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

1.1 Product identifier	
Trade name	: Melamine
REACH Registration Number	: 01-2119485947-16-0001, 01-2119485947-16-0002, 01- 2119485947-16-XXXX
Substance name	: 1,3,5-Triazine-2,4,6-Triamine
CAS-No.	: 108-78-1
1.2 Relevant identified uses of th Use of the Substance/Mixture	ne substance or mixture and uses advised against : Manufacture of resins, Fire retardant
Recommended restrictions on use	: Food/ feedstuff additives
1.3 Details of the supplier of the	safety data sheet
Manufacturer, importer, supplier	: LAT Nitrogen Linz GmbH StPeter Strasse 25, A-4021 Linz, Austria Telephone: +43 732 6914-0 LAT Nitrogen Piesteritz GmbH
	Möllensdorfer Strasse 13, D-06886 Lutherstadt Wittenberg, Germany Telephone: +49 3491 68 2200
E-mail address	: <u>sds@lat-nitrogen.com</u>
1.4 Emorgonov tolonhono numb	

1.4 Emergency telephone number

+44 (0) 1235 239 670 (NCEC Carechem 24) 0870 600 6266 National Poisons Information Service, UK (24h)



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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Reproductive toxicity, Category 2	H361f: Suspected of damaging fertility.
Carcinogenicity, Category 2	H351: Suspected of causing cancer.
Specific target organ toxicity - repeated exposure, Category 2, Urinary tract	H373: May cause damage to organs through prolonged or repeated exposure.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Hazard pictograms	:	
Signal word	:	Warning
Hazard statements	:	 H351 Suspected of causing cancer. H361f Suspected of damaging fertility. H373 May cause damage to organs (Urinary tract) through prolonged or repeated exposure.
Precautionary statements	:	 Prevention: P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
		Response: P308 + P313 IF exposed or concerned: Get medical advice/ attention.



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Storage:

P405 Store locked up.

2.3 Other hazards

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

SECTION 3: Composition/information on ingredients

3.1 Substances

Substance name	:	1,3,5-Triazine-2,4,6-Triamine
CAS-No.	:	108-78-1

Components

Chemical name	CAS-No. EC-No.	Concentration (% w/w)
2,4,6-triamino-1,3,5-triazine	108-78-1 203-615-4	>= 99,8

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice	: When symptoms persist or in all cases of doubt seek medical advice.
If inhaled	: Remove to fresh air immediately. Get medical attention immediately.
In case of skin contact	: Remove/ Take off immediately all contaminated clothing. Wash off with soap and plenty of water.
In case of eye contact	: Rinse thoroughly with plenty of water, also under the eyelids. If easy to do, remove contact lens, if worn.
If swallowed	: If swallowed, DO NOT induce vomiting.



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	Rinse mouth with water. Seek medical advice.	
4.2 Most important symptoms	and effects, both acute and delayed	1
Symptoms	: Inhalation of dust may provoke to Respiratory irritation Cough	the following symptoms:
	May irritate eyes.	
	Ingestion may affect the followin Kidney Bladder	ng organ(s):
Risks	 Suspected of causing cancer. Suspected of damaging fertility. May cause damage to organs the exposure. 	
4.3 Indication of any immediate	e medical attention and special treat	tment needed
Treatment	: Treat symptomatically. There is no specific antidote ava	ailable.
SECTION 5: Firefighting me	asures	
5.1 Extinguishing media		
Suitable extinguishing media	a : Water spray Dry powder Alcohol-resistant foam	

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting	 Hazardous decomposition products formed under fire conditions. Hydrogen cyanide (hydrocyanic acid) Ammonia Nitrogen oxides (NOx)
	Nitrogen oxides (NOx)

Carbon dioxide (CO2)

5.3 Advice for firefighters

Special protective equipment	:	Wear self-contained broken	reathing ap	pparatus and	protective	suit.
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for firefighters		
Further information	 Standard procedure for chemical fires. In the event of fire, cool tanks with water spray. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. 	

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing dust. Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust). Use personal protective equipment. In case of strong dust development: Dust impervious protective suit

6.2 Environmental precautions

Prevent product from entering environment and drains.

6.3 Methods and material for containment and cleaning up

Contain spillage, pick up with a vacuum cleaner or by wet-brushing and transfer to a container for disposal according to local regulations. Avoid dust formation. Dispose of in accordance with local regulations.

6.4 Reference to other sections

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

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

: Do not breathe dust. Ensure adequate ventilation.





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	In case of dust development use Hazardous decomposition produ temperatures.		
Advice on protection against fire and explosion	: Product resists ignition and does	s not promote flame spread.	
Hygiene measures	before entering eating areas. Wa drinking, or smoking. Handle in a	: Remove contaminated clothing and protective equipment before entering eating areas. Wash hands before eating, drinking, or smoking. Handle in accordance with good industrial hygiene and safety practice.	
7.2 Conditions for safe storage,	including any incompatibilities		
Requirements for storage areas and containers		in a place accessible by	
Advice on common storage	: Keep away from food, drink and	animal feedingstuffs.	
Further information on storage stability	: Stable under normal conditions.		
7.3 Specific end use(s)			
Specific use(s)	: Not applicable		

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

Derived No Effect Level (DNEL):

Substance name	End Use	Exposure routes	Potential health effects	Value
2,4,6-triamino-1,3,5- triazine	Workers	Inhalation	Acute systemic effects	82,3 mg/m3
	Workers	Inhalation	Long-term systemic effects	8,3 mg/m3
	Workers	Skin contact	Acute systemic effects	117 mg/kg bw/d
	Workers	Skin contact	Long-term systemic effects	11,8 mg/kg bw/d



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Consumers	Skin contact	Long-term systemic effects	4,2 mg/kg bw/d
Consumers	Inhalation	Long-term systemic effects	1,5 mg/m3
Consumers	Ingestion	Long-term systemic effects	0,42 mg/kg bw/d

Predicted No Effect Concentration (PNEC):

Substance name	Environmental Compartment	Value
2,4,6-triamino-1,3,5-triazine	Fresh water	0,51 mg/l
	Marine water	0,051 mg/l
	Intermittent use/release	2 mg/l
	Fresh water sediment	13,06 mg/kg dry weight (d.w.)
	Marine sediment	1,306 mg/kg dry weight (d.w.)
	Sewage treatment plant	100 mg/l
	Soil	2,312 mg/kg dry
		weight (d.w.)

8.2 Exposure controls

Engineering measures

Avoid dust formation. Provide adequate ventilation.

Personal protective equipment

Eye protection	: Safety glasses (EN 166)
Hand protection Material Break through time Glove thickness Directive	 Nitrile rubber >= 480 min >= 0,11 mm Equipment should conform to EN 374
Remarks	: For prolonged or repeated contact use protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.
Skin and body protection	: Wear suitable protective clothing.



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	In case of strong dust developm Dust impervious protective suit	
Respiratory protection	: Wear respiratory protection who certain contributing scenario.	en its use is identified for
Protective measures	 Handle in accordance with good practice. Do not eat, drink or smoke whe Do not breathe dust. Wash contaminated clothing be 	en using this product.
Environmental exposure General advice	controls : Prevent product from entering e	environment and drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	:	crystalline, powder
Colour	:	white
Odour	:	odourless
рН	:	8,0 - 9,5 10% aqueous solution
Melting point	:	361 °C
Boiling point	:	Decomposes below the boiling point.
Flash point	:	Not applicable
Flammability (solid, gas)	:	The product is not flammable.
Upper explosion limit / Upper flammability limit	:	Not applicable (solid)
Lower explosion limit / Lower flammability limit	:	Not applicable (solid)



SAFETY DATA SHEET According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

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Vapour pressure	Not applicable (solid)	
Relative vapour density	Not applicable (solid)	
Density	1,574 g/cm³	
Bulk density	650 - 800 kg/m³	
Solubility(ies) Water solubility	3,2 g/l slightly soluble (2	20 °C)
Solubility in other solvents	0,3 g/l (30 °C) Solvent: Acetone	
	0,6 g/l (30 °C) Solvent: Ethanol	
Partition coefficient: n- octanol/water	log Pow: -1,22	
Auto-ignition temperature	Product resists ignition a	and does not promote flame spread.
Decomposition temperature	> 280 °C	
Viscosity Viscosity, kinematic	Not applicable (solid)	
Explosive properties	Not explosive	
Oxidizing properties	The substance or mixtu	re is not classified as oxidizing.
9.2 Other information Molecular weight	126,12 g/mol	
Minimum ignition energy	> 1,4 kJ Method: VDI 2263-1 not dust explosive	



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Particle size	: < 90 μm > 85 %	
SECTION 10: Stability and r	eactivity	
 10.1 Reactivity Stable at normal ambient ter 10.2 Chemical stability Stable under normal condition 		
10.3 Possibility of hazardous r		
Hazardous reactions		n under conditions of normal use. Is gases.
10.4 Conditions to avoid Conditions to avoid	: None known.	
10.5 Incompatible materials Materials to avoid	: Strong acids and oxidizing ag	ents
10.6 Hazardous decomposition Under fire conditions: Ammonia Nitrogen oxides (NOx) Hydrogen cyanide (hydrocya		
SECTION 11: Toxicological	information	
11.1 Information on toxicologic	cal effects	
Acute toxicity Based on available data, the	e classification criteria are not met.	
Product: Acute oral toxicity	: LD50 (Rat, male): 3161 mg/kg	bw

Acute inhalation toxicity	:	LC50 (Rat, male and female): > 5190



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	Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline	403
Acute dermal toxicity	: LD50 Dermal (Rabbit): > 1000	mg/kg bw
Skin corrosion/irritation		
Based on available data, t	the classification criteria are not met.	
Product:		
Species Exposure time Method Result	: Rabbit : 72 h : OECD Test Guideline 404 : No skin irritation	
Serious eye damage/eye		
	the classification criteria are not met.	
Product:		
Species Exposure time Result	: Rabbit : 72 h : No eye irritation	
Respiratory or skin sens	sitisation	
Skin sensitisation		
Based on available data, t	the classification criteria are not met.	
Respiratory sensitisation	1	
Based on available data, t	the classification criteria are not met.	
Product:		
Test Type	: Maximisation Test	
Species	: Guinea pig	
Method	: OECD Test Guideline 406	
Result	: Not a skin sensitizer.	
Germ cell mutagenicity		
	the classification criteria are not met.	
Product:		



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	Test system: Chinese hamster ova Result: negative	ry cells
Genotoxicity in vivo	: Test Type: Chromosome aberration Species: Mouse (male) Strain: B6C3F1 Result: negative	n test in vitro
Carcinogenicity		
Suspected of causing cancer.		
Product:		
Species Application Route LOAEL Target Organs Remarks	 Rat, male Oral 126 mg/kg bw/day Urinary bladder In animal studies carcinomas were the bladder of male rats, caused by stones and their constant irritation, 	y the formation of bladder
Reproductive toxicity Suspected of damaging fertility	۷.	
Product:		
Effects on foetal development	: Species: Rat Teratogenicity: NOAEL: 400 mg/kg Method: OECD Test Guideline 414 Result: No teratogenic effects	
	Species: Rabbit Developmental Toxicity: NOAEL: 1 Method: OECD Test Guideline 414 Result: No adverse effects	
STOT - single exposure Based on available data, the c	lassification criteria are not met.	
STOT - repeated exposure		
May cause damage to organs	(Urinary tract) through prolonged or rep	peated exposure.
Repeated dose toxicity		

Product:



weiainne		
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Species NOAEL Application Route Target Organs Assessment	 Rat, male and female 72 mg/kg bw/day Oral Bladder, Kidney May cause damage to organs thr exposure. 	rough prolonged or repeated
Aspiration toxicity		
•	classification criteria are not met.	
<u>Product:</u> Not applicable		
Components:		
2,4,6-triamino-1,3,5-triazine:		
Not applicable		
SECTION 12: Ecological infor	mation	
12.1 Toxicity		
Product:		
Toxicity to fish	: LC50 (Rainbow trout): > 3.000 m Exposure time: 96 h	ıg/l
Toxicity to daphnia and other aquatic invertebrates	: EC50 (Daphnia magna (Water fle Exposure time: 48 h Test Type: static test	ea)): 200 mg/l

Toxicity to algae/aquatic
plants: NOEC (Selenastrum capricornutum (green algae)): 98 mg/l
End point: Growth inhibition
Exposure time: 96 h
Remarks: Fresh waterToxicity to fish (Chronic
toxicity): NOEC: 5,1 mg/l
Exposure time: 36 d
Remarks: Fresh water

Remarks: Fresh water

Toxicity to daphnia and other : NOEC: 11 mg/l



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aquatic invertebrates (Chronic toxicity)	Exposure time: 21 d Species: Daphnia (water flea) Test Type: semi-static test Method: OECD Test Guideline 211 Remarks: Fresh water	
12.2 Persistence and degradabil	ity	
Product:		
Biodegradability	: Remarks: Not readily biodegradable Not inherently biodegradable.	2.
12.3 Bioaccumulative potential		
Product:		
Bioaccumulation	: Species: Fish Bioconcentration factor (BCF): 3,8 Remarks: Bioaccumulation not exp	pected.
12.4 Mobility in soil		
Product:		
Distribution among environmental compartments	: Medium: Soil log Koc: 2,3 Method: OECD Test Guideline 106	i
	Medium: Water Remarks: 94%	
	Medium: Air Remarks: 6%	
12.5 Results of PBT and vPvB as	ssessment	
Product:		
Assessment	: This substance/mixture contains no to be either persistent, bioaccumula	ative and toxic (PBT), or

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0.1% or higher..

very persistent and very bioaccumulative (vPvB) at levels of

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12.6 Other adverse effects		
Product:		
Endocrine disrupting potential	: The substance/mixture does no considered to have endocrine to REACH Article 57(f) or Com (EU) 2017/2100 or Commission levels of 0.1% or higher.	disrupting properties according
Additional ecological information	: Do not allow product to reach or sewage system. Spillage of even small amounts drinking water.	

