

SAFETY DATA SHEET

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

1.1 Product identifier

Product Name n-BUTYL METHACRYLATE

Product Description This product contains n-Butyl methacrylate and low levels of stabiliser.

Alternative names Stabilised n-Butyl methacrylate monomer; 2-propenoic acid, 2-Methyl-, n-butyl ester.

REACH Registration No. 01-219486934-28-0002/3

01-219486934-28-XXXX

CAS No. 000097-88-1 EC No. 202-615-1

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

Identified use(s)

Industrial: Intermediate for production of methacrylate esters, acrylic polymers and mixtures.

Professional: End use of mixtures containing methacrylates.

Consumer: Use of mixtures with low levels of methacrylate monomer.

Uses advised against Mixtures containing unreacted liquid monomer intended to come into contact with skin or nails

Refer to Exposure Scenarios Annex for further details (i-xi)

1.3 Details of the supplier of the safety data sheet

Lucite International, Cassel, PO Box 8, Billingham, TS23 1LE, United Kingdom

Tel: +44 (0)1642 735042 msdsinfo@lucite.com

1.4 Emergency telephone number

+44 (0) 1642 452461

2. SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification in accordance with Regulation (EC) No 1272/2008 [CLP]

Flammable liquid Category 3. H226
Skin corrosion / irritation Category 2. H315
Skin sensitization Category 1. H317
STOT-single exposure Category 3 H335

Classification in accordance with 67/548/EEC or 1999/45/EC

Xi; R10 R36/37/38 R43

For full text of H/P phrases see section 16. For full text of R phrases see section 16.

2.2 Label elements





Signal word

Hazard statement(s) Flammable liquid and vapour.

Causes skin irritation.

Warning

May cause an allergic skin reaction. May cause respiratory irritation.

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Precautionary statement(s) Keep away from heat, sparks, open flame, hot surfaces - No smoking

Avoid breathing vapours.

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

IF ON SKIN: Wash with plenty of soap and water.

Dispose of contents/container to hazardous waste in accordance with local, state or national legislation. Incinerate under approved controlled conditions, using incinerator

suitable for disposal of flammable organics.

2.3 Other hazards

Not classified as PBT or vPvB.

3. SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Substances in the product which may present a health or environmental hazard, or which have been assigned occupational exposure limits, are detailed below.

(EC) No 1272/2008 Classification

Hazardous ingredient(s)	%W/W	EC No.	REACH No.	Hazard Class	Hazard
				and Category	statement
				Code(s)	Code(s)
n-Butyl methacrylate	>99	202-615-1	01-2119486394-28-XXXX	Flam. Liq. 3	H226
			01-2119486394-28-0002	Skin Irrit. 2	H315
			01-2119486394-28-0003	Skin Sens. 1	H317
				STOT SE 3	H335

4. SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Inhalation IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a

POISON CENTER or doctor if you feel unwell.

Skin Contact IF ON SKIN (or hair): Wash with plenty of soap and water. If skin irritation or rash occurs: Get

medical attention. Take off contaminated clothing and wash before re-use.

Eye Contact IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and

easy to do. Continue rinsing. Obtain immediate medical attention.

Ingestion Do not induce vomiting. Rinse mouth. Obtain immediate medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Causes skin irritation. May cause respiratory irritation. May cause an allergic skin reaction.

4.3 Indication of the immediate medical attention and special treatment needed

None necessary.

5. SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media In case of fire, use water spray, foam, dry powder or CO2 for extinction. Keep containers cool by

spraying with water if exposed to fire.

Unsuitable Extinguishing Media None.

5.2 Special hazards arising from the substance or mixture

Flammable liquid and vapour. May polymerise on heating. Sealed containers may rupture explosively if hot.

5.3 Advice for fire-fighters

A self contained breathing apparatus and suitable protective clothing should be worn in fire conditions.

6. SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Eliminate sources of ignition. Wear protective gloves and eye/face protection. Avoid breathing vapours. See Section: 8

6.2 Environmental precautions

Avoid release to the environment. Spillages or uncontrolled discharges into watercourses must be alerted to the appropriate regulatory body.

6.3 Methods and material for containment and cleaning up

Collect spillage. Do not adsorb onto sawdust or other combustible materials. Transfer to a container for disposal or recovery. Use only non-sparking tools.

6.4 Reference to other sections

See Section: 8, 13

7. SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Do not eat, drink or smoke at the work place. Wash thoroughly after handling.

Avoid breathing vapours. Use only outdoors or in a well-ventilated area. The vapour is heavier than air; beware of pits and confined spaces.

Ground container and receiving equipment. Use explosion proof electrical equipment. Use only non-sparking tools. Take precautionary measures against static discharges.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up. Keep away from heat, sparks, open flame, hot surfaces - No smoking. Protect from sunlight.

IMPORTANT: Methacrylates stored in bulk must be kept in contact with air (oxygen). Monomer vapours are uninhibited and may form polymers in vent or flame arresters, resulting in blockage of vents.

Storage Temperature Store at temperatures not exceeding 25°C.

Storage Life Provided proper storage and handling procedures are followed (see the brochure Storage and

Handling of Methacrylate Ester Monomers) the product may be stored for up to 6 months from the

date of receipt.

Incompatible materials: Polymerisation catalysts, such as peroxy or azo compounds, strong acids, alkalis and oxidising

agents.

7.3 Specific end use(s)

IU1: Manufacture and use as intermediate.

IU2: Use in production of formulations.

IU3: Industrial end use as monomer, intermediate or formulation.

IU4: Professional end use in formulations.

IU5: Consumer end use in formulations.

IU6: Service life in articles.

8. SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Substance	CAS No.	LTEL ppm	LTEL mg/m3	STEL	STEL	Notes
		(8Hr TWA)	(8Hr TWA)	ppm	mg/m3	
n-Butyl methacrylate	000097-88-1	50	258	100	516	COM

DNEL	Oral	Inhalation	Dermal
Worker - long term - local effects	1	409 mg/m³	
Worker - long term - systemic effects	1	415.9 mg/m³	5 mg/Kg bw/day
Worker - short term - local effects	1	2	
Worker - short term - systemic effects		2	
Consumer - long term - local effects	1	366.4 mg/m³	
Consumer - long term - systemic effects	1	66.5 mg/m³	3 mg/Kg bw/day
Consumer - short term - local effects		2	
Consumer - short term - systemic effects	1	2	

	PNEC
Aquatic Compartment	0.169 mg/l (Fresh water)
	0.169 mg/l (Sea water)
Terrestrial Compartment	
Atmospheric Compartment	

¹ Low oral toxicity: DNEL not established.

8.2 Exposure controls

Appropriate engineering controls

Do not eat, drink or smoke at the work place. Use in closed systems or provide adequate LEV if natural ventilation is insufficient, to ensure that the DNEL/OEL is not exceeded. The maximum duration for safe use is dependent upon concentration, operating conditions and Risk Management Measures. Refer to section 4.3 of each GES. Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.

Individual protection measures, such as personal protective equipment (PPE)

Worker: Wear protective equipment to comply with good occupational hygiene practice and as specified in section 6.1.1 of each GES. Consumer: No PPE or Risk Management Measures are required when working within the boundaries as specified in section 4.3 of the Generic Exposure Scenarios (GES).

Eye/face protection



Wear eye/face protection.

Safety spectacles/goggles/full face shield.

Skin protection



Wear suitable gloves.

For splash protection: Butyl; EN 374.

For immersion protection: Butyl; 0.7 mm or greater; EN 374.

Suitability of gloves should be confirmed with glove manufacturer. Change gloves, if contamination occurs or duration of activity exceeds break through time. Breakthrough time of the glove material: refer to the information provided by the gloves' producer.

Respiratory protection



Wear suitable respiratory protective equipment if engineering controls are insufficient, or not present, and exposure to levels above the DNEL is likely. A suitable mask with filter type A (EN141 or EN405) may be appropriate. In the event of formation of particularly high levels of vapour a self contained breathing apparatus may be appropriate.

Refer to Exposure Scenario Annex for further details.

Environmental Exposure Controls

Ensure effective control measures when working within the boundaries as specified in section 6.2 of each GES.

9. SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Form Liquid.

Colour Almost colourless to pale yellow.

Odour Characteristic.
Odour Threshold (ppm) 0.015 - 0.06
pH (Value) Not applicable.

Melting Point (°C) -50
Boiling Point (°C) 163

Flash Point (°C)

Relative Evaporation Rate (Ether = 1)

Flammability (solid, gas)

49 [Closed cup]

Not available.

Not applicable.

Flammable Limits (Lower) (%v/v) 2
Flammable Limits (Upper) (%v/v) 8

Vapour Pressure (Pascal) 210 @ 20°C Vapour Density (Air=1) 4.91

Specific Gravity 0.901 @ 15.5°C

² DNEL long term is protective of effects resulting from short term exposure.

Solubility (Water) 0.36 g/l @ 25°C

Solubility (Other) Miscible with most organic solvents.

Partition Coefficient (n-Octanol/water) 2.99 - 3.03 Auto Ignition Temperature (°C) 296

Decomposition Temperature (°C)

Viscosity (mPa.s)

Explosive Properties

Oxidising Properties

Not applicable.

Not applicable.

Not applicable.

9.2 Other information

None.

10. SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Will exothermically polymerise in the presence of initiators.

10.2 Chemical stability

Stable in the presence of inhibitor.

10.3 Possibility of hazardous reactions

Susceptible to polymerisation initiated by prolonged heating or the presence of catalyst.

10.4 Conditions to avoid

Heat and direct sunlight.

10.5 Incompatible materials

Polymerisation catalysts, such as peroxy or azo compounds, strong acids, alkalis and oxidising agents.

10.6 Hazardous Decomposition Product(s)

Does not decompose up to auto-ignition temperature.

11. SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Ingestion Low oral toxicity, but ingestion may cause irritation of the gastrointestinal tract.

Ingestion toxicity data LD50 (oral) > 2000 mg/Kg

Ingestion STOT-single Not applicable.

exposure

Inhalation May cause respiratory irritation. May cause drowsiness and dizziness.

Inhalation toxicity data ALC(vapour) 4901 ppm (29 mg/l)(4 hr)

Inhalation STOT-single None.

exposure

Skin Contact May cause an allergic skin reaction. Causes skin irritation. Repeated and/or prolonged contact

may cause dermatitis.

