection, hygiene and health assessment	Risk Characterization Ratio: (Long-term)			Risk Characterization Report: (Short-term)		
						Inhalation	Dermal	Combined routes	Inhalation	Dermal	Combined routes

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Use in batch and other processes (synthesis), where there are occasions of Exposure Transfer of a substance or Preparation (filling/emptying)from/ to Vessels/ Large containers, in dedicated facilities.	PROC4, PROC8b	OUTDOORS		Make sure the operation is done outdoors. (30 %)	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,5 - 0,75	< 0,1	0,75			
Use of Blowing Agents In the production of foams Production of preparations or articles for tablet compression, compression, extrusion, pelletizing.	PROC12, PROC14	OUTDOORS	Savvies Percentages of substance in the product up to 25%.	Avoid engaging in activities involving exposure for more than 4 hours. Make sure the operation is done outdoors.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,5	< 0,1	0,1 - 0,5			
Transfer of a substance or Prepared in small containers (dedicated filling, including weighing)	PROC9	OUTDOORS	Savvies Percentages of substance in the product up to 25%.	Avoid engaging in activities involving exposure for more than 4 hours. Make sure the operation is done outdoors.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	< 0,1	0,1 - 0,5			
Mixing or stirring in batch processes for formulation of preparations and articles (contact in stages and/or important contact) Calendering operations Transfer of a substance or preparation (filling/emptying)from/ to Vessels/ Large containers, in non-dedicated facilities Application with rollers or brushes Treatment of articles for immersion and casting.	PROC5, PROC6, PROC8a, PROC10, PROC13	INDOOR		Adopt suction ventilation at the points where the emission occurs. (90 %) or Avoid engaging in activities involving exposure for more than 1 hour.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1 - 0,5	0,5 - 0,75			
Mixing or Blending in Processes in batches for the formulation of preparations and articles (contact at different stages and/or important contact) Calendering operations Transfer of a substance or preparation (filling/emptying)from/ to Vessels/ Large containers, in non-dedicated facilities Application with rollers or brushes Treatment of articles for immersion and casting.	PROC5, PROC6, PROC8a, PROC10, PROC13	OUTDOORS	Savvies Percentages of substance in the product up to 25%.	Avoid engaging in activities involving exposure for more than 4 hours. Make sure the operation is done outdoors.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,5	0,1 - 0,5	0,5 - 0,75			
Mixing or Blending in Processes in batches for the formulation of preparations and articles (contact at different stages and/or important contact) Calendering operations Transfer of a substance or preparation (filling/emptying)from/ to Vessels/ Large containers, in non-dedicated facilities Application with rollers or brushes Treatment of articles for immersion and casting.	PROC5, PROC6, PROC8a, PROC10, PROC13	INDOOR			Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %) Wear a respirator in Compliance with EN140 with Type A filter or better. (90 %)	0,1 - 0,5	0,1 - 0,5	0,1 - 0,5			

PROC	Operating Conditions	Concentration of the substance in the	Risk management measures	Conditions and measures relating to personal	Risk Characterization Ratio: (Long-term)	Risk Characterization Report: (Short-term)
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Taxpayer Scenario			Blend/Article		protection, hygiene and health assessment	Inhalation	Dermal	Combined routes	Inhalation	Dermal	Combined routes
Mixing or Blending in Processes in batches for the formulation of preparations and articles (contact at different stages and/or important contact) Calendering operations Transfer of a substance or preparation (filling/emptying)from/ to Vessels/ Large containers, in non-dedicated facilities Application with rollers or brushes Treatment of articles for immersion and casting.	PROC5, PROC6, PROC8a, PROC10, PROC13	INDOOR	Savvies Percentages of substance in the product up to 5%.		Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1 - 0,5	0,5 - 0,75			
Non-industrial spray application.	PROC11	INDOOR	It includes percentages of substance in the product up to 25%.	Perform in a ventilated cabin or in a room under suction. (90 %) or Avoid engaging in activities involving exposure for more than 1 hour.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %) Wear a respirator in accordance with EN140 with Type A filter or better. (90 %)	0,1 - 0,5	0,75 - 1	0,75 - 1			
Non-industrial spray application.	PROC11	INDOOR	Savvies Percentages of substance in the product up to 5%.	Avoid engaging in activities involving exposure for more than 4 hours.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %) Wear a respirator in accordance with EN140 with Type A filter or better. (90 %)	0,1 - 0,5	0,75 - 1	0,75 - 1			
Non-industrial spray application.	PROC11	INDOOR	Savvies Percentages of substance in the product up to 1%.		Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %) Wear a respirator in accordance with EN140 with Type A filter or better. (90 %)	0,1 - 0,5	0,75 - 1	0,75 - 1			
Non-industrial spray application.	PROC11	INDOOR		Avoid engaging in activities involving exposure for more than 4 hours. Perform in a ventilated cabin or in a room under suction. (90 %)	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %) Wear a respirator in accordance with EN140 with Type A filter or better. (90 %)	0,1 - 0,5	0,75 - 1	0,75 - 1			
Non-industrial spray application.	PROC11	OUTDOORS		Avoid engaging in activities that involve exposure for more than 15 minutes. Make sure the operation is done outdoors. (30 %)	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of white-collar workers(90 %) Wear a respirator in accordance with EN140 with Type A filter or better. (90 %)	< 0.1	0,75 - 1	0,75 - 1			
Use as laboratory reagents.	PROC15	INDOOR			Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	< 0.1	0,1 - 0,5			