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product	 Do not dispose of together with household waste. Do not allow product to reach ground water, water bodies or sewage system. Contact the proper local authorities.
	European waste code: 16 05 08* (discarded organic chemicals consisting of or containing dangerous substances)
Contaminated packaging	: Empty remaining contents. Dispose of in accordance with local regulations.

SECTION 14: Transport information

14.1 UN number

Not regulated as a dangerous good

14.2 UN proper shipping name

Not regulated as a dangerous good

14.3 Transport hazard class(es)

Not regulated as a dangerous good



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14.4 Packing group Not regulated as a dar	ngerous good	
14.5 Environmental hazar Not regulated as a dar		
14.6 Special precautions	for user	
Remarks	: Not dangerous goods in the m IMDG-Code, ICAO/IATA-DGR	eaning of ADR/RID, ADN,

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

Relevant EU provisions transposed through retained EU law

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	:	Not applicable
REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	:	Not applicable
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	:	2,4,6-triamino-1,3,5-triazine
UK REACH List of substances subject to authorisation (Annex XIV)	:	Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances. Not applicable

15.2 Chemical safety assessment

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



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SECTION 16: Other information

Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways: ADR - Agreement concerning the International Carriage of Dangerous Goods by Road: AllC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC -International Agency for Research on Cancer; IATA - International Air Transport Association; IBC -International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk: IC50 - Half maximal inhibitory concentration: ICAO - International Civil Aviation Organization: IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Cooperation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT -Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of very high concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Further information

Training advice	:	Provide adequate information, instruction and training for operators.
Other information	:	Issued according to Regulation (EC) No 1907/2006, Annex II,



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Sources of key data used to compile the Safety Data Sheet	and its amendments.Chemical Safety Report, Melamine. Consortium, 2023	Melamine REACH

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Annex: Exposure Scenarios

Table of Contents

Number	Title
ES1	Formulation or re-packing, Formulation & (re)packing of substances and mixtures; Adhesives, sealants (PC1); Coatings and paints, thinners, paint removers (PC9a); Laboratory chemicals (PC21); Leather treatment products (PC23); Polymer preparations and compounds (PC32); Washing and cleaning products (PC35)
ES2	Use at industrial sites, Use as monomer (intermediate) for melamine based resins production; Adhesives, sealants (PC1); Coatings and paints, thinners, paint removers (PC9a); Fillers, putties, plasters, modelling clay (PC9b); Finger paints (PC9c); Ink and toners (PC18); Laboratory chemicals (PC21); Leather treatment products (PC23); Polymer preparations and compounds (PC32); Washing and cleaning products (PC35); Cosmetics, personal care products (PC39); Agriculture, forestry, fishery (SU1); Mining, (without offshore industries) (SU2a); Manufacture of textiles, leather, fur (SU5); Manufacture of wood and wood products (SU6a); Manufacture of pulp, paper and paper products (SU6b); Manufacture of bulk, large scale chemicals (including petroleum products) (SU8); Manufacture of fine chemicals (SU9); Manufacture of rubber products (SU11); Manufacture of plastics products, including compounding and conversion (SU12); Manufacture of other non-metallic mineral products, e.g. plasters, cement (SU13); Manufacture of furniture (SU18); Building and construction work (SU19)
ES3	Use at industrial sites, Use as monomer (intermediate) in melamine based resins before curing; Polymer preparations and compounds (PC32)
ES4	Use at industrial sites, Use as intermediate for the production of other substances; Polymer preparations and compounds (PC32); Cosmetics, personal care products (PC39); Manufacture of bulk, large scale chemicals (including petroleum products) (SU8)
ES5	Use at industrial sites, Use as additive in foams; Laboratory chemicals (PC21); Polymer preparations and compounds (PC32); Manufacture of rubber products (SU11); Manufacture of plastics products, including compounding and conversion (SU12); Manufacture of furniture (SU18)
ES6	Use at industrial sites, Use as additive in intumescent coatings; Coatings and paints, thinners, paint removers (PC9a); Polymer preparations and compounds (PC32); Manufacture of plastics products, including compounding and conversion (SU12); General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment (SU17); Building and construction work (SU19)
ES7	Widespread use by professional workers, Use as additive in intumescent coatings; Coatings



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	and paints, thinners, paint removers (PC9a); Laboratory c preparations and compounds (PC32); Manufacture of plas compounding and conversion (SU12); Building and const	stics products, including
ES8	Service life - workers, PU foams - Workers (industrial); ; V Vehicles (ELV) directive (AC1a); ; Plastic articles (AC13);	-
ES9	Service life - workers, Intumescent coatings - Workers (ind apparel: Large surface area articles (AC5a); ; Metal article (AC7a); ; Plastic articles (AC13)	
ES10	Service life - workers, Intumescent coatings - Professional apparel: Large surface area articles (AC5a); ; Metal article (AC7a); ; Plastic articles (AC13)	
ES11	Service life - consumers, PU foams - Consumers; ; Plastic	c articles (AC13)
ES12	Service life - consumers, Intumescent coatings - Consume	ers; ; Plastic articles (AC13)



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ES1: Formulation & (re)packing of substances and mixtures

1.1. Title section

Structured Short Title :	Formulation or re-packing, Formulation & (re)packing of substances and mixtures; Adhesives, sealants (PC1).; Coatings and paints, thinners, paint removers (PC9a).; Laboratory chemicals (PC21).; Leather treatment products (PC23).; Polymer preparations and compounds (PC32).; Washing and cleaning products (PC35).
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Environm	Environment			
CS1	Formulation & (re)packing of substances and mixtures	ERC2		
Worker				
CS2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions	PROC2		
CS3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition	PROC3		
CS4	Chemical production where opportunity for exposure arises	PROC4		
CS5	Mixing or blending in batch processes (solid)	PROC5		
CS6	Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (solid)	PROC8a		
CS7	Transfer of substance or mixture (charging/discharging) at dedicated facilities (solid)	PROC8b		
CS8	Transfer of substance or mixture into small containers (dedicated filling line, including weighing)	PROC9		
CS9	Tabletting, compression, extrusion, pelettisation, granulation	PROC14		
CS10	Use as laboratory reagent (solid)	PROC15		
CS11	Manual activities involving hand contact (solid)	PROC19		
CS12	Manual maintenance (cleaning and repair) of machinery (solid)	PROC28		



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CS13	Mixing or blending in batch processes (liquid)	PROC5

0010	mixing of biending in batch processes (inquity)	11000		
CS14	S14 Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (liquid)			
CS15	Transfer of substance or mixture (charging/discharging) at dedicated facilities (liquid)	PROC8b		
CS16	Use as laboratory reagent (liquid)	PROC15		
CS17	Manual activities involving hand contact (liquid)	PROC19		
CS18	Manual maintenance (cleaning and repair) of machinery (liquid)	PROC28		

1.2. Conditions of use affecting exposure

1.2.1. Control of environmental exposure: Formulation into mixture (ERC2)

Conditions and measures related to sewage treatment plant		
STP type	: Municipal Sewage Treatment Plant	
Additional information on STP	: Biological elimination	
STP sludge treatment	: Controlled application of sewage sludge to agricultural soil	
STP effluent	: 2.000 m³/d	
Other conditions affecting environmental exposure		
Receiving surface water flow	: 18.000 m³/d	
Local freshwater dilution factor	: 10	

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

Product (article) characteristics		
Covers percentage substance in the product up to 100 %.		
Physical form of product	: Solid, medium dustiness	





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Amount used, frequency and duration of use (or from service life)			
Duration	: Covers daily exposures up to 8 hours		
Other conditions affecting w	orkers exposure		
Indoor or outdoor use	: Indoor use		
Temperature	: 40 °C		
Additional good practice ad	vice. Obligations according to Article 37(4) of REACH do not apply		

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

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

Product (article) characterist	ics
Covers percentage substance	in the product up to 100 %.
Physical form of product	: Solid, medium dustiness
Amount used, frequency and	duration of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
Other conditions affecting w	orkers exposure
Indoor or outdoor use	: Indoor use
Temperature	: 40 °C
Additional good practice adv	ice. Obligations according to Article 37(4) of REACH do not apply
Assumes that activities are und	ertaken with appropriate and well maintained equipment by trained

personnel operating under supervision.



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Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

1.2.4. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product

: Solid, medium dustiness

Amount used, frequency and duration of use (or from service life)

Duration

Covers daily exposures up to 8 hours :

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
Temperature	:	40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

1.2.5. Control of worker exposure: Mixing or blending in batch processes (solid) (PROC5)



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Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Solid, medium dustiness

Amount used, frequency and duration of use (or from service life)

:

Duration

Covers daily exposures up to 8 hours

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
Temperature	:	40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

1.2.6. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (solid) (PROC8a)

Product (article) characteristics
Covers percentage substance in the product up to 100 %.
Physical form of product : Solid, medium dustiness
Amount used, frequency and duration of use (or from service life)





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Duration

Covers daily exposures up to 8 hours

Conditions and measures related to personal protection, hygiene and health evaluation

:

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
Temperature	:	40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

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

	Product (article) characteristics	
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Covers percentage substance in the product up to 100 %.

Physical form of product : Solid, medium dustiness

Amount used, frequency and duration of use (or from service life)

·

Duration

Covers daily exposures up to 8 hours

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.



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Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
Temperature	:	40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

1.2.8. Control of worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

Product (article) characteristics
Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product

Solid, medium dustiness :

Amount used, frequency and duration of use (or from service life)

Duration

: Covers daily exposures up to 8 hours

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure		
Indoor or outdoor use	: Indoor use	
Temperature	: 40 °C	



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Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

1.2.9. Control of worker exposure: Tabletting, compression, extrusion, pelettisation, granulation (PROC14)

Product (article)	characteristics
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Covers percentage substance in the product up to 100 %.

Physical form of product : Solid, medium dustiness

Amount used, frequency and duration of use (or from service life)

Duration

: Covers daily exposures up to 8 hours

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure

 Indoor or outdoor use
 : Indoor use

 Temperature
 : 40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.





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

Product (article) characteristics			
Covers percentage substance	Covers percentage substance in the product up to 100 %.		
Physical form of product	: Solid, medium dustiness		
Amount used, frequency and duration of use (or from service life)			
Duration	: Covers daily exposures up to 8 hours		
Other conditions affecting workers exposure			
Indoor or outdoor use	: Indoor use		
Temperature	: 40 °C		

1.2.11. Control of worker exposure: Manual activities involving hand contact (solid) (PROC19)

Product (article) characteristics		
Covers percentage substance in the product up to 100 %.		
Physical form of product	: Solid, medium dustiness	
Amount used, frequency and duration of use (or from service life)		
Duration	: Covers exposure up to 4 hrs	
Conditions and measures related to personal protection, hygiene and health evaluation		
Conditions and measures	related to personal protection, hygiene and health evaluation	
Wear chemically resistant glo If skin contamination is expect be protected with impervious For further specification, refer	ves (tested to EN374) in combination with specific activity training. ted to extend to other parts of the body, then these body parts should also garments in a manner equivalent to those described for the hands. to section 8 of the SDS.	
Wear chemically resistant glo If skin contamination is expec be protected with impervious	ves (tested to EN374) in combination with specific activity training. ted to extend to other parts of the body, then these body parts should also garments in a manner equivalent to those described for the hands. to section 8 of the SDS. of 95 %	



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Temperature

: 40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

1.2.12. Control of worker exposure:Manual maintenance (cleaning and repair) of machinery (solid) (PROC28)

Product (article) characteristics	

Covers percentage substance in the product up to 100 %.