Skin contact toxicity data LD50 (dermal) > 2000 mg/Kg

Skin contact STOT-single Not applicable.

exposure

Eye Contact High vapour concentration will cause irritation.

Eye contact toxicity data Slight irritant to rabbit eyes.

Eye STOT-single exposure Not applicable.

Aspiration hazard data Not an aspiration hazard.

Sensitisation

Skin sensitization data Evidence of contact sensitization in man.

Respiratory sensitization data
Not a respiratory sensitizer.

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction).

Carcinogenicity data

It is unlikely to present a carcinogenic hazard to man.

Germ cell mutagenicity data Salmonella typhimurium [TA1535, 1537, 98, 100] negative (OECD 471/472)

Reproductive toxicity data

Some evidence of developmental toxicity at 1000 mg/Kg/day in screening study (OECD 422).

Decreased number of neonates, decreases in parturition and live birth indices and total number of

offspring

NOEL for developmental toxicity is considered 300 mg/Kg/day

Repeated exposure toxicity

Chronic exposure Exposure to high concentrations may produce adverse effects on the nasal epithelium. Repeated

exposure produces adverse effects on the spleen.

STOT - repeated exposure data NOAEL (inhalation)(rat)(28 day) 310 ppm (OECD 412)

LOAEL (inhalation)(rat)(28 day) 952 ppm (OECD 412)

NOAEC (oral)(rat) 30 mg/Kg/day

Other information None.

12. SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Harmful to aquatic organisms.

LC50 (fathead minnow) (96 hour) (flow through) 11 mg/l

EC50 (Daphnia magna) (48 hour) 25.4 mg/l

EC50 (Selenastrum capricornutum) (72 hour) 31.2 mg/l

NOEC (Daphnia magna) (21 days) (flow through) 2.6 mg/l

The product is substantially removed in biological treatment processes.

12.2 Persistence and degradability

Readily biodegradable.

88% (28 days)

Biological Oxygen Demand (BOD 28 DAY/COD): 32.8%

12.3 Bioaccumulative potential

The product has moderate potential for bioaccumulation.

12.4 Mobility in soil

The product is predicted to have moderate mobility in soil.

12.5 Results of PBT and vPvB assessment

Not classified as PBT or vPvB.

12.6 Other adverse effects

Not subject to international restrictions.

13. SECTION 13: DISPOSAL CONSIDERATIONS

Avoid release to the environment. Decontaminate empty drums before recycling.

13.1 Waste treatment methods

Dispose of contents/container to hazardous waste in accordance with local, state or national legislation. Incinerate under approved controlled conditions, using incinerator suitable for disposal of flammable organics.

14. SECTION 14: TRANSPORT INFORMATION

14.1 UN number

2227

14.2 UN proper shipping name

n-BUTYL METHACRYLATE, STABILIZED

14.3 Transport hazard class(es)

Class 3
ADR Classification Code F1
ADR HIN 39
ADR Transport Category 3
Tunnel Restriction Code E

UK CDG Road: Emergency 3Y

Action Code

14.4 Packing Group

14.5 Environmental hazards

Marine Pollutant Not classified as a Marine Pollutant.

14.6 Special precautions for user

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable.

SECTION 15: REGULATORY INFORMATION 15.

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

Safety, health and environmental regulations Regulation (EC) No 1272/2008 (Classification, labelling and packaging of

substances and mixtures, amending and repealing Directives 67/548/EEC and

1999/45/EC, and amending Regulation (EC) No 1907/2006).

15.2 Chemical Safety Assessment

A Chemical Safety Assessment has been carried out for this substance/mixture.

16. **SECTION 16: OTHER INFORMATION**

This Safety Data Sheet was prepared in accordance with EC Regulation (EC) No. 453/2010.

Date of preparation: 1 -December- 2010

The following sections contain revisions or new statements: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16

Import to the EU is regulated under REACH. Confirmation from Lucite International UK Ltd acting as Only Representative and registrant is required to confirm that the volume of material imported has been confirmed as within the Only Representative supply chain.

Label elements in accordance with 1999/45/EC



Indication(s) of danger

Risk Phrases R10: Flammable.

R36/37/38: Irritating to eyes, respiratory system and skin.

R43: May cause sensitization by skin contact. S9: Keep container in a well-ventilated place.

S16: Keep away from sources of ignition - No smoking.

S29: Do not empty into drains.

S33: Take precautionary measures against static discharges.

Inventory Status

Safety Phrases

Listed in EINECS European Union (EINECS/ELINCS) Listed in TSCA United States (TSCA) Listed in DSL Canada (DSL/NDSL) Japan (ENCS) Listed in ENCS Philippines (PICCS) Listed in PICCS Australia (AICS) Listed in AICS South Korea (KECI) Listed in KECI China (IECSC) Listed in IECSC

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LEGEND

Note: Not all of the following are necessarily contained in this Safety Data Sheet:

IOELV: Indicative Occupational Exposure Limit Value WEL: Workplace Exposure Limit (UK HSE EH40) Bmgv: Biological Monitoring Guidance Value Sen: Capable of causing respiratory sensitisation

Sk: Can be absorbed through skin

Carc: Capable of causing cancer and/or heritable genetic damage

CHAN: Chemical Hazard Alert Notice

COM: The company aims to control exposure in its workplace to this limit

LTEL: Long Term Exposure Limit STEL: Short Term Exposure Limit TWA: Time Weighted Average

STOT SE: Specific Target Organ Toxicity - Single Exposure

Repr.: Reproductive toxicity

Aquatic acute/chronic: Hazardous to the aquatic environment

References REACH Registration Chemical Safety Report 15 September 2010

Methacrylate Esters Safe Handling Manual

Full text of R/H/P phrases H226: Flammable liquid and vapour.

H315: Causes skin irritation.

H317: May cause an allergic skin reaction. H335: May cause respiratory irritation.

P210: Keep away from heat, sparks, open flame, hot surfaces - No smoking

P233: Keep container tightly closed.

P240: Ground/bond container and receiving equipment.

P241: Use explosion-proof electrical/ventilating/lighting/.../ equipment.

P242: Use only non-sparking tools.

P243: Take precautionary measures against static discharge.

P261: Avoid breathing vapours.

P264: Wash thoroughly after handling.

P271: Use only outdoors or in a well-ventilated area.

 $\label{eq:power_power_power} \textbf{P272: Contaminated work clothing should not be allowed out of the workplace.}$

 ${\bf P280: Wear\ protective\ gloves/protective\ clothing/eye\ protection/face\ protection.}$

P302 + P352: IF ON SKIN: Wash with plenty of soap and water.

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

P304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

P312: Call a POISON CENTRE or doctor if you feel unwell.

P321: Specific treatment (see on this label).

P332 + P313: If skin irritation occurs: Get medical advice/attention.

P333 + P313: If skin irritation or rash occurs: Get medical advice/attention.

P362: Take off contaminated clothing and wash before reuse.

P363: Wash contaminated clothing before reuse.

P370 + P378: In case of fire: Use for extinction:

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

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

P405: Store locked up.

P501: Dispose of contents/container to hazardous waste in accordance with local, state or national legislation. Incinerate under approved controlled conditions, using incinerator suitable for disposal of flammable organics.

R10: Flammable.

R36/37/38: Irritating to eyes, respiratory system and skin.

R43: May cause sensitization by skin contact.

Methacrylate monomers are used safely in a wide variety of applications including some areas of personal hygiene. We are aware of some reports suggesting that use of methacrylate monomers in fingernail extension applications may result in loosening or shedding of the nails of the user as well as respiratory or other effects in those exposed to high levels of the vapors. Lucite International has performed no technical or clinical testing and has no data to support the use of methacrylate monomers in this application. Under no circumstances should methacrylate monomers be used in this or similar applications.

MEDICAL USE: CAUTION: DO NOT USE IN MEDICAL APPLICATIONS INVOLVING IMPLANTATION IN THE HUMAN BODY. Lucite International has performed no clinical testing on the use of this product in any medical application. Lucite International has no data to support the use of this product in any medical application. This product was not designed or manufactured for use in implantation in the human body or in contact with internal body fluids or tissues. Lucite International has neither sought, nor received, approval from any regulatory agency for the use of this product in implantation in the human body or in contact with internal body fluids or tissues.

For further information on the properties and uses, or storage and handling, of n-Butyl Methacrylate refer to Product data sheet; n-Butyl Methacrylate (TS/C/2314/11), or the Methacrylate Esters Safe Handling Manual.

It is the responsibility of the end-product manufacturer to identify all market and use-specific regulations and to ensure compliance with these regulations.

Information contained in this publication or as otherwise supplied to Users is believed to be accurate and is given in good faith, but it is for the Users to satisfy themselves of the suitability of the product for their own particular purpose. Lucite International gives no warranty as to the fitness of the product for any particular purpose and any implied warranty or condition (statutory or otherwise) is excluded except to the extent that exclusion is prevented by law. Lucite International accepts no liability for loss or damage (other than that arising from death or personal injury caused by defective product, if proved), resulting from reliance on this information. Freedom under Patents, Copyright and Designs cannot be assumed.

Annex: Exposure Scenarios

- GES1 Use in closed systems with low risk of exposure
- **GES2** No identified scenarios
- **GES3** No identified scenarios
- GES4 Industrial and Professional use in systems with engineered ventilation and low risk of exposure
- GES5 Industrial or professional use with engineered ventilation where opportunity for exposure requires use of gloves
- **GES6** No identified scenarios
- GES7 Industrial and Professional use outdoors with low risk of exposure
- GES8 Industrial or professional use outdoors where opportunity for exposure requires use of gloves
- GES9 Industrial or professional use outdoors where opportunity for exposure requires use of gloves and respiratory protection
- GES10 Industrial and Professional use indoors with low risk of exposure
- GES11 Industrial or professional use indoors where opportunity for exposure requires use of gloves
- GES12 Industrial or professional use indoors where opportunity for exposure requires use of gloves and respiratory protection
- **GES13** Consumer

Abbreviations

IU1: Manufacture and use as intermediate; IU2: Use in production of formulations; IU3: Industrial end use as monomer, intermediate or formulation; IU4: Professional end use in formulations; IU5: Consumer end use in formulations; IU6: Service life in articles

SU3: Industrial Manufacturing (all); SU2a: Mining, (without offshore industries); SU2b: Offshore industries; SU6a: Manufacture of wood and wood products; SU6b: Manufacture of pulp, paper and paper products; SU8: Manufacture of bulk, large scale chemicals (including petroleum products); SU9: Manufacture of fine chemicals; SU10: Chemical formulation and packaging; SU12: Manufacture of plastic products, including compounding and conversion; SU13: Manufacture of other non-metallic mineral products; SU14: Manufacture of basic metals; SU15: Manufacture of fabricated metal products, except machinery and equipment; SU16: Manufacture of computer, electronic and optical products, electrical equipment; SU17: General manufacturing; SU19: Building and construction work; SU20: Health services; SU23: Recycling.