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Lubrication under high pressure conditions power consumption and as part of a partially open process Greasing in conditions of high energy consumption.	PROC17, PROC18	INDOOR			Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %) Wear a respirator in accordance with EN140 with Type A filter or better. (90 %)	0,1 - 0,5	0,1 - 0,5	0,5 - 0,75			
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Taxpayer Scenario	PROC	Operating Conditions	Concentration of the substance in the Blend/Article	Risk management measures	Conditions and measures relating to personal protection, hygiene and health assessment	Risk Characterization Ratio: (Long-term)			Risk Characterization Report: (Short-term)		
						Inhalation	Dermal	Combined routes	Inhalation	Dermal	Combined routes
Lubrication under high consumption conditions energy and in the context of a partially open process Greasing under high energy consumption conditions.	PROC17, PROC18	INDOOR		Avoid engaging in activities that involve exposure for more than 15 minutes. or Adopt suction ventilation at the points where the emission occurs. (90 %)	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1 - 0,5	0,5 - 0,75			
Lubrication under high consumption conditions energy and in the context of a partially open process Greasing under high energy consumption conditions.	PROC17, PROC18	INDOOR	It includes percentages of substance in the product up to 25%.	Avoid engaging in activities involving exposure for more than 1 hour.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1 - 0,5	0,5 - 0,75			
Lubrication under high consumption conditions energy and in the context of a partially open process Greasing under high energy consumption conditions.	PROC17, PROC18	INDOOR	It includes percentages of substance in the product up to 5%.	Avoid engaging in activities involving exposure for more than 4 hours.	Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1 - 0,5	0,5 - 0,75			
Lubrication under high consumption conditions energy and in the context of a partially open process Greasing under high energy consumption conditions.	PROC17, PROC18	INDOOR	It includes percentages of substance in the product up to 1%.		Wear chemically resistant gloves (tested with EN374) in combination with "basic" training of employees (90 %)	0,1 - 0,5	0,1 - 0,5	0,1 - 0,5			
Manual mixing with direct contact, with only the use of personal protective equipment.	PROC19	INDOOR			Wear chemically resistant gloves (tested with EN374) in combination with intensive supervisory management controls. (98 %) Wear a respirator in compliance with EN140 with Type A filter or better. (90 %)	0,1 - 0,5	0,1 - 0,5	0,1 - 0,5			
Manual mixing with direct contact, with only the use of personal protective equipment.	PROC19	INDOOR	It includes percentages of substance in the product up to 25%.	Avoid engaging in activities involving exposure for more than 4 hours. Make sure the operation is done outdoors. (30 %)	Wear chemically resistant gloves (tested with EN374) in combination with intensive management controls supervision. (98 %)	0,1 - 0,5	0,1 - 0,5	0,5 - 0,75			
Manual mixing with direct contact, with only the use of personal protective equipment.	PROC19	OUTDOORS			Wear chemically resistant gloves (tested with EN374) in combination with intensive supervisory management controls. (98 %)	0,1 - 0,5	0,1 - 0,5	0,1 - 0,5			
Manual mixing with direct contact, with only the use of personal protective equipment.	PROC19	INDOOR	It includes percentages of substance in the product up to 5%.		Wear chemically resistant gloves (tested with EN374) in combination with intensive supervisory management controls. (98 %)	0,1 - 0,5	0,1 - 0,5	0,5 - 0,75			

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Manual mixing with direct contact, with only the use of personal protective equipment.	PROC19	INDOOR		Avoid engaging in activities involving exposure for more than 1 hour.	Wear chemically resistant gloves (tested with EN374) in combination with intensive supervisory management controls. (98 %)	0,1 - 0,5	0,1 - 0,5	0,5 - 0,75			
Energy-efficient handling of substances present in Materials and/or articles Machining and transfer operations to processes open with minerals/metals at elevated temperatures High-energy machining (mechanical) of substances integrated into materials and/or articles. Machining and transfer operations in open processes with Minerals/metals at elevated temperatures High-energy machining (mechanics) of substances integrated into Materials and/or items.	PROC21, PROC23, PROC24		It includes percentages of substance in the product up to 5%.	No special precautions identified.		Irrelevant	Irrelevant	Irrelevant			

LE : Local effects, ES : Systemic effects

4. Guide for downstream users to assess whether it is working within the limits set by the Exposure Scenario

For a given contribution scenario, different risk management measures can be proposed. It is up to the user to choose the configuration that best suits their business.

Diction

ary:

PROC : Process Category SU : End-Use Sector.

PC : Product category.

ERC : Category to release into the environment.

RCR : Risk Characterization Ratio: DNEL : Derived Level with No Effect (DNEL). PNEC : The predictable no-effect concentration (PNEC).