Physical form of product : Solid, high dustiness

Amount used, frequency and duration of use (or from service life)

Duration

: Covers daily exposures up to 8 hours

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
Temperature	:	40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately.



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Ensure daily cleaning of the equipment.

1.2.13. Control of worker exposure: Mixing or blending in batch processes (liquid) (PROC5)

Product (article) characteristic	S S	
Covers concentrations up to 30	%	
Physical form of product	: Liquid	
Amount used, frequency and	duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours	
	ated to personal protection, hygiene and health evaluation	
Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Dermal - minimum efficiency of 80 %		
Other conditions affecting wo	rkers exposure	
Indoor or outdoor use	: Indoor use	
Temperature	: 115 °C	
Additional good practice advi	ce. Obligations according to Article 37(4) of REACH do not apply	
personnel operating under supe	ning and maintenance of equipment and machines.	

1.2.14. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (liquid) (PROC8a)

Product (article) characteristics

Covers concentrations up to 30 %



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Physical form of product : Liquid

Amount used, frequency and duration of use (or from service life)

Duration

: Covers daily exposures up to 8 hours

Conditions and measures related to personal protection, hygiene and health evaluation

: Indoor use

: 115 °C

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure

Indoor	or outdoor use	

Temperature

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

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

Product (article) characteristics		
Covers concentrations up to 30 %		
Physical form of product	: Liquid	
Amount used, frequency and duration of use (or from service life)		
Duration	: Covers daily exposures up to 8 hours	
Conditions and measures related to personal protection, hygiene and health evaluation		





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Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure		
Indoor or outdoor use	: Indoor use	
Temperature	: 115 °C	

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

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

Product (article) characteristics			
Covers concentrations up to 30 %			
Physical form of product	: Liquid		
Amount used, frequency and duration of use (or from service life)			
Duration	: Covers daily exposures up to 8 hours		
Other conditions affecting workers exposure			
Indoor or outdoor use	: Indoor use		
Temperature	: 115 °C		

1.2.17. Control of worker exposure: Manual activities involving hand contact (liquid) (PROC19)

Product (article) characteristics



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Covers concentrations up to 30 %

Physical form of product : Liquid

Amount used, frequency and duration of use (or from service life)

Duration

: Covers daily exposures up to 8 hours

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 95 %

Other conditions affecting workers exposure

Indoor or outdoor use: Indoor useTemperature: 115 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

1.2.18. Control of worker exposure:Manual maintenance (cleaning and repair) of machinery (liquid) (PROC28)

Amount used, frequency and duration of use (or from service life)

Duration

: Covers daily exposures up to 8 hours



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Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
Temperature	:	115 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

1.3. Exposure estimation and reference to its source

1.3.1. Environmental release and exposure: Formulation into mixture (ERC2)

Release route	Release rate	Release estimation method
Water	5 kg/day	Estimated release factor
Air	1 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,244 mg/L (EUSES)	0,478
Freshwater sediment	6,242 mg/kg dry weight (EUSES)	0,478
Marine water	0,024 mg/L (EUSES)	0,478
Marine sediment	0,624 mg/kg dry weight (EUSES)	0,478



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Sewage treatment plant	2,433 mg/L (EUSES)	0,024
Agricultural soil	1,727 mg/kg dry weight (EUSES)	0,747
Man via environment - Inhalation	0,000228 mg/m ³ (EUSES)	< 0,01
Man via environment - Oral	0,023 mg/kg bw/day (EUSES)	0,054
combined routes		0,054

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,5 mg/m³ (ECETOC TRA worker v3)	0,06	
inhalative	systemic	short-term	2 mg/m ³ (ECETOC TRA worker v3)	0,024	
dermal	systemic	long-term	1,37 mg/kg bw/day (ECETOC TRA worker v3)	0,116	
combined routes	systemic	long-term		0,176	

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	1 mg/m ³ (ECETOC TRA worker v3)	0,12	
inhalative	systemic	short-term	4 mg/m ³ (ECETOC TRA worker v3)	0,049	
dermal	systemic	long-term	0,69 mg/kg bw/day (ECETOC TRA worker v3)	0,058	
combined routes	systemic	long-term		0,179	



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1.3.4. Worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	5 mg/m³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	1,372 mg/kg bw/day (ECETOC TRA worker v3)	0,116	
combined routes	systemic	long-term		0,719	

1.3.5. Worker exposure: Mixing or blending in batch processes (solid) (PROC5)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	5 mg/m ³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,835	

1.3.6. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (solid) (PROC8a)

Exposure route		Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	5 mg/m³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m ³ (ECETOC TRA worker v3)	0,243	



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dermal	systemic		2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,835	

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	1 mg/m ³ (ECETOC TRA worker v3)	0,12	
inhalative	systemic	short-term	4 mg/m ³ (ECETOC TRA worker v3)	0,049	
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,353	

1.3.8. Worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	5 mg/m ³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m ³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	1,372 mg/kg bw/day (ECETOC TRA worker v3)	0,116	
combined routes	systemic	long-term		0,719	

1.3.9. Worker exposure: Tabletting, compression, extrusion, pelettisation, granulation (PROC14)

Exposure route Health effect Exposure indicator	Exposure level	RCR	Remarks
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inhalative	systemic	long-term	1 mg/m ³ (ECETOC TRA worker v3)	0,12	
inhalative	systemic	short-term	4 mg/m ³ (ECETOC TRA worker v3)	0,049	
dermal	systemic	long-term	3,43 mg/kg bw/day (ECETOC TRA worker v3)	0,291	
combined routes	systemic	long-term		0,411	

1.3.10. Worker exposure: Use as laboratory reagent (solid) (PROC15)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,5 mg/m³ (ECETOC TRA worker v3)	0,06	
inhalative	systemic	short-term	2 mg/m ³ (ECETOC TRA worker v3)	0,024	
dermal	systemic	long-term	0,34 mg/kg bw/day (ECETOC TRA worker v3)	0,029	
combined routes	systemic	long-term		0,089	

1.3.11. Worker exposure: Manual activities involving hand contact (solid) (PROC19)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	3 mg/m ³ (ECETOC TRA worker v3)	0,361	
inhalative	systemic	short-term	20 mg/m ³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	7,072 mg/kg bw/day (ECETOC TRA worker v3)	0,599	
combined routes	systemic	long-term		0,961	



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1.3.12. Worker exposure: Manual maintenance (cleaning and repair) of machinery (solid) (PROC28)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	5 mg/m³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m ³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,835	

1.3.13. Worker exposure: Mixing or blending in batch processes (liquid) (PROC5)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,525 mg/m ³ (ECETOC TRA worker v3)	0,063	
inhalative	systemic	short-term	0,525 mg/m ³ (ECETOC TRA worker v3)	> 0,01	
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,296	

1.3.14. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (liquid) (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,525 mg/m³ (ECETOC TRA worker v3)	0,063	
inhalative	systemic	short-term	0,525 mg/m ³	> 0,01	



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			(ECETOC TRA worker v3)		
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,296	

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,525 mg/m³ (ECETOC TRA worker v3)	0,063	
inhalative	systemic	short-term	0,525 mg/m³ (ECETOC TRA worker v3)	> 0,01	
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,296	

1.3.16. Worker exposure: Use as laboratory reagent (liquid) (PROC15)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,525 mg/m³ (ECETOC TRA worker v3)	0,063	
inhalative	systemic	short-term	0,525 mg/m³ (ECETOC TRA worker v3)	> 0,01	
dermal	systemic	long-term	0,34 mg/kg bw/day (ECETOC TRA worker v3)	0,029	
combined routes	systemic	long-term		0,092	



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1.3.17. Worker exposure: Manual activities involving hand contact (liquid) (PROC19)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	1,74 mg/m ³ (Stoffenmanager v4.0)	0,21	
inhalative	systemic	short-term	1,74 mg/m ³ (Stoffenmanager v4.0)	0,021	
dermal	systemic	long-term	7,072 mg/kg bw/day (ECETOC TRA worker v3)	0,599	
combined routes	systemic	long-term		0,809	

1.3.18. Worker exposure: Manual maintenance (cleaning and repair) of machinery (liquid) (PROC28)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,525 mg/m ³ (ECETOC TRA worker v3)	0,063	
inhalative	systemic	short-term	0,525 mg/m ³ (ECETOC TRA worker v3)	> 0,01	
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,296	

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

The safety data sheet at hand provides the user with risk management measures and operational conditions which enables him to work safely with the substance / mixture. If other risk management measures / operational conditions are adopted, the user has to ensure, that the risks are managed to at least equivalent levels.



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Additional information available from:

https://lat-web-prod-storage-

cdn.azureedge.net/nitrogenblob/storage/local/unMlcCNE co1jAEuzdf0ibZWRKBU7y19BBhYUxt7f.pdf



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ES2: Use as monomer (intermediate) for melamine based resins production

2.1. Title section

Structured Short Title :	Use at industrial sites, Use as monomer (intermediate) for melamine based resins production; Adhesives, sealants (PC1).; Coatings and paints, thinners, paint removers (PC9a).; Fillers, putties, plasters, modelling clay (PC9b).; Finger paints (PC9c).; Ink and toners (PC18).; Laboratory chemicals (PC21).; Leather treatment products (PC23).; Polymer preparations and compounds (PC32).; Washing and cleaning products (PC35).; Cosmetics, personal care products (PC39).; Agriculture, forestry, fishery (SU1).; Mining, (without offshore industries) (SU2a).; Manufacture of textiles, leather, fur (SU5).; Manufacture of wood and wood products (SU6a).; Manufacture of pulp, paper and paper products (SU6b).; Manufacture of bulk, large scale chemicals (including petroleum products) (SU8).; Manufacture of fine chemicals (SU9).; Manufacture of rubber products (SU11).; Manufacture of plastics products, including compounding and conversion (SU12).; Manufacture of other non-metallic mineral products, e.g. plasters, cement (SU13).; Manufacture of furniture (SU18).; Building and construction work (SU19).
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Environn	nent	
CS1	Use as monomer (intermediate) for melamine based resins production	ERC6a, ERC6c
Worker		
CS2	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions	PROC1
CS3	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions	PROC2
CS4	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition	PROC3



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CS5	Chemical production where opportunity for exposure arises	PROC4
CS6	Mixing or blending in batch processes	PROC5
CS7	Calendering operations	PROC6
CS8	Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (solid)	PROC8a
CS9	Transfer of substance or mixture (charging/discharging) at dedicated facilities (solid)	PROC8b
CS10	Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (solid)	PROC9
CS11	Tabletting, compression, extrusion, pelettisation, granulation	PROC14
CS12	Use as laboratory reagent	PROC15
CS13	Manual maintenance (cleaning and repair) of machinery	PROC28
CS14	Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (liquid)	PROC8a
CS15	Transfer of substance or mixture (charging/discharging) at dedicated facilities (liquid)	PROC8b
CS16	Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (liquid)	PROC9

2.2. Conditions of use affecting exposure

2.2.1. Control of environmental exposure: Use of intermediate (ERC6a) / Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article) (ERC6c)

Conditions and measures related to sewage treatment plant				
STP type	: Municipal Sewage Treatment Plant			
Additional information on STP	: Biological elimination			
STP sludge treatment	: Controlled application of sewage sludge to agricultural soil			
STP effluent	: 2.000 m³/d			



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Other conditions affecting enviro	onmental exposure
Receiving surface water flow	: 18.000 m ³ /d
Local freshwater dilution factor	: 10

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

Product (article) characteris	ics
Covers percentage substance	in the product up to 100 %.
Physical form of product	: Solid, medium dustiness
Amount used, frequency and	d duration of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
Other conditions affecting w	orkers exposure
Indoor or outdoor use	: Indoor use
Temperature	: 40 °C
Additional good practice adv	vice. Obligations according to Article 37(4) of REACH do not apply
personnel operating under sup	aning and maintenance of equipment and machines.