PROC1: Use in closed process, no likelihood of exposure; PROC2: Use in closed, continuous process with occasional controlled exposure; PROC3: Use in closed batch process (synthesis or formulation); PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises; PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact); PROC6: Calendaring operations; PROC7: Industrial spraying; PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities; PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities; PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). PROC10: Roller application or brushing; PROC11: Non industrial spraying; PROC12: Use of blow agents in manufacture of foam; PROC13: Treatment of articles by dipping and pouring; PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation; PROC15: Use as laboratory reagent; PROC17: Lubrication at high energy conditions and in partly open process; PROC18: Greasing at high energy conditions; PROC19: Handmixing with intimate contact and only PPE available; PROC21: Low energy manipulation of substances bound in form of massive metal or bound in other materials and/or articles; PROC22: Potentially closed processing operations with minerals/metals at elevated temperature. Industrial setting; PROC23: Open processing and transfer operations with minerals/metals at elevated temperature; PROC24: High (mechanical) energy workup of massive metal or substances bound in materials and/or articles

PC1: Adhesives, sealants; PC2: Adsorbents; PC3: Air care products; PC7: Base metals and alloys; PC8: Biocidal Products (e.g. Disinfectants, pest control); PC9a: Coatings and paints, thinners, paint removers; PC9b: Fillers and putty; PC9c: Finger paints; PC14: Metal surface treatment products, including galvanic and electroplating products; PC15: Non-metal-surface treatment products; PC18: Ink and Toners; PC19: Intermediate; PC20: Products such as ph-regulators, flocculants, precipitants, neutralisation agents, other unspecific uses; PC21: Laboratory Chemicals; PC23: Leather tanning, dye, finishing, impregnation and care products; PC24: Lubricants, Greases and Release products; PC26: Paper and Board dye, finishing and impregnation products: including bleaches and other processing aids; PC31: Polishes and Wax Blends; PC32: Polymer Preparations and Compounds; PC33: Semiconductor; PC34: Textile dyes, finishing and impregnating products: including bleaches and other processing aids; PC35: Washing and Cleaning Products (including solvent based products); PC37: Water treatment chemicals: PC39: Cosmetics, personal care

AC1-1: Passenger cars and motor cycles; AC1-2: Other vehicles: Railway, aircraft, vessels, boats, trucks, and associated transport equipment; AC2: Machinery, mechanical appliances, electrical/electronic articles; AC3: Electrical batteries and accumulators; AC4: Stone, plaster, cement, glass and ceramic articles; AC5-1: Fabrics, textiles and apparel: bedding and clothing; AC5-2: Fabrics, textiles and apparel: curtains, upholstery, carpeting/flooring, rugs; AC6: Leather products: apparel and upholstery; AC7: Metal articles; AC8-1: Paper products: tissue, towels, disposable dinnerware, nappies, feminine hygiene products, adult incontinence products, writing paper; AC10-2: Rubber products: flooring; AC10-5: Other general rubber products; AC11: Wood articles; AC13-1: Commercial and consumer plastic products like disposable dinner ware, food storage, food packaging, baby bottles; AC13-2: Plastic products: Flooring; AC13-3: Plastic products: Toys; AC13*: Plastic, small articles.

ERC1: Manufacture of substances; ERC2: Formulation of preparations; ERC3: Formulation in materials; ERC4: Industrial use of processing aids in processes and products, not becoming part of articles; ERC5: Industrial use resulting in inclusion into or onto a matrix; ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates); ERC6b: Industrial use of reactive processing aids; ERC6c: Industrial use of monomers for polymerisation; ERC6d: Industrial use of auxiliaries for polymerisation processes in production of resins, rubbers, polymers; ERC7: Industrial use of substances in closed systems; ERC8d: Wide dispersive outdoor use of processing aids in open systems; ERC8e: Wide dispersive outdoor use of reactive substances in open systems; ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix; ERC10a: Wide dispersive outdoor use of long-life articles and materials with low release

		GES1					
1	Short title						
	Use in closed systems with low risk of exposure						
2	Description of activities/process(es) covered in the Exposure Scenario Industrial or professional activities involving the handling of preparations containing monomers. IU1, IU2, IU3, IU4.						
	SU3, SU1, SU2a, SU2b, SU5, SU6a, SU6b, SU7, SU8, SU9, SU10, SU11, SU12, SU13, SU14, SU15, SU16, SU17, SU18, SU19, SU23, SU20, SU22						
	PROC1, PROC2, PROC3						
	ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a,	ERC6b, ERC6c, ERC	6d, ERC7, ERC8a, ERC8b, ERC8c, ERC8d, ERC8e, ERC8f,				
	ERC9a						
3	Operational conditions						
3.1	Duration and frequency of use Duration	Worker: depen	dent upon concentration and activity, see section 4.3.				
	Duration	Consumer: N/A					
	Frequency of exposure at workplace	Worker: daily;					
	Emission days per site	300 d/yr					
4	Other operational conditions related to phy	ysical properties and	boundary conditions				
4.1	Physical form of product in which substance is	s Liquid					
4.0	contained	< 1000/					
4.2	Concentration of substance in preparation or article	≤ 100%					
4.3	Maximum used amount of substance (as such	or Worker N/A c	osed systems; Consumer: N/A.				
	in preparation) per worker/workplace per day						
	Amount used per time or per activity for which						
	Industrial PROC: 1, 2, 3; Professional PROC:						
	Operational conditions related to environment		naterial produced in contained systems.				
-	Annual amount used per site	≤ 40 kte/yr					
5	Other operational conditions determining of Room size	N/A					
	Ventilation rate	N/A					
	Waste water treatment		ould be checked to ensure they comply with the requirements of				
			ental protection legislation.				
6	Risk Management Measures:						
6.1	Human health measures						
6.1.1	Occupational related measures Oral	Da mat ant almin	Is an amalia of the coord who a				
	Dermal		k or smoke at the work place. uired. If opportunity for skin contact with liquid monomer occurs				
	Bernai		utyl; EN 374) for splash protection when handling liquids and				
			comply with good occupational hygiene practice. Change gloves, if contamination occurs. N/A – Contained system				
	Inhalation						
	Eyes		Eye protection not required. If opportunity for contact with liquid monomer occurs wear suitable eye protection, goggles.				
6.1.2	Consumer related measures	Not Applicable	ye protection, goggies.				
6.2	Environment related measures	140t Applicable					
	Air	Ensure proper	process control to ensure releases to air are within local permits.				
	Water	Contain and co	Contain and collect spillages for incineration.				
	Soil	Fully polymeris	e before landfill				
7	Waste related measures						
	Avoid release to the environment.	oro possiblo or incino	rate under approved controlled conditions using a facility suitable for				
	the disposal of flammable organics. Obtain the	e consent of pollution	control authorities before discharging to waste water treatment				
	plants. Only dispose of polymerised material t	o landfill.					
8	Prediction of exposure resulting from the	conditions described	above				
8.1	Human exposure estimation						
8.1.1			on DNEL and exposure calculated by ECETOC-TRA.				
	Dermal Concentration ≤ 1.3 Inhalative Concentration ≤ 5 p	7 mg/kg bw/day	RCR ≤ 0.27 RCR ≤ 0.07				
		bined	RCR ≤ 0.35				
8.1.2	Consumer		* <u> </u>				
	Not applicable						
8.2	Environmental exposure estimation						
8.2.1	Environmental. Risk Characterisation Ratio ba						
		e-02 mg/m ³ se-02 mg/ml	RCR ≤ 5.0e-04 RCR ≤ 0.42				
	Aquatic Concentration ≤ 0.5		RCR ≤ 0.42				
	Soil Concentration ≤ 0.5		RCR ≤ 0.51				
9	Other information						
	Risk adequately controlled.						
			e gloves, if duration of activity exceeds break through time.				
	Measured data could be used to confirm expo						
	(RCR<1 and PEC/PNEC<1).	- I KA and EUSUS for	confirmation that you work inside to boundaries set by the GES				
	(NON TAILUT LOT NEU T).						