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

Product (article) characteristic	S	
Covers percentage substance ir	the product up to 100 %.	
Physical form of product	: Solid, medium dustiness	



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Amount used, frequency and duration of use (or from service life)		
Duration	: Covers daily exposures up to 8 hours	
Other conditions affecting workers exposure		
Indoor or outdoor use	: Indoor use	
Temperature	: 40 °C	
Additional good practice adv	vice. Obligations according to Article 37(4) of REACH do not apply	

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

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

Product (article) characterist	ics
Covers percentage substance	in the product up to 100 %.
Physical form of product	: Solid, medium dustiness
Amount used, frequency and	duration of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
Other conditions affecting w	orkers exposure
Indoor or outdoor use	: Indoor use
Temperature	: 40 °C
Additional good practice adv	ice. Obligations according to Article 37(4) of REACH do not apply
Assumes that activities are und	ertaken with appropriate and well maintained equipment by trained

personnel operating under supervision.



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Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

2.2.5. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product

: Solid, medium dustiness

Amount used, frequency and duration of use (or from service life)

Duration

Covers daily exposures up to 8 hours :

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use Temperature : 40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

2.2.6. Control of worker exposure: Mixing or blending in batch processes (PROC5)



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Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Solid, medium dustiness

Amount used, frequency and duration of use (or from service life)

:

Duration

Covers daily exposures up to 8 hours

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
Temperature	:	40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

2.2.7. Control of worker exposure:Calendering operations (PROC6)

Product (article) characteristics			
Covers percentage substance in the product up to 100 %.			
Physical form of product	: Solid, medium dustiness		
Amount used, frequency and duration of use (or from service life)			
Duration	: Covers daily exposures up to 8 hours		



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Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Dermal - minimum efficiency of 90 %

Definal - minimum enciency of 50 %

Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
Temperature	:	40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

2.2.8. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (solid) (PROC8a)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product

: Solid, medium dustiness

Amount used, frequency and duration of use (or from service life)

Duration

: Covers daily exposures up to 8 hours

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Dermal - minimum efficiency of 80 %



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Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
Temperature	:	40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately.

Ensure daily cleaning of the equipment.

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

Product (article) characterist	ics
Covers percentage substance	in the product up to 100 %.
Physical form of product	: Solid, medium dustiness
Amount used, frequency and	I duration of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
Wear suitable gloves tested to f skin contamination is expecte	d to extend to other parts of the body, then these body parts should also arments in a manner equivalent to those described for the hands. to section 8 of the SDS. 80 %
Indoor or outdoor use	: Indoor use
Temperature	: 40 °C
Additional good practice adv	rice. Obligations according to Article 37(4) of REACH do not apply





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Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately.

Ensure daily cleaning of the equipment.

2.2.10. Control of worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (solid) (PROC9)

Product (article) characteristic	S
Covers percentage substance in	the product up to 100 %.
Physical form of product	: Solid, medium dustiness
Amount used, frequency and c	luration of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
Conditions and measures rela	ted to personal protection, hygiene and health evaluation
	to extend to other parts of the body, then these body parts should also nents in a manner equivalent to those described for the hands. section 8 of the SDS.
Other conditions affecting wor	kers exposure
Indoor or outdoor use	: Indoor use
Temperature	: 40 °C
Additional good practice advic	e. Obligations according to Article 37(4) of REACH do not apply
personnel operating under super	ng and maintenance of equipment and machines.



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2.2.11. Control of worker exposure: Tabletting, compression, extrusion, pelettisation, granulation (PROC14)

Product (article) characteristics			
Covers percentage substance in	the product up to 100 %.		
Physical form of product	: Solid, medium dustiness		
Amount used, frequency and d	uration of use (or from service life)		
Duration	: Covers daily exposures up to 8 hours		
Other conditions affecting workers exposure			
Indoor or outdoor use	: Indoor use		
Temperature	: 40 °C		
Additional good practice advice	e. Obligations according to Article 37(4) of REACH do not apply		
personnel operating under superv	ng and maintenance of equipment and machines.		

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

Product (article) characteristics	5		
Covers percentage substance in	the product up to 100 %.		
Physical form of product	: Solid, medium dustiness		
Amount used, frequency and d	luration of use (or from service life)		
Duration	: Covers daily exposures up to 8 hours		
Other conditions affecting workers exposure			
Indoor or outdoor use	: Indoor use		



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Temperature

: 40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

2.2.13. Control of worker exposure:Manual maintenance (cleaning and repair) of machinery (PROC28)

Product (article) characteristics	
Covers percentage substance in t	he product up to 100 %.
Physical form of product	: Solid, medium dustiness

Amount used, frequency and duration of use (or from service life)

Duration

: Covers daily exposures up to 8 hours

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
Temperature	:	40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately.



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Ensure daily cleaning of the equipment.

2.2.14. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (liquid) (PROC8a)

Product (article) characteris	ics
Covers concentrations up to 1	0 %
Physical form of product	: Liquid
Amount used, frequency and	d duration of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
Other conditions affecting w	orkers exposure
Indoor or outdoor use	: Indoor use
Temperature	: 115 °C
Additional good practice adv	vice. Obligations according to Article 37(4) of REACH do not apply
personnel operating under sup	aning and maintenance of equipment and machines.

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

Product (article) characteristics

Covers concentrations up to 10 %

Physical form of product

: Liquid

Amount used, frequency and duration of use (or from service life)

Duration

: Covers daily exposures up to 8 hours



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Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
Temperature	:	115 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately.

Ensure daily cleaning of the equipment.

2.2.16. Control of worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (liquid) (PROC9)

Product (article) characteristi	cs
Covers concentrations up to 10) %
Physical form of product	: Liquid
Amount used, frequency and	duration of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
Other conditions affecting we	orkers exposure
Indoor or outdoor use	: Indoor use
Temperature	: 115 °C
Additional good practice adv	ice. Obligations according to Article 37(4) of REACH do not apply
personnel operating under supe	ning and maintenance of equipment and machines.

Ensure daily cleaning of the equipment.



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2.3. Exposure estimation and reference to its source

2.3.1. Environmental release and exposure: Use of intermediate (ERC6a) / Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article) (ERC6c)

Release route	Release rate	Release estimation method
Water	3 kg/day	Estimated release factor
Air	0,5 kg/day	Estimated release factor
Soil	0 kg/day Estimated release factor	

Compartment	Exposure level	RCR
Freshwater	0,147 mg/L (EUSES)	0,287
Freshwater sediment	3,751 mg/kg dry weight (EUSES)	0,287
Marine water	0,015 mg/L (EUSES)	0,287
Marine sediment	0,375 mg/kg dry weight (EUSES)	0,287
Sewage treatment plant	1,46 mg/L (EUSES)	0,015
Agricultural soil	1,032 mg/kg dry weight (EUSES)	0,446
Man via environment - Inhalation	0,000114 mg/m ³ (EUSES)	< 0,01
Man via environment - Oral	0,013 mg/kg bw/day (EUSES)	0,031
combined routes		0,031

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,01 mg/m³ (ECETOC TRA worker v3)	< 0,01	
inhalative	systemic	short-term	0,04 mg/m³ (ECETOC TRA worker v3)	< 0,01	
dermal	systemic	long-term	0,034 mg/kg	< 0,01	



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			bw/day (ECETOC TRA worker v3)		
combined routes	systemic	long-term		< 0,01	

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,5 mg/m³ (ECETOC TRA worker v3)	0,06	
inhalative	systemic	short-term	2 mg/m ³ (ECETOC TRA worker v3)	0,024	
dermal	systemic	long-term	1,37 mg/kg bw/day (ECETOC TRA worker v3)	0,116	
combined routes	systemic	long-term		0,176	

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	1 mg/m ³ (ECETOC TRA worker v3)	0,12	
inhalative	systemic	short-term	4 mg/m ³ (ECETOC TRA worker v3)	0,049	
dermal	systemic	long-term	0,69 mg/kg bw/day (ECETOC TRA worker v3)	0,058	
combined routes	systemic	long-term		0,179	

2.3.5. Worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Exposure route		Exposure indicator	Exposure level	RCR	Remarks
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inhalative	systemic	long-term	5 mg/m ³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m ³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	1,372 mg/kg bw/day (ECETOC TRA worker v3)	0,116	
combined routes	systemic	long-term		0,719	

2.3.6. Worker exposure: Mixing or blending in batch processes (PROC5)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	5 mg/m³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m ³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,835	

2.3.7. Worker exposure: Calendering operations (PROC6)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	5 mg/m ³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m ³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,835	



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2.3.8. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (solid) (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	5 mg/m ³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,835	

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	1 mg/m ³ (ECETOC TRA worker v3)	0,12	
inhalative	systemic	short-term	4 mg/m ³ (ECETOC TRA worker v3)	0,049	
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,353	

2.3.10. Worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (solid) (PROC9)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	5 mg/m ³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m ³	0,243	



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			(ECETOC TRA worker v3)		
dermal	systemic	long-term	1,372 mg/kg bw/day (ECETOC TRA worker v3)	0,116	
combined routes	systemic	long-term		0,719	

2.3.11. Worker exposure: Tabletting, compression, extrusion, pelettisation, granulation (PROC14)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	1 mg/m ³ (ECETOC TRA worker v3)	0,12	
inhalative	systemic	short-term	4 mg/m ³ (ECETOC TRA worker v3)	0,049	
dermal	systemic	long-term	3,43 mg/kg bw/day (ECETOC TRA worker v3)	0,291	
combined routes	systemic	long-term		0,411	

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,5 mg/m³ (ECETOC TRA worker v3)	0,06	
inhalative	systemic	short-term	2 mg/m ³ (ECETOC TRA worker v3)	0,024	
dermal	systemic	long-term	0,34 mg/kg bw/day (ECETOC TRA worker v3)	0,029	
combined routes	systemic	long-term		0,089	

2.3.13. Worker exposure: Manual maintenance (cleaning and repair) of machinery (PROC28)

Exposure route	Health effect	Exposure	Exposure level	RCR	Remarks



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		indicator			
inhalative	systemic	long-term	5 mg/m ³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m ³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,835	

2.3.14. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (liquid) (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,315 mg/m ³ (ECETOC TRA worker v3)	0,038	
inhalative	systemic	short-term	0,315 mg/m ³ (ECETOC TRA worker v3)	> 0,01	
dermal	systemic	long-term	8,226 mg/kg bw/day (ECETOC TRA worker v3)	0,697	
combined routes	systemic	long-term		0,735	

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,315 mg/m ³ (ECETOC TRA worker v3)	0,038	
inhalative	systemic	short-term	0,315 mg/m ³ (ECETOC TRA	> 0,01	



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			worker v3)		
dermal	systemic	long-term	8,226 mg/kg bw/day (ECETOC TRA worker √3)	0,697	
combined routes	systemic	long-term		0,735	

2.3.16. Worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (liquid) (PROC9)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,315 mg/m ³ (ECETOC TRA worker v3)	0,038	
inhalative	systemic	short-term	0,315 mg/m ³ (ECETOC TRA worker v3)	> 0,01	
dermal	systemic	long-term	4,114 mg/kg bw/day (ECETOC TRA worker v3)	0,349	
combined routes	systemic	long-term		0,387	

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

The safety data sheet at hand provides the user with risk management measures and operational conditions which enables him to work safely with the substance / mixture. If other risk management measures / operational conditions are adopted, the user has to ensure, that the risks are managed to at least equivalent levels.

Additional information available from:

https://lat-web-prod-storage-

cdn.azureedge.net/nitrogenblob/storage/local/unMlcCNEco1jAEuzdf0ibZWRKBU7y19BBhYUxt7f.pdf



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ES3: Use as monomer (intermediate) in melamine based resins before curing

3.1. Title section

Structured Short Title	: Use at industrial sites, Use as monomer (intermediate) in
	melamine based resins before curing; Polymer preparations and compounds (PC32).