		GES4					
1	Short title	- 					
	Industrial and Professional use in systems with engineered ventilation and low risk of exposure						
2	Description of activities/process(es) covered in the Exposure Scenario						
	Industrial or professional activities involving the handling of preparations containing monomers. IU1, IU2, IU3, IU4. SU3, SU1, SU2a, SU2b, SU5, SU6a, SU6b, SU7, SU8, SU9, SU10, SU11, SU12, SU13, SU14, SU15, SU16, SU17, SU18, SU19, SU23, SU20, SU22						
	PROC12, PROC15						
		6b, ERC6c, ERC6d, ERC7, ERC8a, ERC8b, ERC8c, ERC8d, ERC8e, ERC8f,					
	ERC9a						
3	Operational conditions						
3.1	Duration and frequency of use	Made and a section of the section of					
	Duration	Worker: dependent upon concentration and activity, see section 4.3.					
	Fraguency of avecause at workshops	Consumer: N/A. Daily					
	Frequency of exposure at workplace Emission days per site	300 d/yr					
4	Other operational conditions related to physica						
4.1	Physical form of product in which substance is	Liquid					
7.1	contained	Liquid					
4.2	Concentration of substance in preparation or	≤ 100%					
7.2	article	2 100 /0					
4.3	Maximum used amount of substance (as such or	Industrial/Professional: <1000 kg/d; Consumer: N/A					
	in preparation) per worker/workplace per day	See below for detail individual PROCs.					
	Amount used per time or per activity for which RMI						
	RMM: Butyl gloves for splash protection.						
	Industrial PROC: 12, 15; Professional PROC: 12, 1	15; Concentration/Duration: 0-100% / 0-8hrs.					
	Operational conditions related to environment	Processing and handling with engineering control, indoor and outdoor.					
	Annual amount used per site	≤ 40 kte/yr					
5	Other operational conditions determining expo	sure					
	Room size	N/A.					
	Ventilation rate	≥ 90% ECETOC default for industrial worker; ≥ 80% ECETOC default for					
		professional worker (for details see ECETOC default table).					
	Waste water treatment	Discharges should be checked to ensure they comply with the requirements of					
		local environmental protection legislation.					
6	Risk Management Measures:						
6.1	Human health measures						
6.1.1	Occupational related measures						
	Oral	Do not eat, drink or smoke at the work place.					
	Dermal	Gloves not required. If opportunity for skin contact occurs wear gloves (butyl; EN					
		374) for splash protection when handling liquids and comply with good					
	Inhalation	occupational hygiene practice. Change gloves, if contamination occurs. Use local exhaust ventilation (LEV) or engineering equipment implying comparable					
	IIIIalation	efficiency.					
	Eyes	Eye protection not required. If opportunity for contact with liquid monomer occurs					
	2,00	wear suitable eye protection, goggles.					
6.1.2	Consumer related measures	Not applicable					
6.2	Environment related measures	1101 4 p 1104 210					
	Air	Ensure proper process control to ensure releases to air are within local permits.					
		Monitor and regularly maintain ventilation equipment to ensure performance.					
	Water	Contain and collect spillages for incineration.					
	Soil	Fully polymerise before landfill					
7	Waste related measures						
	Avoid release to the environment.						
	Contain and collect any spillages. Recycle where possible or incinerate under approved controlled conditions using a facility suitable for						
		sent of pollution control authorities before discharging to waste water treatment					
	plants. Only dispose of polymerised material to lan						
8	Prediction of exposure resulting from the cond	itions described above					
8.1	Human exposure estimation	Star Deficition of an DNEL and annual and the ECSTOC TDA					
8.1.1		ation Ratio based on DNEL and exposure calculated by ECETOC-TRA					
	Dermal Concentration ≤ 0.34 mg/						
	Inhalative Concentration ≤ 1 ppm	RCR ≤ 0.01					
8.1.2	Combined	RCR ≤ 0.08					
0.1.2							
8.2	Not Applicable						
8.2.1	Environmental exposure estimation	on PNEC and PEC calculated by EUSUS local compartments					
0.2.1	Air Concentration ≤ 3.4e-02						
	Aquatic Concentration ≤ 5.8e-02						
		mg/kg ww RCR ≤ 0.42					
	·	mg/kg ww RCR ≤ 0.51					
9	Other information	gg 1.01. = 0.01					
	Risk adequately controlled.						
		ng liquids. If potential for contact with liquid is present refer to GES5.					
		levels are within the boundaries of the exposure scenario.					
		A and EUSUS for confirmation that you work inside to boundaries set by the GES					
	(RCR<1 and PEC/PNEC<1)	,					
•	•						

				GES5				
1	Short title	-11						
2					ortunity for exposure requires use of gloves			
2	Description of activities/process(es) covered in the Exposure Scenario Industrial or professional activities involving the handling of preparations containing monomers: IU1, IU2, IU3, IU4. SU3, SU1, SU2a, SU2b, SU5, SU6a, SU6b, SU7, SU8, SU9, SU10, SU11, SU12, SU13, SU14, SU15, SU16, SU17, SU18, SU19,							
	SU20, SU22, SU23. PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC14, PROC17, PROC18, PROC19.							
		3, ERC4, ERC5, EF	RC6a, ERC6	b, ERC6c, ERC	6d, ERC7, ERC8a,ERC8b, ERC8c, ERC8d, ERC8e, ERC8f,			
3	Operational condi	itions						
3.1	Duration and freque							
	Duration			Worker: dependence Consumer: N/A	dent upon concentration and activity, see section 4.3.			
	Frequency of expos			Daily				
	Emission days per			300 d/yr				
4 4.1		conditions related oduct in which subs		I properties and Liquid	boundary conditions			
	contained			•				
4.2	article	ubstance in prepara		≤ 100%				
4.3	Maximum used am	ount of substance (as such or		kg/d; Consumer: N/A.			
		worker/workplace p			letail individual PROCs.			
	Industrial PROC: 4 Concentration/Dura	, 5, 6, 7, 8a, 8b, 9, 1 ation: 0-100% / 0-8h	0, 13, 14, 17 rs.	7, 18, 19; Profess	sional PROC: 4, 5, 6, 8a, 8b, 9, 10, 11, 13, 14, 17, 18, 19			
		ons related to enviro	onment		handling with engineering control, indoor and outdoor.			
5	Annual amount use	ed per site conditions determ	ining ovne	≤ 40 kte/yr				
5	Room size	conditions detern	illing expo	N/A.				
	Ventilation rate				C default for industrial worker; ≥ 80% ECETOC default for			
	Vontiliation rate				orker (for details see ECETOC default table).			
	Waste water treatm	nent		Discharges should be checked to ensure they comply with the requirements of local environmental protection legislation.				
6	Risk Management	Measures:						
6.1	Human health mea	sures						
6.1.1	Occupational relate	ed measures						
	Oral	-		Do not eat, drink or smoke at the work place.				
	Dermal			Wear gloves (butyl; 0.7 mm; EN 374) for immersion protection when handling liquids and comply with good occupational hygiene practice. Change gloves, if contamination occurs or duration of activity exceeds break through time. Use local exhaust ventilation (LEV) or engineering equipment implying comparable				
	Inhalation			efficiency.				
	Eyes			Wear suitable eye protection, goggles, to protect against liquid splash.				
6.1.2	Consumer related i			N/A				
6.2	Environment relate	u measures		Engure proper	process control to ensure releases to air are within local nermits			
				Ensure proper process control to ensure releases to air are within local permits. Monitor and regularly maintain ventilation equipment to ensure performance.				
	Water Soil			Contain and collect spillages for incineration. Fully polymerise before landfill				
7	Waste related mea	asures		r ully polyffieris	e belore landilli			
,	Avoid release to the Contain and collect	e environment. t any spillages. Recy			rate under approved controlled conditions using a facility suitable for			
		e of polymerised ma			control authorities before discharging to waste water treatment			
8		osure resulting fro			above			
8.1	Human exposure e							
8.1.1					on DNEL and exposure calculated by ECETOC-TRA.			
	Dermal	Concentration	≤ 1.37 mg/	kg bw/day	RCR ≤ 0.27			
	Late at a C	0 ("	≤ 14.1 mg/	kg bw/day	RCR ≤ 2.83 (PROC6, 7, 10, 11, 17, 19, see section 9)			
	Inhalative	Concentration	≤ 20 ppm Combined		RCR ≤ 0.30 RCR ≤ 0.42			
			Combined		RCR ≤ 0.42 RCR ≤ 2.90 (PROC6, 7, 10, 11, 17, 19, see section 9)			
8.1.2	Consumer				1010 = 2.00 (11000, 7, 10, 11, 17, 10, 000 0000010)			
8.2	Not applicable	oouro ootimati						
8.2.1	Environmental exp		Patio hased	on DNEC and DE	C calculated by EUSUS local compartments			
0.2.1	Air	Concentration	3.4e-02 ≥		RCR ≤ 5.0e-04			
	Aquatic	Concentration	≤ 5.8e-02 r		RCR ≤ 0.42			
	Aquatic Sediment			ng/kg ww	RCR ≤ 0.42			
	Soil	Concentration		ng/kg ww	RCR ≤ 0.51			
9	Other information							
	Risk adequately co							
	Then safe handling	of high exposure d	ermal applic	ations (PROC11	ange gloves, if duration of activity exceeds break through time. 19) is ensured and RCR(dermal) is assumed to be below 0.5. All			
	levels are within the	e boundaries of the	exposure sc	enario. Use the	boundaries. Measured data could be used to confirm exposure exposure assessment tools ECETOC-TRA and EUSUS for			
	confirmation that yo	Du work inside to bo	undaries set	by the GES (RC	R<1 and PEC/PNEC<1)			

		GES7						
1	Short title							
	Industrial and Professional use outdoors with low r							
2	Description of activities/process(es) covered in the Exposure Scenario Industrial or professional activities involving the handling of preparations containing monomers. IU3, IU4 SU3, SU1, SU2a, SU2b, SU5, SU6a, SU6b, SU7, SU8, SU9, SU11, SU12, SU13, SU14, SU15, SU16, SU17, SU18, SU19, SU20, SU21, SU22, SU23. BBOC33, BBOC34, BBOC33, BBOC34, BBOC36,							
	PROC12, PROC21, PROC22, PROC23, PROC24, PROC25, PROC26 PC1, PC2, PC3, PC4, PC7, PC8, PC9a, PC9b, PC9c, PC12, PC14, PC15, PC18, PC19, PC21, PC20, PC23, PC24, PC26, PC28, PC29, PC30, PC31, PC32, PC33, PC34, PC35, PC37, PC39. AC1-1, AC1-2, AC2, AC3, AC4, AC5-1, AC5-2, AC6, AC7, AC8-1, AC8-2, AC10-2, AC10-5, AC11, AC11-2, AC13-1, AC13-2, AC13-1							
	3, AC13*, AC31 ERC1, ERC4, ERC5, ERC6a, ERC6b, ERC6c, ER	CEN EDC2 ED	284 EDC86 EDC8f EDC10a					
3	Operational conditions	COU, LICE, LIC	Sod, ENGOE, ENGOVA					
3.1	Duration and frequency of use	1						
	Duration Frequency of exposure at workplace	Worker: depend Consumer: Not Daily	lent upon concentration and activity, see section 4.3. applicable.					
	Emission days per site	300 d/yr						
4	Other operational conditions related to physica		boundary conditions					
4.1	Physical form of product in which substance is contained	Liquid Monomor/Polyn	ner preparations with limited monomer volumes (see 4.3)					
4.2	Concentration of substance in preparation or	≤ 100% contain	ed liquid					
1.0	article		nonomer in polymer component					
4.3	Maximum used amount of substance (as such or in preparation) per worker/workplace per day Amount used per time or per activity for which RMI	See below for d	esional: <1000kg/d etail individual PROCs, PCs.					
	Industrial PROC: 12; Professional PROC: 12; Cond							
	No ECETOC model for volatiles available; solids a	pplication only; po	lymer demonstrated as saFe use. Industrial PROC: 21, 22, 23, 24,					
	25, 26; Professional PROC: 21, 23, 24, 25, 26; Col Operational conditions related to environment		on: 0-5% / 0-8hrs, 5-100% / Not covered. See section 9. sing and handling.					
	Annual amount used per site	≤ 40 kte/yr	only and nanding.					
5	Other operational conditions determining expo	sure N/A – Outdoor s						
	Room size Ventilation rate	scenario. default for outdoor worker.						
	Waste water treatment	Discharges sho	uld be checked to ensure they comply with the requirements of					
	Dist. Management Management	local environme	ntal protection legislation.					
6	Risk Management Measures: Human health measures							
6.1.1	Occupational related measures							
	Oral Dermal	Do not eat, drink or smoke at the work place. Gloves not required. If opportunity for skin contact with liquid monomer occurs						
	Dermai		tyl; EN 374) for splash protection when handling liquids and					
		comply with good occupational hygiene practice. Change gloves, if contamination						
	Inhalation	occurs. Use outdoor.						
	Eyes		not required. If opportunity for contact with liquid monomer occurs					
0.4.0	Company related management		/e protection, goggles.					
6.1.2	Consumer related measures Environment related measures	Not applicable						
	Air	Not required						
	Water Soil	Contain and collect spillages for incineration. Fully polymerise before landfill						
7	Waste related measures	1 dily polymense	, before faritalin					
	Avoid release to the environment.							
			ate under approved controlled conditions using a facility suitable for control authorities before discharging to waste water treatment					
	plants. Only dispose of polymerised material to lan	dfill.	ů ů					
8 8.1	Prediction of exposure resulting from the cond Human exposure estimation	itions described	above					
8.1.1		ation Ratio based	on DNEL and exposure calculated by ECETOC-TRA					
	Dermal Concentration ≤ 0.34 mg/		RCR ≤ 0.07					
	Inhalative Concentration ≤ 7 ppm Combined		RCR ≤ 0.10 RCR ≤ 0.17					
8.1.2	Consumer							
0.0	Not applicable							
8.2 8.2.1	Environmental exposure estimation Environmental. Risk Characterisation Ratio based	on PNFC and PF	C calculated by EUSUS local compartments					
5.2.	Air Concentration ≤ 3.4e-02 i	mg/m³	RCR ≤ 5.0e-04					
	Aquatic Concentration ≤ 5.8e-02 i		RCR ≤ 0.42					
		ng/kg ww ng/kg ww	RCR ≤ 0.42 RCR ≤ 0.51					
9	Other information							
	Risk adequately controlled.	na liquide. If noton	tial for contact with liquid is present refer to CESS. Messured data					
			tial for contact with liquid is present refer to GES8. Measured data of the exposure scenario. PCs and PROCS (polymer applications)					
	evaluated as safe for up to 5% residual nBMA relati	ted to used amou	nt of nBMA. Use the exposure assessment tools ECETOC-TRA					
	and EUSUS for confirmation that you work inside to	o boundaries set l	by the GES (RCR<1 and PEC/PNEC<1).					

1	Short title	GES8						
1	Industrial or professional use outdoors where oppo	ortunity for exposure	requires use of gloves					
2	Description of activities/process(es) covered in	the Exposure Sce	nario					
	Industrial or professional activities involving the ha SU3, SU1, SU2a, SU2b, SU5, SU6a, SU6b, SU7,	Industrial or professional activities involving the handling of preparations containing monomers. IU1, IU2, IU3, IU4. SU3, SU1, SU2a, SU2b, SU5, SU6a, SU6b, SU7, SU8, SU9, SU10, SU11, SU12, SU13, SU14, SU15, SU16, SU17, SU18, SU19,						
	PROC19. ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC	6b. ERC6c. ERC6d.	ERC7, ERC8d, ERC8e, ERC8f.					
3	Operational conditions		- ,,,					
3.1	Duration and frequency of use	Morkor donondor	at upon concentration and activity, according 4.2					
	24.4.4.7	Consumer: N/A.						
	Frequency of exposure at workplace Emission days per site	Daily 300 d/yr						
4	Other operational conditions related to physica		oundary conditions					
4.1	Physical form of product in which substance is contained	Liquid						
4.2	Concentration of substance in preparation or article	≤ 100%						
4.3	Maximum used amount of substance (as such or	Worker: <1000kg/	d					
	in preparation) per worker/workplace per day	Consumer: N/A.	ail individual PROCs.					
	Amount used per time or per activity for which RM							
			PROC: 4, 5, 6, 8a, 8b, 9, 10, 13, 14, 19; Concentration/Duration:					
	Industrial PROC: 7; Professional PROC: 11; Cond							
	Professional PROC: 17, 18; Concentration/Duration							
	Operational conditions related to environment Annual amount used per site	Outdoor processin ≤ 40 kte/yr	ig and nandling.					
j	Other operational conditions determining expo							
	Room size	N/A – Outdoor sce	enario.					
	Ventilation rate		ault for outdoor worker.					
	Waste water treatment	Discharges should be checked to ensure they comply with the requirements of local environmental protection legislation.						
j	Risk Management Measures:		· · · · · ·					
6.1	Human health measures							
5.1.1	Occupational related measures Oral	Do not oot drink a	or amaka at the work place					
	Dermal	Do not eat, drink or smoke at the work place. Wear gloves (butyl; 0.7 mm; EN 374) for immersion protection when handling liquids and comply with good occupational hygiene practice. Change gloves, if contamination occurs or duration of activity exceeds break through time.						
	Inhalation	Use outdoor. Wear suitable eve protection, googles, to protect against liquid splash						
5.1.2	Eyes Consumer related measures	Wear suitable eye protection, goggles, to protect against liquid splash. N/A – Industrial / Professional Scenario.						
5.2	Environment related measures		Torcosional oscinario.					
	Air Water	Not required	et spillages for incineration					
	Soil	Contain and collect spillages for incineration. Fully polymerise before landfill						
7	Waste related measures	,, p ,						
	Avoid release to the environment.							
			e under approved controlled conditions using a facility suitable for					
	plants. Only dispose of polymerised material to lar		ntrol authorities before discharging to waste water treatment					
8	Prediction of exposure resulting from the cond		oove					
3.1	Human exposure estimation							
3.1.1			DNEL and exposure calculated by ECETOC-TRA.					
			RCR ≤ 0.27					
	Inhalative Concentration ≤ 25 ppm		RCR ≤ 2.83 (PROC6, 7, 10, 11, 17, 19, see section 9) RCR ≤ 0.38					
	Combined		RCR ≤ 0.59					
	33.11311100		RCR ≤ 3.09 (PROC6, 7, 10, 11, 17, 19, see section 9)					
3.1.2	Consumer N/A		·					
3.2	Environmental exposure estimation							
3.2.1	Environmental. Risk Characterisation Ratio based							
	Air Concentration $\leq 3.4e-02$ Aquatic Concentration $\leq 5.8e-02$		RCR ≤ 5.0e-04 RCR ≤ 0.42					
			RCR ≤ 0.42					
	Soil Concentration ≤ 0.53		RCR ≤ 0.51					
)	Other information							
	Risk adequately controlled.		and the same of th					
	Then safe handling of high exposure dermal applic other PROCs indicate a dermal RCR below 0.5 wi	cations (PROC11, 19 thin the assessed bo	ge gloves, if duration of activity exceeds break through time. b) is ensured and RCR(dermal) is assumed to be below 0.5. All nundaries. Measured data could be used to confirm exposure					
	levels are within the boundaries of the exposure so Use the exposure assessment tools ECETOC-TRA (RCR<1 and PEC/PNEC<1)		nfirmation that you work inside to boundaries set by the GES					

1	Short title	GES9				
	Industrial or professional use outdoors where op					
2	Description of activities/process(es) covered in the Exposure Scenario Industrial or professional activities involving the handling of preparations containing monomers. IU3, IU4					
	SU13, SU14, SU15, SU16, SU17, SU18, SU19, SU20,					
	SU22, SU23.	, 000, 000, 001., 00.2,	00.10, 00.11, 00.10, 00.10, 00.11, 00.10, 00.10, 00.20,			
	PROC7, PROC11, PROC17, PROC18.					
•	ERC1, ERC4, ERC5, ERC6a, ERC6b, ERC6c,	RC6d, ERC7, ERC8d, ER	C8e, ERC8f			
3	Operational conditions Duration and frequency of use					
5.1	Duration and frequency of use	Worker: dependent upo	on concentration and activity, see section 4.3.			
		Consumer: N/A.	•			
	Frequency of exposure at workplace	Daily				
4	Emission days per site Other operational conditions related to phys	300 d/yr	ary conditions			
4.1	Physical form of product in which substance is	Liquid	ary conditions			
	contained	'				
4.2	Concentration of substance in preparation or	≤ 100%				
4.3	article Maximum used amount of substance (as such or	Worker: <1000kg/d				
4.5	in preparation) per worker/workplace per day	Consumer: N/A.				
		See below for detail ind	ividual PROCs.			
	Amount used per time or per activity for which R	MMs ensure control of risk				
	RMM: RPE protection factor 10 (see section 9). Industrial PROC: 7; Professional PROC: 11, 17,	18: Concentration/Duration	: 0-100% / 0-8hrs.			
	Operational conditions related to environment	Outdoor processing and				
	Annual amount used per site	≤ 40 kte/yr				
5	Other operational conditions determining ex	osure N/A – Outdoor scenario				
	Ventilation rate	70% ECETOC default for				
	Waste water treatment		hecked to ensure they comply with the requirements of			
		local environmental pro	tection legislation.			
6	Risk Management Measures: Human health measures					
6.1.1	Occupational related measures					
• • • • • • • • • • • • • • • • • • • •	Oral	Do not eat, drink or smoke at the work place.				
	Dermal		mm; EN 374) for immersion protection when handling			
		liquids and comply with good occupational hygiene practice. Change gloves, if contamination occurs or duration of activity exceeds break through time.				
	Inhalation		Use outdoor. RPE protection factor 20 or 10 dependent upon PROC and duration.			
	Eyes	Wear suitable eye prote	ection, face shield or goggles, to protect against liquid			
6.1.2	Consumer related measures	splash. N/A				
6.2	Environment related measures	IN/A				
	Air	Not required				
	Water	Contain and collect spill				
7	Soil Waste related measures	Fully polymerise before	landfill			
′	Avoid release to the environment.					
	Contain and collect any spillages. Recycle wher		er approved controlled conditions using a facility suitable for			
			uthorities before discharging to waste water treatment			
8	plants. Only dispose of polymerised material to Prediction of exposure resulting from the co	notill.				
8.1	Human exposure estimation	uitions described above				
8.1.1	Worker. Predicted exposure and Risk Character					
			≤ 0.27			
	Inhalative Concentration ≤ 7 ppm	,	≤ 2.14 (PROC7, 11, 17, see section 9) ≤ 0.11			
	Combin		≤ 0.33			
		RCR	≤ 2.25 (PROC7, 11, 17, see section 9)			
8.1.2	Consumer					
8.2	N/A – Industrial / Professional Scenario. Environmental exposure estimation					
8.2.1	Environmental. Risk Characterisation Ratio base	d on PNEC and PEC calcul	lated by EUSUS local compartments			
	Air Concentration ≤ 3.4e-0	2 mg/m ³ RCR	≤ 5.0e-04			
	Aquatic Concentration ≤ 5.8e-0		≤ 0.42			
	Aquatic Sediment Concentration ≤ 0.58 Soil Concentration ≤ 0.53	0 0	≤ 0.42 ≤ 0.51			
9	Other information	g/ng INOIN				
	Risk adequately controlled.					
			ves, if duration of activity exceeds break through time.			
			nsured and RCR(dermal) is assumed to be below 0.5. All ries. Ensure duration of wearing respiratory protection			
	comply with the requirements of legislation.	and addition bounds				
	Measured data could be used to confirm exposu					
	Use the exposure assessment tools ECETOC-T (RCR<1 and PEC/PNEC<1)	KA and EUSUS for confirma	ation that you work inside to boundaries set by the GES			
	(NONS) and LON NEOST)					