Environn	nent	
CS1	Use as monomer (intermediate) in melamine based resins before curing	ERC6c
Worker		
CS2	Calendering operations	PROC6
CS3	Industrial spraying	PROC7
CS4	Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (liquid)	PROC8a
CS5	Transfer of substance or mixture (charging/discharging) at dedicated facilities (liquid)	PROC8b
CS6	Roller application or brushing	PROC10
CS7	Manual activities involving hand contact	PROC19
CS8	Manual maintenance (cleaning and repair) of machinery	PROC28
CS9	Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (solid)	PROC8a
CS10	Transfer of substance or mixture (charging/discharging) at dedicated facilities (solid)	PROC8b

3.2. Conditions of use affecting exposure

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



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Conditions and measures related to sewage treatment plant				
STP type	: Municipal Sewage Treatment Plant			
Additional information on STP	: Biological elimination			
STP sludge treatment	: Controlled application of sewage sludge to agricultural soil			
STP effluent	: 2.000 m³/d			
Other conditions affecting environmental exposure				
Receiving surface water flow	: 18.000 m³/d			
Local freshwater dilution factor	: 10			

3.2.2. Control of worker exposure:Calendering operations (PROC6)

Product (article) characteristic	xs
Covers concentrations up to 10	%
Physical form of product	: Liquid
Amount used, frequency and	duration of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
Conditions and measures rela	ated to personal protection, hygiene and health evaluation
	to extend to other parts of the body, then these body parts should also ments in a manner equivalent to those described for the hands. section 8 of the SDS.
Other conditions affecting wo	rkers exposure
Indoor or outdoor use	: Indoor use
Temperature	: 115 °C
Additional good practice advis	ce. Obligations according to Article 37(4) of REACH do not apply



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Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

3.2.3. Control of worker exposure: Industrial spraying (PROC7)

Product (article) characteristics

Covers concentrations up to 10 %

Physical form of product : Liquid

Amount used, frequency and duration of use (or from service life)

Duration

: Covers daily exposures up to 8 hours

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
Temperature	:	115 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

3.2.4. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (liquid) (PROC8a)



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Product (article) characteristics

Covers concentrations up to 10 %

Physical form of product : Liquid

Amount used, frequency and duration of use (or from service life)

Duration

: Covers daily exposures up to 8 hours

Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
Temperature	:	115 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

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

Product (article) characteristics	
Covers concentrations up to 10 %	
Physical form of product	: Liquid
Amount used, frequency and durati	on of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
Other conditions affecting workers	exposure
Indoor or outdoor use	: Indoor use
Temperature	: 120 °C



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Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

3.2.6. Control of worker exposure:Roller application or brushing (PROC10)

Product (article) characteris	tics
Covers concentrations up to 1	0 %
Physical form of product	: Liquid
Amount used, frequency an	d duration of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
Conditions and measures re	elated to personal protection, hygiene and health evaluation
	ed to extend to other parts of the body, then these body parts should also parments in a manner equivalent to those described for the hands. to section 8 of the SDS. f 80 %
Indoor or outdoor use	: Indoor use
Temperature	: 115 °C
Additional good practice ad	vice. Obligations according to Article 37(4) of REACH do not apply
personnel operating under su	aning and maintenance of equipment and machines.



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3.2.7. Control of worker exposure: Manual activities involving hand contact (PROC19)

Product (article) characteri	stics
Covers concentrations up to	10 %
Physical form of product	: Liquid
Amount used, frequency a	nd duration of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
Conditions and measures	related to personal protection, hygiene and health evaluation
If skin contamination is expect	
Other conditions affecting	workers exposure
Indoor or outdoor use	: Indoor use
Temperature	: 115 °C
Additional good practice a	dvice. Obligations according to Article 37(4) of REACH do not apply
personnel operating under su	eaning and maintenance of equipment and machines.

3.2.8. Control of worker exposure:Manual maintenance (cleaning and repair) of machinery (PROC28)

Product (article) characteristics		
Covers concentrations up to 10 %		
Physical form of product	:	Liquid



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Amount used, frequency and duration of use (or from service life)				
Duration	: Covers daily exposures up to 8 hours			
Other conditions affecting workers exposure				
Indoor or outdoor use	: Indoor use			
Temperature	: 115 °C			
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply				

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

3.2.9. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (solid) (PROC8a)

Product (article) characteristics

Covers concentrations up to 10 %

Physical form of product

: Solid, medium dustiness

Amount used, frequency and duration of use (or from service life)

Duration

: Covers daily exposures up to 8 hours

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use





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Temperature

: 40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

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

Product (article) characteristic	S		
Covers concentrations up to 10	%		
Physical form of product	: Solid, medium dustiness		
Amount used, frequency and duration of use (or from service life)			
Duration	: Covers daily exposures up to 8 hours		
Other conditions affecting workers exposure			
Indoor or outdoor use	: Indoor use		
Temperature	: 40 °C		
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply			
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.			



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3.3. Exposure estimation and reference to its source

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

Release route	Release rate	Release estimation method	
Water	0,5 kg/day	Estimated release factor	
Air	0 kg/day	Estimated release factor	
Soil	0 kg/day	Estimated release factor	

Compartment	Exposure level	RCR
Freshwater	0,025 mg/L (EUSES)	0,049
Freshwater sediment	0,638 mg/kg dry weight (EUSES)	0,049
Marine water	0,0025 mg/L (EUSES)	0,049
Marine sediment	0,064 mg/kg dry weight (EUSES)	0,049
Sewage treatment plant	0,243 mg/L (EUSES)	< 0,01
Agricultural soil	0,169 mg/kg dry weight (EUSES)	0,073
Man via environment - Inhalation	0 mg/m³ (EUSES)	< 0,01
Man via environment - Oral	0,0016 mg/kg bw/day (EUSES)	< 0,01
combined routes		< 0,01

3.3.2. Worker exposure: Calendering operations (PROC6)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,315 mg/m³ (ECETOC TRA worker v3)	0,038	
inhalative	systemic	short-term	0,315 mg/m ³ (ECETOC TRA worker v3)	< 0,01	
dermal	systemic	long-term	3,291 mg/kg bw/day (ECETOC	0,279	



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			TRA worker v3)		
combined routes	systemic	long-term		0,317	

3.3.3. Worker exposure: Industrial spraying (PROC7)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	3,85 mg/m ³ (Stoffenmanager v5.6.10)	0,464	
inhalative	systemic	short-term	3,85 mg/m ³ (Stoffenmanager v5.6.10)	0,047	
dermal	systemic	long-term	5,143 mg/kg bw/day (ECETOC TRA worker v3)	0,436	
combined routes	systemic	long-term		0,9	

3.3.4. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (liquid) (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,315 mg/m³ (ECETOC TRA worker v3)	0,038	
inhalative	systemic	short-term	0,315 mg/m ³ (ECETOC TRA worker v3)	< 0,01	
dermal	systemic	long-term	8,226 mg/kg bw/day (ECETOC TRA worker v3)	0,697	
combined routes	systemic	long-term		0,735	

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

Exposure route Health effect Exposure Exposure level RCR Remarks	;
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		indicator			
inhalative	systemic	long-term	0,38 mg/m ³ (Stoffenmanager v5.6.10)	0,046	
inhalative	systemic	short-term	0,38 mg/m ³ (Stoffenmanager v5.6.10)	< 0,01	
dermal	systemic	long-term	8,226 mg/kg bw/day (ECETOC TRA worker v3)	0,697	
combined routes	systemic	long-term		0,743	

3.3.6. Worker exposure: Roller application or brushing (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	1,74 mg/m ³ (Stoffenmanager v5.6.10)	0,21	
inhalative	systemic	short-term	1,74 mg/m ³ (Stoffenmanager v5.6.10)	0,021	
dermal	systemic	long-term	3,29 mg/kg bw/day (ECETOC TRA worker v3)	0,279	
combined routes	systemic	long-term		0,488	

3.3.7. Worker exposure: Manual activities involving hand contact (PROC19)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,84 mg/m ³ (Stoffenmanager v5.6.10)	0,101	
inhalative	systemic	short-term	0,84 mg/m ³ (Stoffenmanager v5.6.10)	0,01	



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dermal	systemic	long-term	8,486 mg/kg bw/day (ECETOC	0,719	

			TRA worker v3)		
combined routes	systemic	long-term		0,82	

3.3.8. Worker exposure: Manual maintenance (cleaning and repair) of machinery (PROC28)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,315 mg/m ³ (ECETOC TRA worker v3)	0,038	
inhalative	systemic	short-term	0,315 mg/m ³ (ECETOC TRA worker v3)	< 0,01	
dermal	systemic	long-term	8,226 mg/kg bw/day (ECETOC TRA worker v3)	0,697	
combined routes	systemic	long-term		0,735	

3.3.9. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (solid) (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	3 mg/m ³ (ECETOC TRA worker v3)	0,361	
inhalative	systemic	short-term	12 mg/m ³ (ECETOC TRA worker v3)	0,146	
dermal	systemic	long-term	1,645 mg/kg bw/day (ECETOC TRA worker v3)	0,139	
combined routes	systemic	long-term		0,501	

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



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Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,6 mg/m ³ (ECETOC TRA worker v3)	0,072	
inhalative	systemic	short-term	2,4 mg/m ³ (ECETOC TRA worker v3)	0,029	
dermal	systemic	long-term	8,226 mg/kg bw/day (ECETOC TRA worker v3)	0,607	
combined routes	systemic	long-term		0,769	

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

The safety data sheet at hand provides the user with risk management measures and operational conditions which enables him to work safely with the substance / mixture. If other risk management measures / operational conditions are adopted, the user has to ensure, that the risks are managed to at least equivalent levels.

Additional information available from:

https://lat-web-prod-storage-

cdn.azureedge.net/nitrogenblob/storage/local/unMlcCNEco1jAEuzdf0ibZWRKBU7y19BBhYUxt7f.pdf



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ES4: Use as intermediate for the production of other substances

4.1. Title section

Structured Short Title	: Use at industrial sites, Use as intermediate for the production of other substances; Polymer preparations and compounds
	(PC32).; Cosmetics, personal care products (PC39).; Manufacture of bulk, large scale chemicals (including petroleum products) (SU8).

Environment			
CS1	Use as intermediate for the production of other substances	ERC6a	
Worker			
CS2	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions	PROC1	
CS3	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions	PROC2	
CS4	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition	PROC3	
CS5	Chemical production where opportunity for exposure arises	PROC4	
CS6	Mixing or blending in batch processes	PROC5	
CS7	Transfer of substance or mixture (charging/discharging) at non dedicated-facilities	PROC8a	
CS8	Transfer of substance or mixture (charging/discharging) at dedicated facilities	PROC8b	
CS9	Transfer of substance or mixture into small containers (dedicated filling line, including weighing)	PROC9	
CS10	Use as laboratory reagent	PROC15	
CS11	Manual maintenance (cleaning and repair) of machinery	PROC28	



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4.2. Conditions of use affecting exposure

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

Conditions and measures related to sewage treatment plant			
STP type	:	Municipal Sewage Treatment Plant	
Additional information on STP	:	Biological elimination	
STP sludge treatment	:	Controlled application of sewage sludge to agricultural soil	
STP effluent	:	2.000 m³/d	
Other conditions affecting environmental exposure			
Receiving surface water flow	:	18.000 m³/d	
Local freshwater dilution factor	:	10	

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

Product (article) characteristics			
Covers concentrations up to 10) %		
Physical form of product	: Solid, medium dustiness		
Amount used, frequency and duration of use (or from service life)			
Duration	: Covers daily exposures up to 8 hours		
Other conditions affecting workers exposure			
Indoor or outdoor use	: Indoor use		
Temperature	: 40 °C		
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply			





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Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately.

Ensure daily cleaning of the equipment.

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

Product (article) characteristi	cs	
Covers concentrations up to 10	0 %	
Physical form of product	: Solid, medium dustiness	
Amount used, frequency and	duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours	
Other conditions affecting workers exposure		
Indoor or outdoor use	: Indoor use	
Temperature	: 40 °C	
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply		
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.		
4.2.4. Control of worker exposure:Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)		
Product (article) characteristi	cs	
Covers concentrations up to 10	0 %	
Physical form of product	: Solid, medium dustiness	



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Amount used, frequency and duration of use (or from service life)			
Duration	: Covers daily exposures up to 8 hours		
Other conditions affecting workers exposure			
Indoor or outdoor use	: Indoor use		
Temperature	: 40 °C		
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply			

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

4.2.5. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Product (article) characteristics

Covers concentrations up to 10 %

Physical form of product

: Solid, medium dustiness

Amount used, frequency and duration of use (or from service life)

Duration

: Covers daily exposures up to 8 hours

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use





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Temperature

: 40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

4.2.6. Control of worker exposure: Mixing or blending in batch processes (PROC5)

Product (article) character	istics	
Covers concentrations up to	0 10 %	
Physical form of product	: Solid, medium dustiness	
Amount used, frequency a	and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours	
Conditions and measures	related to personal protection, hygiene and health evaluation	
	cted to extend to other parts of the body, then these body parts should also garments in a manner equivalent to those described for the hands. r to section 8 of the SDS. of 80 %	
Indoor or outdoor use	: Indoor use	
Temperature	: 40 °C	
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply		
personnel operating under s	leaning and maintenance of equipment and machines.	