	Ch and still a	GES10						
1	Short title Industrial and Professional use indoors with low risk of exposure							
2	Description of activities/process(es) covered in	the Exposure Scena						
	Industrial or professional activities involving the handling of preparations containing monomers. IU1, IU2, IU3, IU4, IU5, IU6.							
	SU3, SU1, SU2a, SU2b, SU5, SU6a, SU6b, SU7, SU8, SU9, SU10, SU11, SU12, SU13, SU14, SU15, SU16, SU17, S							
		SU20, SU22, SU23 PROC12, PROC21, PROC22, PROC23, PROC24, PROC25, PROC26.						
			C15, PC18, PC19, PC21, PC20, PC23, PC24, PC26, PC28,					
	PC29, PC30, PC31, PC32, PC33, PC34, PC35, P	C37, PC39						
		AC6, AC7, AC8-1, AC	8-2, AC10-2, AC10-5, AC11, AC11-2, AC13-1, AC13-2,					
	AC13-3, AC13*, AC31.	ch EDOC- EDOC- E	DOZ EDOG EDOG EDOG EDOG EDOG					
3	ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6 Operational conditions	DD, ERCOC, ERCOA, E	RC7, ERC8a, ERC8b, ERC8c, ERC9A, ERC11a					
3.1	Duration and frequency of use							
	Duration		upon concentration and activity, see section 4.3.					
		Consumer: Not app	licable.					
	Frequency of exposure at workplace Emission days per site	Daily 300 d/yr						
4	Other operational conditions related to physica		undary conditions					
4.1	Physical form of product in which substance is	Liquid	nuary conditions					
	contained	Monomer/Polymer p	preparations with limited monomer volumes (see 4.3)					
4.2	Concentration of substance in preparation or	≤ 100% contained lic						
4.2	article		mer in polymer component					
4.3	Maximum used amount of substance (as such or in preparation) per worker/workplace per day	Industrial/Profession See below for detail	nai: <1000kg/d individual PROCs, PCs.					
	Amount used per time or per activity for which RM							
	Industrial PROC: 12, 15; Professional PROC: 12,	15; Concentration/Dura	ation: 0-100% / 0-8hrs.					
			er demonstrated as saFe use. Industrial PROC: 21, 22, 23, 24,					
			0-5% / 0-8hrs, 5-100% / Not covered. See section 9.					
	Operational conditions related to environment Annual amount used per site	Indoor processing at ≤ 40 kte/yr	nanaling.					
5	Other operational conditions determining expo	,						
-	Room size	> 20 m³ (ECETOC d						
	Ventilation rate		of workplaces. 5 - 15 air changes per hour recommended for					
	Masta water tracter and	general application.						
	Waste water treatment		be checked to ensure they comply with the requirements of protection legislation.					
6	Risk Management Measures:	local chiviloninichtal	procession regionation.					
6.1	Human health measures							
6.1.1	Occupational related measures							
	Oral Dermal		smoke at the work place.					
	Demia	Gloves not required. If opportunity for skin contact with liquid monomer occurs wear gloves (butyl; EN 374) for splash protection when handling liquids and comply with good occupational hygiene practice. Change gloves, if contamination occurs.						
	Inhalation	Use indoor.	aguired. If appartunity for contact with liquid manager acquire					
	Eyes	Eye protection not required. If opportunity for contact with liquid monomer occurs wear suitable eye protection, goggles.						
6.1.2	Consumer related measures	Not applicable.	otection, goggies.					
6.2	Environment related measures							
	Air	Not required						
	Water		spillages for incineration.					
7	Soil Waste related measures	Fully polymerise bef	ore landfill					
•	Avoid release to the environment.							
	Contain and collect any spillages. Recycle where p		under approved controlled conditions using a facility suitable for					
			ol authorities before discharging to waste water treatment					
	plants. Only dispose of polymerised material to lan Prediction of exposure resulting from the cond							
8 8.1	Human exposure estimation	itions described abo	<u>ve</u>					
8.1.1	Worker. Predicted exposure and Risk Characterisa	ation Ratio based on D	NEL and exposure calculated by ECETOC-TRA					
	Dermal Concentration ≤ 0.34 mg	/kg bw/day R0	CR ≤ 0.07					
	Inhalative Concentration ≤ 7 ppm		CR ≤ 0.10					
8.1.2	Combined Consumer	RC	CR ≤ 0.17					
0 1/	Not applicable							
···-	• • • • • • • • • • • • • • • • • • • •							
	Environmental exposure estimation	on PNEC and PEC ca	alculated by EUSUS local compartments					
8.2	Environmental exposure estimation Environmental. Risk Characterisation Ratio based		CR ≤ 5.0e-04					
	Environmental. Risk Characterisation Ratio based Air Concentration ≤ 3.4e-02	mg/m ³ R0						
8.2	Environmental. Risk Characterisation Ratio based Air Concentration ≤ 3.4e-02 Aquatic Concentration ≤ 5.8e-02	mg/m³ R0 mg/ml R0	CR ≤ 0.42					
8.2	Environmental. Risk Characterisation Ratio based Air Concentration ≤ 3.4e-02 Aquatic Concentration ≤ 5.8e-02 Aquatic Sediment Concentration ≤ 0.58	mg/m³ R0 mg/ml R0 mg/kg ww R0	CR ≤ 0.42 CR ≤ 0.42					
8.2 8.2.1	Environmental. Risk Characterisation Ratio based Air Concentration ≤ 3.4e-02 Aquatic Concentration ≤ 5.8e-02 Aquatic Sediment Concentration ≤ 0.58 Soil Concentration ≤ 0.53	mg/m³ R0 mg/ml R0 mg/kg ww R0	CR ≤ 0.42					
8.2	Environmental. Risk Characterisation Ratio based Air Concentration ≤ 3.4e-02 Aquatic Concentration ≤ 5.8e-02 Aquatic Sediment Concentration ≤ 0.58 Soil Concentration ≤ 0.53 Other information	mg/m³ R0 mg/ml R0 mg/kg ww R0	CR ≤ 0.42 CR ≤ 0.42					
8.2 8.2.1	Environmental. Risk Characterisation Ratio based Air Concentration ≤ 3.4e-02 Aquatic Concentration ≤ 5.8e-02 Aquatic Sediment Concentration ≤ 0.58 Soil Concentration ≤ 0.53 Other information Risk adequately controlled.	mg/m³ R(mg/ml R(mg/kg ww R(mg/kg ww R(CR ≤ 0.42 CR ≤ 0.42					
8.2 8.2.1	Environmental. Risk Characterisation Ratio based Air Concentration ≤ 3.4e-02 Aquatic Concentration ≤ 5.8e-02 Aquatic Sediment Concentration ≤ 0.58 Soil Concentration ≤ 0.53 Other information Risk adequately controlled. Gloves required for splash protection when handlir data could be used to confirm exposure levels are	mg/m³ R0 mg/ml R0 mg/kg ww R0 mg/kg ww R0 mg/kg ww R0 mg liquids. If potential for within the boundaries	CR ≤ 0.42 CR ≤ 0.42 CR ≤ 0.51 for contact with liquid is present refer to GES11. Measured of the exposure scenario. PCs and PROCS (polymer					
8.2 8.2.1	Environmental. Risk Characterisation Ratio based Air Concentration ≤ 3.4e-02 Aquatic Concentration ≤ 5.8e-02 Aquatic Sediment Concentration ≤ 0.58 Soil Concentration ≤ 0.53 Other information Risk adequately controlled. Gloves required for splash protection when handlir data could be used to confirm exposure levels are applications) evaluated as safe for up to 5% residu	mg/m³ R0 mg/ml R0 mg/kg ww R0 mg/kg ww R0 mg/kg ww R0 mg liquids. If potential for within the boundaries all nBMA related to us	CR ≤ 0.42 CR ≤ 0.42 CR ≤ 0.51 for contact with liquid is present refer to GES11. Measured					

				GES11				
1	Short title	sional use indoors w	here onnort	unity for exposur	e requires use of aloves			
2	Industrial or professional use indoors where opportunity for exposure requires use of gloves Description of activities/process(es) covered in the Exposure Scenario							
	Industrial or professional activities involving the handling of preparations containing monomers. IU1, IU2, IU3, IU4 SU3, SU1, SU2a, SU2b, SU5, SU6a, SU6b, SU7, SU8, SU9, SU10, SU11, SU12, SU13, SU14, SU15, SU16, SU17, SU18, SU19, SU20, SU22, SU23.							
	PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC14, PROC17, PROC18, PROC19							
3	ERC1, ERC2, ERC Operational condi		RC6a, ERC6	b, ERC6c, ERC	6d, ERC7, ERC8a, ERC8b, ERC8c, ERC9a.			
3.1	Duration and freque							
	Duration			Consumer: N/A	dent upon concentration and activity, see section 4.3.			
	Frequency of expo			Daily				
4	Other operational		to physica	300 d/yr	boundary conditions			
4.1	Physical form of procontained	oduct in which subs	tance is	Liquid	boundary conditions			
4.2		ubstance in prepara	tion or	≤ 100%				
4.3		ount of substance (as such or	Worker: <1000	kg/d			
		worker/workplace p		Consumer: N/A				
	Amount used per ti	me or per activity fo	r which RMN					
					nal PROC: 4, 5, 6, 8a, 8b, 9, 10, 13, 14, 19; Concentration/Duration:			
		: Professional PRO	C: 11 17 1	8: Concentration	/Duration: 0-5% / 0-8hrs, 5-100% / 0-1hr.			
		ons related to enviro		Indoor process	ing and handling.			
	Annual amount use			≤ 40 kte/yr				
5		conditions determ	ining expo					
	Room size Ventilation rate		> 20 m³ (ECET	,				
			general applica	tion of workplaces. 5 - 15 air changes per hour recommended for tion.				
	Waste water treatment			Discharges should be checked to ensure they comply with the requirements of local environmental protection legislation.				
6	Risk Management	t Measures:		10001 011111011111	- The state of the			
6.1	Human health mea							
6.1.1	Occupational relate	ed measures						
	Oral Dermal			Do not eat, drink or smoke at the work place. Wear gloves (butyl; 0.7 mm; EN 374) for immersion protection when handling				
				liquids and comply with good occupational hygiene practice. Change gloves, if contamination occurs or duration of activity exceeds break through time.				
	Inhalation			Use indoor.				
0.4.0	Eyes				eye protection, goggles, to protect against liquid splash.			
6.1.2	Consumer related i			N/A – Industria	/ Professional Scenario.			
6.2	Environment relate Air	u measures		Not required				
	Water				llect spillages for incineration.			
	Soil			Fully polymerise before landfill				
7	Waste related mea							
	Avoid release to the		ıcle where n	nesible or incine	rate under approved controlled conditions using a facility suitable for			
	the disposal of flam	nmable organics. Ob	tain the con	sent of pollution	control authorities before discharging to waste water treatment			
0		se of polymerised ma			lahaya			
8 8.1	Human exposure e		iii tiie condi	itions described	above			
8.1.1					on DNEL and exposure calculated by ECETOC-TRA.			
	Dermal	Concentration	≤ 1.37 mg/	kg bw/day	RCR ≤ 0.27			
	Inhalative	Concentration	≤ 14.1 mg/ ≤ 30 ppm	kg bw/day	RCR ≤ 2.83 (PROC6, 7, 10, 11, 17, 19, see section 9) RCR ≤ 0.45			
	IIIIalative	Concentration	Combined		RCR ≤ 0.73			
8.1.2	Consumer				RCR ≤ 3.20 (PROC6, 7, 10, 11, 17, 19, see section 9)			
0.1.2	N/A							
8.2	Environmental exp	osure estimation						
8.2.1					C calculated by EUSUS local compartments			
	Air Aguatic	Concentration Concentration	≤ 3.4e-02 r ≤ 5.8e-02 r		RCR ≤ 5.0e-04 RCR ≤ 0.42			
	Aquatic Sediment			ng/kg ww	RCR ≤ 0.42 RCR ≤ 0.42			
	Soil	Concentration		ng/kg ww	RCR ≤ 0.51			
9	Other information							
	Risk adequately co			allia a transit i Ci	and alone if direction of a title to a constant to the constan			
	Then safe handling	r immersion protection of high exposure d	on when har ermal applic	idling liquids. Ch ations (PROC11	ange gloves, if duration of activity exceeds break through time. 19) is ensured and RCR(dermal) is assumed to be below 0.5.			
					the boundaries of the exposure scenario.			
	Use the exposure a	assessment tools E0			confirmation that you work inside to boundaries set by the GES			
	(RCR<1 and PEC/I	PNEC<1)						

		GES12	
1	Short title		
		unity for exposure requires use of gloves and respiratory protection	
2	Description of activities/process(es) covered in	the Exposure Scenario	
	Industrial or professional activities involving the har	ndling of preparations containing monomers. Includes: IU3, IU4	
		SU8, SU9, SU11, SU12, SU13, SU14, SU15, SU16, SU17, SU18, SU19, SU20,	
	SU22, SU23.		
	PROC7, PROC11, PROC17, PROC18.	OOL FROM FROM FROM FROM	
_	ERC1, ERC4, ERC5, ERC6a, ERC6b, ERC6c, ER	Cod, ERC7, ERC8a, ERC8b, ERC8c, ERC9a	
3	Operational conditions Duration and frequency of use		
3.1	Duration Duration	Worker: dependent upon concentration and activity, see section 4.3.	
	Buration	Consumer: N/A.	
	Frequency of exposure at workplace	Daily	
	Emission days per site	300 d/yr	
4	Other operational conditions related to physica	I properties and boundary conditions	
4.1	Physical form of product in which substance is	Liquid	
	contained		
4.2	Concentration of substance in preparation or	≤ 100%	
4.0	article	Warken 44000kg/d	
4.3	Maximum used amount of substance (as such or in preparation) per worker/workplace per day	Worker: <1000kg/d Consumer: N/A.	
	in preparation) per worker/workplace per day	See below for detail individual PROCs.	
	Amount used per time or per activity for which RMI		
	RMM: RPE protection factor 10 (see section 9).		
	Industrial PROC: 7; Professional PROC: 11, 17, 18	3; Concentration/Duration: 0-100% / 0-8hrs.	
	Operational conditions related to environment	Indoor processing and handling.	
	Annual amount used per site	≤ 40 kte/yr	
5	Other operational conditions determining expo		
	Room size	> 20 m³ (ECETOC default).	
	Ventilation rate	General ventilation of workplaces. 5 - 15 air changes per hour recommended for	
	Waste water treatment	general application. Discharges should be checked to ensure they comply with the requirements of	
	waste water treatment	local environmental protection legislation.	
6	Risk Management Measures:	100al official protocolor regionation.	
6.1	Human health measures		
6.1.1	Occupational related measures		
	Oral	Do not eat, drink or smoke at the work place.	
	Dermal	Wear gloves (butyl; 0.7 mm; EN 374) for immersion protection when handling	
		liquids and comply with good occupational hygiene practice. Change gloves, if	
	Inhalation	contamination occurs or duration of activity exceeds break through time. Use indoor. RPE protection factor 20 or 10 dependent upon PROC and duration.	
	Eyes	Wear suitable eye protection, face shield or goggles, to protect against liquid	
	Lyco	splash.	
6.1.2	Consumer related measures	N/A	
6.2	Environment related measures		
	Air	Not required	
	Water	Contain and collect spillages for incineration.	
_	Soil	Fully polymerise before landfill	
7	Waste related measures		
	Avoid release to the environment. Contain and collect any spillages. Recycle where re	ossible or incinerate under approved controlled conditions using a facility suitable for	
		sent of pollution control authorities before discharging to waste water treatment	
	plants. Only dispose of polymerised material to lan		
8	Prediction of exposure resulting from the cond		
8.1	Human exposure estimation		
8.1.1		tion Ratio based on DNEL and exposure calculated by ECETOC-TRA.	
	Dermal Concentration ≤ 1.37 mg/		
	≤ 10.7 mg/		
	Inhalative Concentration ≤ 10 ppm Combined	RCR ≤ 0.15 RCR ≤ 0.35	
	Combined	RCR ≤ 2.29 (PROC7, 10, 11, 17, see section 9)	
8.1.2	Consumer	1.0.1. = 225 (1.1.007, 10, 11, 11, 500 50000110)	
	N/A		
8.2	Environmental exposure estimation		
8.2.1	Environmental. Risk Characterisation Ratio based	on PNEC and PEC calculated by EUSUS local compartments	
	Air Concentration ≤ 3.4e-02		
	Aquatic Concentration ≤ 5.8e-02 i	ŭ	
		mg/kg ww RCR ≤ 0.42	
0		ng/kg ww RCR ≤ 0.51	
9	Other information Risk adequately controlled.		
		ndling liquids. Change gloves, if duration of activity exceeds break through time.	
		ations (PROC11, 19) is ensured and RCR(dermal) is assumed to be below 0.5. All	
		hin the assessed boundaries. Ensure duration of wearing respiratory protection	
	comply with the requirements of legislation.		
	Measured data could be used to confirm exposure	levels are within the boundaries of the exposure scenario.	
		and EUSUS for confirmation that you work inside to boundaries set by the GES	
	(RCR<1 and PEC/PNEC<1)		