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4.2.7. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

Product (article) characteris	tics
Covers concentrations up to 1	0 %
Physical form of product	: Solid, medium dustiness
Amount used, frequency an	d duration of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
Conditions and measures re	elated to personal protection, hygiene and health evaluation
•	ed to extend to other parts of the body, then these body parts should also arments in a manner equivalent to those described for the hands. to section 8 of the SDS.
Other conditions affecting v	vorkers exposure
Indoor or outdoor use	: Indoor use
Temperature	: 40 °C
Additional good practice ad	vice. Obligations according to Article 37(4) of REACH do not apply
personnel operating under su	aning and maintenance of equipment and machines.

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

Product (article) characteristics	
Covers concentrations up to 10 %	



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Physical form of product	: Solid, medium dustiness		
Amount used, frequency and duration of use (or from service life)			
Duration	: Covers daily exposures up	to 8 hours	
Conditions and measures related to personal protection, hygiene and health evaluation			

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
Temperature	:	40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

4.2.9. Control of worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

Product (article) characteristic	S					
Covers concentrations up to 10 %	%					
Physical form of product	: Solid, medium dustiness					
Amount used, frequency and c	Amount used, frequency and duration of use (or from service life)					
Duration	: Covers daily exposures up to 8 hours					
Conditions and measures rela	ted to personal protection, hygiene and health evaluation					





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Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure

Indoor or outdoor use

: Indoor use :

40 °C

Temperature

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

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

Product (article) characterist	ics
Covers concentrations up to 10)%
Physical form of product	: Solid, medium dustiness
Amount used, frequency and	I duration of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
Other conditions affecting w	orkers exposure
Indoor or outdoor use	: Indoor use
Temperature	: 40 °C
Additional good practice adv	rice. Obligations according to Article 37(4) of REACH do not apply
Assumes that activities are unc personnel operating under sup	lertaken with appropriate and well maintained equipment by trained ervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.



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Clear spills immediately. Ensure daily cleaning of the equipment.

4.2.11. Control of worker exposure:Manual maintenance (cleaning and repair) of machinery (PROC28)

Product (article) characteri	stics
Covers concentrations up to	10 %
Physical form of product	: Solid, medium dustiness
Amount used, frequency a	nd duration of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
Conditions and measures	related to personal protection, hygiene and health evaluation
	ted to extend to other parts of the body, then these body parts should also garments in a manner equivalent to those described for the hands. to section 8 of the SDS.
Other conditions affecting	workers exposure
Indoor or outdoor use	: Indoor use
Temperature	: 40 °C
Additional good practice a	dvice. Obligations according to Article 37(4) of REACH do not apply
personnel operating under su	eaning and maintenance of equipment and machines.



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4.3. Exposure estimation and reference to its source

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

Release route	Release rate Release estimation me	
Water	3 kg/day	Estimated release factor
Air	0,5 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,147 mg/L (EUSES)	0,287
Freshwater sediment	3,751 mg/kg dry weight (EUSES)	0,287
Marine water	0,015 mg/L (EUSES)	0,287
Marine sediment	0,375 mg/kg dry weight (EUSES)	0,287
Sewage treatment plant	1,46 mg/L (EUSES)	0,015
Agricultural soil	1,011 mg/kg dry weight (EUSES)	0,437
Man via environment - Inhalation	0,0000114 mg/m ³ (EUSES)	< 0,01
Man via environment - Oral	0,00921 mg/kg bw/day (EUSES)	0,022
combined routes		0,022

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,01 mg/m³ (ECETOC TRA worker v3)	< 0,01	
inhalative	systemic	short-term	0,04 mg/m³ (ECETOC TRA worker v3)	< 0,01	
dermal	systemic	long-term	0,034 mg/kg bw/day (ECETOC	< 0,01	



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			TRA worker v3)		
combined routes	systemic	long-term		< 0,01	

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,5 mg/m³ (ECETOC TRA worker v3)	0,06	
inhalative	systemic	short-term	2 mg/m ³ (ECETOC TRA worker v3)	0,024	
dermal	systemic	long-term	1,37 mg/kg bw/day (ECETOC TRA worker v3)	0,116	
combined routes	systemic	long-term		0,176	

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	1 mg/m ³ (ECETOC TRA worker v3)	0,12	
inhalative	systemic	short-term	4 mg/m ³ (ECETOC TRA worker v3)	0,049	
dermal	systemic	long-term	0,69 mg/kg bw/day (ECETOC TRA worker v3)	0,058	
combined routes	systemic	long-term		0,179	

4.3.5. Worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Exposure route Health effect Exposure indicator	Exposure level	RCR	Remarks
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inhalative	systemic	long-term	5 mg/m ³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m ³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	1,372 mg/kg bw/day (ECETOC TRA worker v3)	0,116	
combined routes	systemic	long-term		0,719	

4.3.6. Worker exposure: Mixing or blending in batch processes (PROC5)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	5 mg/m³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m ³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,835	

4.3.7. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	5 mg/m ³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m ³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,232	



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combined routes	systemic	long-term	0,835

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	1 mg/m ³ (ECETOC TRA worker v3)	0,12	
inhalative	systemic	short-term	4 mg/m ³ (ECETOC TRA worker v3)	0,049	
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,353	

4.3.9. Worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	5 mg/m ³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m ³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	1,372 mg/kg bw/day (ECETOC TRA worker v3)	0,116	
combined routes	systemic	long-term		0,719	

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

Exposure route		Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,5 mg/m³ (ECETOC TRA worker v3)	0,06	



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inhalative	systemic	short-term	2 mg/m ³ (ECETOC TRA worker v3)	0,024	
dermal	systemic	long-term	0,34 mg/kg bw/day (ECETOC TRA worker v3)	0,029	
combined routes	systemic	long-term		0,089	

4.3.11. Worker exposure: Manual maintenance (cleaning and repair) of machinery (PROC28)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	5 mg/m ³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m ³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,835	

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

The safety data sheet at hand provides the user with risk management measures and operational conditions which enables him to work safely with the substance / mixture. If other risk management measures / operational conditions are adopted, the user has to ensure, that the risks are managed to at least equivalent levels.

Additional information available from:

https://lat-web-prod-storage-

cdn.azureedge.net/nitrogenblob/storage/local/unMlcCNEco1jAEuzdf0ibZWRKBU7y19BBhYUxt7f.pdf



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ES5: Use as additive in foams

5.1. Title section

Structured Short Title : Use at industrial sites, Use as additive in foams; Laboratory chemicals (PC21).; Polymer preparations and compounds (PC32).; Manufacture of rubber products (SU11).; Manufacture of plastics products, including compounding and conversion (SU12).; Manufacture of furniture (SU18).
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Environm	ient	
CS1	Use as additive in foams	ERC5
Worker		
CS2	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions	PROC1
CS3	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions	PROC2
CS4	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition	PROC3
CS5	Chemical production where opportunity for exposure arises	PROC4
CS6	Mixing or blending in batch processes	PROC5
CS7	Transfer of substance or mixture (charging/discharging) at non dedicated-facilities	PROC8a
CS8	Transfer of substance or mixture (charging/discharging) at dedicated facilities	PROC8b
CS9	Transfer of substance or mixture into small containers (dedicated filling line, including weighing)	PROC9
CS10	Use as laboratory reagent	PROC15
CS11	Manual activities involving hand contact	PROC19
CS12	Manual maintenance (cleaning and repair) of machinery	PROC28



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5.2. Conditions of use affecting exposure

5.2.1. Control of environmental exposure: Use at industrial site leading to inclusion into/onto article (ERC5)

Conditions and measures related to sewage treatment plant				
STP type	: Municipal Sewage Treatment Plant			
Additional information on STP	: Biological elimination			
STP sludge treatment	: Controlled application of sewage sludge to agricultural soil			
STP effluent	: 2.000 m ³ /d			
Other conditions affecting environment	onmental exposure			
Receiving surface water flow	: 18.000 m³/d			
Local freshwater dilution factor	: 10			

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

Product (article) characteristics				
Covers percentage substance in the p	product up to 100 %.			
Physical form of product	: Solid, medium dustiness			
Amount used, frequency and duration of use (or from service life)				
Duration	: Covers daily exposures up to 8 hours			
Other conditions affecting workers exposure				
Indoor or outdoor use	: Indoor use			
Temperature	: 40 °C			



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Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

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

Product (article) characteristics Covers percentage substance in the product up to 100 %. Physical form of product : Solid, medium dustiness Amount used, frequency and duration of use (or from service life) Duration : Covers daily exposures up to 8 hours Other conditions affecting workers exposure Indoor or outdoor use : Indoor use Temperature : 40 °C Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply Assumes that activities are undertaken with appropriate and well maintained equipment by trained

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

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

Product (article) characteristics





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Covers percentage substance in the product up to 100 %.

Physical form of product : Solid, medium dustiness

Amount used, frequency and duration of use (or from service life)

Duration

: Covers daily exposures up to 8 hours

Other conditions affecting workers exposure

 Indoor or outdoor use
 : Indoor use

 Temperature
 : 40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

5.2.5. Control of worker exposure:Chemical production where opportunity for exposure arises (PROC4)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Solid, medium dustiness

Amount used, frequency and duration of use (or from service life)

Duration

: Covers daily exposures up to 8 hours

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %



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Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
Temperature	:	40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

5.2.6. Control of worker exposure: Mixing or blending in batch processes (PROC5)

Product (article) characteristics	
Covers percentage substance in th	ie product up to 100 %.
Physical form of product	: Solid, medium dustiness
Amount used, frequency and du	ration of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
	d to personal protection, hygiene and health evaluation
	extend to other parts of the body, then these body parts should also onts in a manner equivalent to those described for the hands. ction 8 of the SDS.
Other conditions affecting worke	≩rs exposure
Indoor or outdoor use	: Indoor use
Temperature	: 40 °C
Additional good practice advice.	Obligations according to Article 37(4) of REACH do not apply
Assumes that activities are underta	ken with appropriate and well maintained equipment by trained



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personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

5.2.7. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product

: Solid, medium dustiness

Amount used, frequency and duration of use (or from service life)

Duration

: Covers daily exposures up to 8 hours

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
Temperature	:	40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

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



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Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Solid, medium dustiness

Amount used, frequency and duration of use (or from service life)

:

Duration

Covers daily exposures up to 8 hours

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
Temperature	:	40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

5.2.9. Control of worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

Product (article) characteristics		
Covers percentage substance in the produ	uct up to 100 %.	
Physical form of product :	Solid, medium dustiness	
Amount used, frequency and duration of use (or from service life)		





:

Melamine

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Duration

Covers daily exposures up to 8 hours

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
Temperature	:	40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

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

Product (article) characteristics			
Covers percentage substance	in the product up to 100 %.		
Physical form of product	: Solid, medium dustiness		
Amount used, frequency an	d duration of use (or from service life)		
Duration	: Covers daily exposures up to 8 hours		
Other conditions affecting workers exposure			
Indoor or outdoor use	: Indoor use		
Temperature	: 40 °C		
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply			





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Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

5.2.11. Control of worker exposure: Manual activities involving hand contact (PROC19)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Solid, medium dustiness

Amount used, frequency and duration of use (or from service life)

Duration

: Covers exposure up to 4 hrs

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 95 %

Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
Temperature	:	40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

5.2.12. Control of worker exposure:Manual maintenance (cleaning and repair) of machinery (PROC28)





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Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Solid, medium dustiness

Amount used, frequency and duration of use (or from service life)

:

Duration

Covers daily exposures up to 8 hours (unless stated differently).