	GES 13		
1	Short title		
_	Consumer use		
2	Description of activities/process(es) covered in the Exposure Scenario IU5, IU6		
	SU19, SU20, SU21, SU22, SU23		
	PROCs not applicable		
	PC1, PC2, PC3, PC4, PC7, PC8, PC9a, PC9b, PC9c, PC12, PC	14, PC15, PC18, PC19, PC21, PC20, PC23, PC24, PC26, PC28,	
	PC29, PC30, PC31, PC32, PC33, PC34, PC35, PC37, PC39		
	AC1-1, AC1-2, AC2, AC3, AC4, AC5-1, AC5-2, AC6, AC7, AC8-	1, AC8-2, AC10-2, AC10-5, AC11, AC11-2, AC13-1, AC13-2,	
	AC13-3, AC13*, AC31 ERC8a, ERC8b, ERC8c, ERC8d, ERC8e, ERC8f, ERC9a, ERC1	Na FDC11a	
3	Operational conditions	ua, ENCTIA	
3.1	Duration and frequency of use		
	Duration	Dependent upon concentration and activity, see section 4.3.	
	Frequency of exposure at workplace	Daily	
4	Emission days per site	365 d/yr	
4 4.1	Other operational conditions related to physical properties at Physical form of product in which substance is contained	Monomer/Polymer preparations with limited monomer volumes	
4.1	Friysical form of product in which substance is contained	(see 4.3)	
4.2	Concentration of substance in preparation or article	≤ 5% residual monomer in polymer component	
4.3	Maximum used amount of substance (as such or in preparation)	Polymer applications (see section 9).	
	per worker/workplace per day	See below for detail individual PCs.	
	Amount used per time or per activity for which RMMs ensure cont	rol of risk	
	RMM: No RMMs identified. Consumer PC: 1, 2, 3, 4, 7, 8, 9a, 9b, 9c, 12, 14, 15, 18, 19, 20, 2	1 23 24 26 28 20 30 31 32 33 34 35 37 30	
	Consumer AC: 1-1, 1-2, 2, 3, 4, 5-1, 5-2, 6, 7, 8-1, 10-2, 10-5, 11,		
	Concentration/Duration: 0-5% / 0-8hrs, 5-100% / Not covered. Se		
	Operational conditions related to environment	General processing and handling.	
	Annual amount used	≤ 2.5 te/yr	
5	Other operational conditions determining exposure	. 00 3/F0FT00 L (II)	
	Room size Ventilation rate	> 20 m³ (ECETOC default).	
	ventilation rate	General ventilation of workplaces. 5 - 15 air changes per hour recommended for general application.	
	Waste water treatment	Not applicable.	
6	Risk Management Measures:		
6.1	Human health measures		
6.1.1	Occupational related measures	None required.	
6.1.2	Consumer related measures	•	
		Do not not alcinic an annulus of the consult of an	
	Oral	Do not eat, drink or smoke at the work place.	
	Oral Dermal	None required. If potential for contact with liquid occurs or	
		None required. If potential for contact with liquid occurs or duration and concentration exceeds safe use refer to industrial /	
		None required. If potential for contact with liquid occurs or duration and concentration exceeds safe use refer to industrial / professional use scenarios. Size and design of application	
		None required. If potential for contact with liquid occurs or duration and concentration exceeds safe use refer to industrial / professional use scenarios. Size and design of application container is to be adapted to avoid significant dermal exposure during duration of use.	
		None required. If potential for contact with liquid occurs or duration and concentration exceeds safe use refer to industrial / professional use scenarios. Size and design of application container is to be adapted to avoid significant dermal exposure during duration of use. None required. Size of application container is to be adapted to	
	Dermal Inhalation	None required. If potential for contact with liquid occurs or duration and concentration exceeds safe use refer to industrial / professional use scenarios. Size and design of application container is to be adapted to avoid significant dermal exposure during duration of use. None required. Size of application container is to be adapted to avoid significant exposure by inhalation during duration of use.	
62	Dermal Inhalation Eyes	None required. If potential for contact with liquid occurs or duration and concentration exceeds safe use refer to industrial / professional use scenarios. Size and design of application container is to be adapted to avoid significant dermal exposure during duration of use. None required. Size of application container is to be adapted to	
6.2	Inhalation Eyes Environment related measures	None required. If potential for contact with liquid occurs or duration and concentration exceeds safe use refer to industrial / professional use scenarios. Size and design of application container is to be adapted to avoid significant dermal exposure during duration of use. None required. Size of application container is to be adapted to avoid significant exposure by inhalation during duration of use. None required	
6.2	Dermal Inhalation Eyes	None required. If potential for contact with liquid occurs or duration and concentration exceeds safe use refer to industrial / professional use scenarios. Size and design of application container is to be adapted to avoid significant dermal exposure during duration of use. None required. Size of application container is to be adapted to avoid significant exposure by inhalation during duration of use. None required.	
6.2	Inhalation Eyes Environment related measures Air	None required. If potential for contact with liquid occurs or duration and concentration exceeds safe use refer to industrial / professional use scenarios. Size and design of application container is to be adapted to avoid significant dermal exposure during duration of use. None required. Size of application container is to be adapted to avoid significant exposure by inhalation during duration of use. None required	
6.2	Inhalation Eyes Environment related measures Air Water Soil Waste related measures	None required. If potential for contact with liquid occurs or duration and concentration exceeds safe use refer to industrial / professional use scenarios. Size and design of application container is to be adapted to avoid significant dermal exposure during duration of use. None required. Size of application container is to be adapted to avoid significant exposure by inhalation during duration of use. None required None required. Do not empty into drains.	
7	Inhalation Eyes Environment related measures Air Water Soil Waste related measures Only dispose of polymerised material with household waste.	None required. If potential for contact with liquid occurs or duration and concentration exceeds safe use refer to industrial / professional use scenarios. Size and design of application container is to be adapted to avoid significant dermal exposure during duration of use. None required. Size of application container is to be adapted to avoid significant exposure by inhalation during duration of use. None required None required. Do not empty into drains. Only dispose of polymerised material with household waste.	
7	Inhalation Eyes Environment related measures Air Water Soil Waste related measures Only dispose of polymerised material with household waste. Prediction of exposure resulting from the conditions describe	None required. If potential for contact with liquid occurs or duration and concentration exceeds safe use refer to industrial / professional use scenarios. Size and design of application container is to be adapted to avoid significant dermal exposure during duration of use. None required. Size of application container is to be adapted to avoid significant exposure by inhalation during duration of use. None required None required. Do not empty into drains. Only dispose of polymerised material with household waste.	
7 8 8.1	Inhalation Eyes Environment related measures Air Water Soil Waste related measures Only dispose of polymerised material with household waste. Prediction of exposure resulting from the conditions describe Human exposure estimation	None required. If potential for contact with liquid occurs or duration and concentration exceeds safe use refer to industrial / professional use scenarios. Size and design of application container is to be adapted to avoid significant dermal exposure during duration of use. None required. Size of application container is to be adapted to avoid significant exposure by inhalation during duration of use. None required None required. Do not empty into drains. Only dispose of polymerised material with household waste.	
7	Inhalation Eyes Environment related measures Air Water Soil Waste related measures Only dispose of polymerised material with household waste. Prediction of exposure resulting from the conditions describe Human exposure estimation Worker.	None required. If potential for contact with liquid occurs or duration and concentration exceeds safe use refer to industrial / professional use scenarios. Size and design of application container is to be adapted to avoid significant dermal exposure during duration of use. None required. Size of application container is to be adapted to avoid significant exposure by inhalation during duration of use. None required None required. Do not empty into drains. Only dispose of polymerised material with household waste.	
7 8 8.1	Inhalation Eyes Environment related measures Air Water Soil Waste related measures Only dispose of polymerised material with household waste. Prediction of exposure resulting from the conditions describe Human exposure estimation	None required. If potential for contact with liquid occurs or duration and concentration exceeds safe use refer to industrial / professional use scenarios. Size and design of application container is to be adapted to avoid significant dermal exposure during duration of use. None required. Size of application container is to be adapted to avoid significant exposure by inhalation during duration of use. None required None required. Do not empty into drains. Only dispose of polymerised material with household waste.	
7 8 8.1 8.1.1 8.1.2	Inhalation Eyes Environment related measures Air Water Soil Waste related measures Only dispose of polymerised material with household waste. Prediction of exposure resulting from the conditions described Human exposure estimation Worker. Not applicable	None required. If potential for contact with liquid occurs or duration and concentration exceeds safe use refer to industrial / professional use scenarios. Size and design of application container is to be adapted to avoid significant dermal exposure during duration of use. None required. Size of application container is to be adapted to avoid significant exposure by inhalation during duration of use. None required None required. Do not empty into drains. Only dispose of polymerised material with household waste.	
7 8 8.1 8.1.1 8.1.2 8.2	Inhalation Eyes Environment related measures Air Water Soil Waste related measures Only dispose of polymerised material with household waste. Prediction of exposure resulting from the conditions described Human exposure estimation Worker. Not applicable Consumer. Predicted exposure and Risk Characterisation Ratio bed Not applicable — polymer applications (see section 9) Environmental exposure estimation	None required. If potential for contact with liquid occurs or duration and concentration exceeds safe use refer to industrial / professional use scenarios. Size and design of application container is to be adapted to avoid significant dermal exposure during duration of use. None required. Size of application container is to be adapted to avoid significant exposure by inhalation during duration of use. None required None required. Do not empty into drains. Only dispose of polymerised material with household waste. ed above assed on DNEL and exposure calculated by ECETOC-TRA.	
7 8 8.1 8.1.1 8.1.2	Inhalation Eyes Environment related measures Air Water Soil Waste related measures Only dispose of polymerised material with household waste. Prediction of exposure resulting from the conditions described Human exposure estimation Worker. Not applicable Consumer. Predicted exposure and Risk Characterisation Ratio bed Not applicable — polymer applications (see section 9) Environmental exposure estimation Environmental. Risk Characterisation Ratio based on PNEC and I	None required. If potential for contact with liquid occurs or duration and concentration exceeds safe use refer to industrial / professional use scenarios. Size and design of application container is to be adapted to avoid significant dermal exposure during duration of use. None required. Size of application container is to be adapted to avoid significant exposure by inhalation during duration of use. None required None required. Do not empty into drains. Only dispose of polymerised material with household waste. PEC calculated by EUSUS local compartments	
7 8 8.1 8.1.1 8.1.2 8.2	Inhalation Eyes Environment related measures Air Water Soil Waste related measures Only dispose of polymerised material with household waste. Prediction of exposure resulting from the conditions described Human exposure estimation Worker. Not applicable Consumer. Predicted exposure and Risk Characterisation Ratio bed Not applicable — polymer applications (see section 9) Environmental exposure estimation Environmental. Risk Characterisation Ratio based on PNEC and I Air Concentration ≤ 3.4e-02 mg/m³	None required. If potential for contact with liquid occurs or duration and concentration exceeds safe use refer to industrial / professional use scenarios. Size and design of application container is to be adapted to avoid significant dermal exposure during duration of use. None required. Size of application container is to be adapted to avoid significant exposure by inhalation during duration of use. None required None required. Do not empty into drains. Only dispose of polymerised material with household waste. Ped above ased on DNEL and exposure calculated by ECETOC-TRA.	
7 8 8.1 8.1.1 8.1.2 8.2	Inhalation Eyes Environment related measures Air Water Soil Waste related measures Only dispose of polymerised material with household waste. Prediction of exposure resulting from the conditions described Human exposure estimation Worker. Not applicable Consumer. Predicted exposure and Risk Characterisation Ratio bed Not applicable — polymer applications (see section 9) Environmental exposure estimation Environmental. Risk Characterisation Ratio based on PNEC and I Air Concentration ≤ 3.4e-02 mg/m³ Aquatic Concentration ≤ 5.8e-02 mg/ml	None required. If potential for contact with liquid occurs or duration and concentration exceeds safe use refer to industrial / professional use scenarios. Size and design of application container is to be adapted to avoid significant dermal exposure during duration of use. None required. Size of application container is to be adapted to avoid significant exposure by inhalation during duration of use. None required None required. Do not empty into drains. Only dispose of polymerised material with household waste. ed above ased on DNEL and exposure calculated by ECETOC-TRA. PEC calculated by EUSUS local compartments RCR ≤ 5.0e-04 RCR ≤ 0.42	
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