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
Temperature	:	40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

5.3. Exposure estimation and reference to its source

5.3.1. Environmental release and exposure: Use at industrial site leading to inclusion into/onto article (ERC5)

Release route	Release rate	Release estimation method
Water	3 kg/day	Estimated release factor



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Air	0,5 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,147 mg/L (EUSES)	0,287
Freshwater sediment	3,751 mg/kg dry weight (EUSES)	0,287
Marine water	0,015 mg/L (EUSES)	0,287
Marine sediment	0,375 mg/kg dry weight (EUSES)	0,287
Sewage treatment plant	1,46 mg/L (EUSES)	0,015
Agricultural soil	1,011 mg/kg dry weight (EUSES)	0,437
Man via environment - Inhalation	0,0000114 mg/m3 (EUSES)	< 0,01
Man via environment - Oral	0,00921 mg/kg bw/day (EUSES)	0,022
combined routes		0,022

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,01 mg/m³ (ECETOC TRA worker v3)	< 0,01	
inhalative	systemic	short-term	0,04 mg/m³ (ECETOC TRA worker v3)	< 0,01	
dermal	systemic	long-term	0,034 mg/kg bw/day (ECETOC TRA worker v3)	< 0,01	
combined routes	systemic	long-term		< 0,01	

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

Exposure routeHealth effectExposure indicator	Exposure level	RCR	Remarks
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inhalative	systemic	long-term	0,5 mg/m ³ (ECETOC TRA worker v3)	0,06	
inhalative	systemic	short-term	2 mg/m ³ (ECETOC TRA worker v3)	0,024	
dermal	systemic	long-term	1,37 mg/kg bw/day (ECETOC TRA worker v3)	0,116	
combined routes	systemic	long-term		0,176	

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	1 mg/m ³ (ECETOC TRA worker v3)	0,12	
inhalative	systemic	short-term	4 mg/m ³ (ECETOC TRA worker v3)	0,049	
dermal	systemic	long-term	0,69 mg/kg bw/day (ECETOC TRA worker v3)	0,058	
combined routes	systemic	long-term		0,179	

5.3.5. Worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	5 mg/m ³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m ³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	1,372 mg/kg bw/day (ECETOC TRA worker v3)	0,116	



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combined routes	systemic	long-term		0,719	

5.3.6. Worker exposure: Mixing or blending in batch processes (PROC5)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	5 mg/m ³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m ³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,835	

5.3.7. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	5 mg/m ³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m ³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,835	

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

Exposure route		Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	1 mg/m ³ (ECETOC TRA worker v3)	0,12	



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inhalative	systemic	short-term	4 mg/m ³ (ECETOC TRA worker v3)	0,049	
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,353	

5.3.9. Worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	5 mg/m ³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	1,372 mg/kg bw/day (ECETOC TRA worker v3)	0,116	
combined routes	systemic	long-term		0,719	

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,5 mg/m ³ (ECETOC TRA worker v3)	0,06	
inhalative	systemic	short-term	2 mg/m ³ (ECETOC TRA worker v3)	0,024	
dermal	systemic	long-term	0,34 mg/kg bw/day (ECETOC TRA worker v3)	0,029	
combined routes	systemic	long-term		0,089	

5.3.11. Worker exposure: Manual activities involving hand contact (PROC19)



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Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	3 mg/m ³ (ECETOC TRA worker v3)	0,361	
inhalative	systemic	short-term	20 mg/m ³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	7,072 mg/kg bw/day (ECETOC TRA worker v3)	0,599	
combined routes	systemic	long-term		0,961	

5.3.12. Worker exposure: Manual maintenance (cleaning and repair) of machinery (PROC28)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	5 mg/m³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m ³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,835	

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

The safety data sheet at hand provides the user with risk management measures and operational conditions which enables him to work safely with the substance / mixture. If other risk management measures / operational conditions are adopted, the user has to ensure, that the risks are managed to at least equivalent levels.

Additional information available from:

https://lat-web-prod-storage-

cdn.azureedge.net/nitrogenblob/storage/local/unMlcCNE co1jAEuzdf0ibZWRKBU7y19BBhYUxt7f.pdf



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ES6: Use as additive in intumescent coatings

6.1. Title section

Structured Short Title	: Use at industrial sites, Use as additive in intumescent coatings; Coatings and paints, thinners, paint removers (PC9a).; Polymer preparations and compounds (PC32).; Manufacture of plastics products, including compounding and conversion (SU12).; General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment (SU17).; Building and construction work (SU19).
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Environment		
CS1	Use as additive in intumescent coatings	ERC5
Worker		
CS2	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition	PROC3
CS3	Chemical production where opportunity for exposure arises	PROC4
CS4	Mixing or blending in batch processes	PROC5
CS5	Industrial spraying (with Local Exhaust Ventilation)	PROC7
CS6	Industrial spraying (without Local Exhaust Ventilation)	PROC7
CS7	Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (solid)	PROC8a
CS8	Transfer of substance or mixture (charging/discharging) at dedicated facilities (solid)	PROC8b
CS9	Transfer of substance or mixture into small containers (dedicated filling line, including weighing)	PROC9
CS10	Roller application or brushing	PROC10
CS11	Treatment of articles by dipping and pouring	PROC13
CS12	Use as laboratory reagent	PROC15



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CS13	Manual activities involving hand contact	PROC19
CS14	Manual maintenance (cleaning and repair) of machinery (solid)	PROC28
CS15	Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (liquid)	PROC8a
CS16	Transfer of substance or mixture (charging/discharging) at dedicated facilities (liquid)	PROC8b
CS17	Manual maintenance (cleaning and repair) of machinery (liquid)	PROC28

6.2. Conditions of use affecting exposure

6.2.1. Control of environmental exposure: Use at industrial site leading to inclusion into/onto article (ERC5)

Conditions and measures related to sewage treatment plant			
STP type	:	Municipal Sewage Treatment Plant	
Additional information on STP	:	Biological elimination	
STP sludge treatment	:	Controlled application of sewage sludge to agricultural soil	
STP effluent	:	2.000 m³/d	
Other conditions affecting environmental exposure			
Receiving surface water flow	:	18.000 m³/d	
Local freshwater dilution factor	:	10	

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

Product (article) characteristics		
Covers percentage substance in the product up to 100 %.		
Physical form of product	: Solid, medium dustiness	





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Amount used, frequency and duration of use (or from service life)			
Duration	: Covers daily exposures up to 8 hours		
Other conditions affecting workers exposure			
Indoor or outdoor use	: Indoor use		
Temperature	: 40 °C		
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply			

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

6.2.3. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product

: Solid, medium dustiness

Amount used, frequency and duration of use (or from service life)

Duration

: Covers daily exposures up to 8 hours

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use





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Temperature

: 40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

6.2.4. Control of worker exposure: Mixing or blending in batch processes (PROC5)

Product (article) characteris	tics
Covers percentage substance	in the product up to 100 %.
Physical form of product	: Solid, medium dustiness
Amount used, frequency and	d duration of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
Conditions and measures re	elated to personal protection, hygiene and health evaluation
	ed to extend to other parts of the body, then these body parts should also arments in a manner equivalent to those described for the hands. to section 8 of the SDS. f 80 %
Indoor or outdoor use	: Indoor use
Temperature	: 40 °C
Additional good practice ad	vice. Obligations according to Article 37(4) of REACH do not apply
personnel operating under sup	aning and maintenance of equipment and machines.



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6.2.5. Control of worker exposure: Industrial spraying (with Local Exhaust Ventilation) (PROC7)

Product (article) character	istics
Covers concentrations up to	30 %
Physical form of product	: Liquid
Amount used, frequency a	and duration of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
Technical and organisatio	nal conditions and measures
Local exhaust ventilation Inhalation - minimum efficier	ncy of 95 %
Conditions and measures	related to personal protection, hygiene and health evaluation
	cted to extend to other parts of the body, then these body parts should also garments in a manner equivalent to those described for the hands. r to section 8 of the SDS.
Other conditions affecting	workers exposure
Indoor or outdoor use	: Indoor use
Temperature	: 115 °C
Additional good practice a	dvice. Obligations according to Article 37(4) of REACH do not apply
personnel operating under s	leaning and maintenance of equipment and machines.

6.2.6. Control of worker exposure: Industrial spraying (without Local Exhaust Ventilation) (PROC7)



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Product (article) characteristics

Covers concentrations up to 30 %

Physical form of product : Liquid

Amount used, frequency and duration of use (or from service life)

:

Duration

Covers daily exposures up to 8 hours

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %

Respiratory protection

Inhalation - minimum efficiency of 90 %

Other conditions affecting workers exposure

 Indoor or outdoor use
 : Indoor use

 Temperature
 : 115 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

6.2.7. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (solid) (PROC8a)

Product (article) characteristics		
Covers percentage substance in the product up to 100 %.		
Physical form of product	: Solid, medium dustiness	



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Amount used, frequency and duration of use (or from service life)

:

Duration

Covers daily exposures up to 8 hours

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
Temperature	:	40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

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

Product (article) characteristic	CS
Covers percentage substance ir	n the product up to 100 %.
Physical form of product	: Solid, medium dustiness
Amount used, frequency and	duration of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
Conditions and measures rela	ated to personal protection, hygiene and health evaluation
Wear suitable gloves tested to E	N374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also



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be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
Temperature	:	40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

6.2.9. Control of worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

Product (article) characteristics Covers percentage substance in the product up to 100 %. Physical form of product Solid, medium dustiness : Amount used, frequency and duration of use (or from service life) Duration Covers daily exposures up to 8 hours : Conditions and measures related to personal protection, hygiene and health evaluation Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Dermal - minimum efficiency of 80 % Other conditions affecting workers exposure Indoor or outdoor use : Indoor use : 40 °C Temperature



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Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

6.2.10. Control of worker exposure:Roller application or brushing (PROC10)

Product (article) characteris	stics
Covers concentrations up to 3	30 %
Physical form of product	: Liquid
Amount used, frequency ar	nd duration of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
Conditions and measures r	elated to personal protection, hygiene and health evaluation
	ted to extend to other parts of the body, then these body parts should also garments in a manner equivalent to those described for the hands. to section 8 of the SDS. of 80 %
Indoor or outdoor use	: Indoor use
Temperature	: 115 °C
Additional good practice ac	dvice. Obligations according to Article 37(4) of REACH do not apply
personnel operating under su	eaning and maintenance of equipment and machines.



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6.2.11. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

Product (article) characteri	stics
Covers concentrations up to	30 %
Physical form of product	: Liquid
Amount used, frequency a	nd duration of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
Conditions and measures r	related to personal protection, hygiene and health evaluation
	ted to extend to other parts of the body, then these body parts should also garments in a manner equivalent to those described for the hands. to section 8 of the SDS. of 80 %
Indoor or outdoor use	: Indoor use
Temperature	: 115 °C
Additional good practice ad	dvice. Obligations according to Article 37(4) of REACH do not apply
personnel operating under su	eaning and maintenance of equipment and machines.

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

Product (article) characteristics		
Covers percentage substance in the product up to 100 %.		
Physical form of product	: Solid, medium dustiness	





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Amount used, frequency and dura	tior	n of use (or from service life)
Duration	:	Covers daily exposures up to 8 hours
Other conditions affecting workers	s ex	posure
Indoor or outdoor use	:	Indoor use
Temperature	:	40 °C

6.2.13. Control of worker exposure: Manual activities involving hand contact (PROC19)

Product (article) character	istics
Covers concentrations up to	30 %
Physical form of product	: Liquid
Amount used, frequency a	nd duration of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
Conditions and measures	related to personal protection, hygiene and health evaluation
If skin contamination is expect	
Other conditions affecting	workers exposure
Indoor or outdoor use	: Indoor use
Temperature	: 40 °C
Additional good practice a	dvice. Obligations according to Article 37(4) of REACH do not apply
personnel operating under se	leaning and maintenance of equipment and machines.



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6.2.14. Control of worker exposure:Manual maintenance (cleaning and repair) of machinery (solid) (PROC28)

Product (article) characteristics Covers percentage substance in the product up to 100 %. Physical form of product : Solid, medium dustiness Amount used, frequency and duration of use (or from service life) Duration Covers daily exposures up to 8 hours : Conditions and measures related to personal protection, hygiene and health evaluation Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Dermal - minimum efficiency of 80 % Other conditions affecting workers exposure Indoor or outdoor use : Indoor use : 40 °C Temperature Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

6.2.15. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (liquid) (PROC8a)

Product (article) characteristics
Covers concentrations up to 30 %





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Physical form of product : Liquid

Amount used, frequency and duration of use (or from service life)

Duration

: Covers daily exposures up to 8 hours

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure

Indoor or outdoor use

Temperature

: Indoor use : 115 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

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

Product (article) characteristics	
Covers concentrations up to 30 %	
Physical form of product	: Liquid
Amount used, frequency and dura	tion of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
Conditions and measures related	to personal protection, hygiene and health evaluation



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Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure

Indoor	or	outdoor	use
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Temperature

: Indoor use

: 115 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

6.2.17. Control of worker exposure: Manual maintenance (cleaning and repair) of machinery (liquid) (PROC28)

Product (article) characteristics Covers concentrations up to 30 % Physical form of product : Liquid

Amount used, frequency and duration of use (or from service life)

Duration

Covers daily exposures up to 8 hours :

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure



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Temperature	: 115 °C	
Additional good practice a	dvice. Obligations according to Article	e 37(4) of REACH do not apply
Assumes that activities are u	ndertaken with appropriate and well main	ntained equipment by trained

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

6.3. Exposure estimation and reference to its source

6.3.1. Environmental release and exposure: Use at industrial site leading to inclusion into/onto article (ERC5)

Release route	Release rate Release estimation metho	
Water	3 kg/day	Estimated release factor
Air	0,5 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,147 mg/L (EUSES)	0,287
Freshwater sediment	3,751 mg/kg dry weight (EUSES)	0,287
Marine water	0,015 mg/L (EUSES)	0,287
Marine sediment	0,375 mg/kg dry weight (EUSES)	0,287
Sewage treatment plant	1,46 mg/L (EUSES)	0,015
Agricultural soil	1,032 mg/kg dry weight (EUSES)	0,446
Man via environment - Inhalation	0,0000114 mg/m3 (EUSES)	< 0,01
Man via environment - Oral	0,013 mg/kg bw/day (EUSES)	0,031
combined routes		0,031



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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	1 mg/m³ (ECETOC TRA worker v3)	0,12	
inhalative	systemic	short-term	4 mg/m ³ (ECETOC TRA worker v3)	0,049	
dermal	systemic	long-term	0,69 mg/kg bw/day (ECETOC TRA worker v3)	0,058	
combined routes	systemic	long-term		0,179	

6.3.3. Worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	5 mg/m ³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m ³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	1,372 mg/kg bw/day (ECETOC TRA worker v3)	0,116	
combined routes	systemic	long-term		0,719	

6.3.4. Worker exposure: Mixing or blending in batch processes (PROC5)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	5 mg/m ³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m ³ (ECETOC TRA worker v3)	0,243	



combined routes

systemic

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dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,232	

0,835

6.3.5. Worker exposure: Industrial spraying (with Local Exhaust Ventilation) (PROC7)

long-term

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,4 mg/m ³ (Stoffenmanager v5.6.10)	0,048	
inhalative	systemic	short-term	0,4 mg/m ³ (Stoffenmanager v5.6.10)	> 0,01	
dermal	systemic	long-term	8,572 mg/kg bw/day (ECETOC TRA worker v3)	0,726	
combined routes	systemic	long-term		0,775	

6.3.6. Worker exposure: Industrial spraying (without Local Exhaust Ventilation) (PROC7)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,795 mg/m ³ (Stoffenmanager v5.6.10)	0,096	
inhalative	systemic	short-term	0,795 mg/m ³ (Stoffenmanager v5.6.10)	> 0,01	
dermal	systemic	long-term	8,572 mg/kg bw/day (ECETOC TRA worker v3)	0,726	
combined routes	systemic	long-term		0,822	

6.3.7. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (solid) (PROC8a)



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Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	5 mg/m ³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m ³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,835	

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	1 mg/m ³ (ECETOC TRA worker v3)	0,12	
inhalative	systemic	short-term	4 mg/m ³ (ECETOC TRA worker v3)	0,049	
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,353	

6.3.9. Worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	5 mg/m ³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m ³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	1,372 mg/kg	0,116	



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			bw/day (ECETOC TRA worker v3)		
combined routes	systemic	long-term		0,719	

6.3.10. Worker exposure: Roller application or brushing (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	3,59 mg/m ³ (Stoffenmanager v5.6.10)	0,433	
inhalative	systemic	short-term	3,59 mg/m ³ (Stoffenmanager v5.6.10)	0,044	
dermal	systemic	long-term	5,486 mg/kg bw/day (ECETOC TRA worker v3)	0,465	
combined routes	systemic	long-term		0,897	

6.3.11. Worker exposure: Treatment of articles by dipping and pouring (PROC13)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,525 mg/m³ (ECETOC TRA worker v3)	0,063	
inhalative	systemic	short-term	0,525 mg/m ³ (ECETOC TRA worker v3)	< 0,01	
dermal	systemic	long-term	2,743 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,296	

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

Exposure route Health effect Exposure indicator Exposure level RCR Remarks
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inhalative	systemic	long-term	0,5 mg/m³ (ECETOC TRA worker v3)	0,06	
inhalative	systemic	short-term	2 mg/m ³ (ECETOC TRA worker v3)	0,024	
dermal	systemic	long-term	0,34 mg/kg bw/day (ECETOC TRA worker v3)	0,029	
combined routes	systemic	long-term		0,089	

6.3.13. Worker exposure: Manual activities involving hand contact (PROC19)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	1,74 mg/m ³ (Stoffenmanager v5.6.10)	0,21	
inhalative	systemic	short-term	1,74 mg/m ³ (Stoffenmanager v5.6.10)	0,021	
dermal	systemic	long-term	7,072 mg/kg bw/day (ECETOC TRA worker v3)	0,599	
combined routes	systemic	long-term		0,809	

6.3.14. Worker exposure: Manual maintenance (cleaning and repair) of machinery (solid) (PROC28)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	5 mg/m ³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m ³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,232	



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combined routes systemi	c long-term	0.835

6.3.15. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (liquid) (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,525 mg/m³ (ECETOC TRA worker v3)	0,063	
inhalative	systemic	short-term	0,525 mg/m³ (ECETOC TRA worker v3)	< 0,01	
dermal	systemic	long-term	2,743 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,296	

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,525 mg/m³ (ECETOC TRA worker v3)	0,063	
inhalative	systemic	short-term	0,525 mg/m³ (ECETOC TRA worker v3)	< 0,01	
dermal	systemic	long-term	2,743 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,296	

6.3.17. Worker exposure: Manual maintenance (cleaning and repair) of machinery (liquid) (PROC28)

Exposure route Health effect Exposure indicator Exposure level RCR Remarks



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inhalative	systemic	long-term	0,525 mg/m ³ (ECETOC TRA worker v3)	0,063
inhalative	systemic	short-term	0,525 mg/m³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	2,743 mg/kg bw/day (ECETOC TRA worker v3)	0,232
combined routes	systemic	long-term		0,296

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

The safety data sheet at hand provides the user with risk management measures and operational conditions which enables him to work safely with the substance / mixture. If other risk management measures / operational conditions are adopted, the user has to ensure, that the risks are managed to at least equivalent levels.

Additional information available from:

https://lat-web-prod-storage-

cdn.azureedge.net/nitrogenblob/storage/local/unMlcCNE co1jAEuzdf0ibZWRKBU7y19BBhYUxt7f.pdf



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ES7: Use as additive in intumescent coatings

7.1. Title section

products, including compounding and conversion (SU12).; Building and construction work (SU19).

Environn	nent	
CS1	Use as additive in intumescent coatings	ERC8c, ERC8f
Worker		
CS2	Mixing or blending in batch processes	PROC5
CS3	Transfer of substance or mixture (charging/discharging) at non dedicated-facilities	PROC8a
CS4	Transfer of substance or mixture (charging/discharging) at dedicated facilities	PROC8b
CS5	Transfer of substance or mixture into small containers (dedicated filling line, including weighing)	PROC9
CS6	Roller application or brushing	PROC10
CS7	Non-industrial spraying	PROC11
CS8	Treatment of articles by dipping and pouring	PROC13
CS9	Manual maintenance (cleaning and repair) of machinery	PROC28

7.2. Conditions of use affecting exposure

7.2.1. Control of environmental exposure: Widespread use leading to inclusion into/onto article (indoor) (ERC8c) / Widespread use leading to inclusion into/onto article (outdoor) (ERC8f)



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Conditions and measures related to sewage treatment plant			
STP type	: Municipal Sewage Treatment Plant		
Additional information on STP	: Biological elimination		
STP sludge treatment	: Controlled application of sewage sludge to agricultural soil		
STP effluent	: 2.000 m³/d		
Other conditions affecting environmental exposure			
Receiving surface water flow	: 18.000 m³/d		
Local freshwater dilution factor	: 10		

7.2.2. Control of worker exposure: Mixing or blending in batch processes (PROC5)

Product (article) characteris	tics
Covers concentrations up to 3	0 %
Physical form of product	: Liquid
Amount used, frequency an	d duration of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
	elated to personal protection, hygiene and health evaluation
	ed to extend to other parts of the body, then these body parts should also arments in a manner equivalent to those described for the hands. to section 8 of the SDS.
Other conditions affecting w	
Indoor or outdoor use	: Indoor use
Temperature	: 115 °C
Additional good practice ad	vice. Obligations according to Article 37(4) of REACH do not apply



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Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines. Clear spills immediately. Ensure daily cleaning of the equipment.

7.2.3. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

Product (article) character	istics
Covers concentrations up to	30 %
Physical form of product	: Liquid
Amount used, frequency a	and duration of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
Conditions and measures	related to personal protection, hygiene and health evaluation
•	cted to extend to other parts of the body, then these body parts should also garments in a manner equivalent to those described for the hands. r to section 8 of the SDS. of 80 %
Indoor or outdoor use	: Indoor use
Temperature	: 115 °C
Additional good practice a	dvice. Obligations according to Article 37(4) of REACH do not apply
personnel operating under s	eaning and maintenance of equipment and machines.



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

Product (article) characteristics

Covers concentrations up to 30 %

Physical form of product : Liquid

Amount used, frequency and duration of use (or from service life)

Duration

: Covers daily exposures up to 8 hours

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.

Dermal - minimum efficiency of 80 %

Other conditions affecting workers exposure

Indoor or outdoor use		Indoor use
Temperature		115 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

7.2.5. Control of worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

Product (article) characteristics			
Covers concentrations up to 30 %			
Physical form of product	:	Liquid	



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Amount used, frequency and duration of use (or from service life)			
Duration	: Covers daily exposures up to 8 hours		
Other conditions affecting workers exposure			
Indoor or outdoor use	: Indoor use		
Temperature	: 115 °C		
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply			
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.			

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

7.2.6. Control of worker exposure:Roller application or brushing (PROC10)

Product (article) characteris	stics				
Covers concentrations up to 3	30 %				
Physical form of product	: Liquid				
Amount used, frequency ar	nd duration of use (or from service life)				
Duration	: Covers daily exposures up to 8 hours				
Conditions and measures related to personal protection, hygiene and health evaluation Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS.					
If skin contamination is expect be protected with impervious of For further specification, refer	ed to extend to other parts of the body, then these body parts should also garments in a manner equivalent to those described for the hands. to section 8 of the SDS.				
If skin contamination is expect be protected with impervious of For further specification, refer Dermal - minimum efficiency of Other conditions affecting v	ed to extend to other parts of the body, then these body parts should also garments in a manner equivalent to those described for the hands. to section 8 of the SDS. of 80 % workers exposure				
If skin contamination is expect be protected with impervious of For further specification, refer Dermal - minimum efficiency of	ed to extend to other parts of the body, then these body parts should also garments in a manner equivalent to those described for the hands. to section 8 of the SDS. of 80 %				



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Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

7.2.7. Control of worker exposure:Non-industrial spraying (PROC11)

Product (article) character	ristics
Covers concentrations up to	30 %
Physical form of product	: Liquid
Amount used, frequency a	and duration of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
Conditions and measures	related to personal protection, hygiene and health evaluation
If skin contamination is expe be protected with impervious For further specification, refe Dermal - minimum efficiency Respiratory protection	of 90 %
Inhalation - minimum efficien	cy of 90 %
Other conditions affecting	workers exposure
Indoor or outdoor use	: Indoor use
Temperature	: 115 °C
Additional good practice a	advice. Obligations according to Article 37(4) of REACH do not apply
personnel operating under s	undertaken with appropriate and well maintained equipment by trained supervision. cleaning and maintenance of equipment and machines.



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Ensure daily cleaning of the equipment.

7.2.8. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

Product (article) characterist	ics
Covers concentrations up to 30) %
Physical form of product	: Liquid
Amount used, frequency and	d duration of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
Conditions and measures re	lated to personal protection, hygiene and health evaluation
	to extend to other parts of the body, then these body parts should also arments in a manner equivalent to those described for the hands. to section 8 of the SDS.
Other conditions affecting w	orkers exposure
Indoor or outdoor use	: Indoor use
Temperature	: 115 °C
Additional good practice adv	vice. Obligations according to Article 37(4) of REACH do not apply
personnel operating under sup	aning and maintenance of equipment and machines.

7.2.9. Control of worker exposure: Manual maintenance (cleaning and repair) of machinery (PROC28)

Product (article) characteristics

Covers concentrations up to 30 %



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Melamine							
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Physical form of product	: Liquid						
Amount used, frequency an	d duration of use (or from service life	ə)					
Duration	: Covers daily exposures up	to 8 hours					
Conditions and measures re	elated to personal protection, hygiene	e and health evaluation					
be protected with impervious g For further specification, refer Dermal - minimum efficiency o	Wear suitable gloves tested to EN374. If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands. For further specification, refer to section 8 of the SDS. Dermal - minimum efficiency of 80 % Other conditions affecting workers exposure						
Indoor or outdoor use	: Indoor use						
Temperature	: 115 °C						
Additional good practice ad	vice. Obligations according to Article	e 37(4) of REACH do not apply					
personnel operating under su	aning and maintenance of equipment a						

7.3. Exposure estimation and reference to its source

7.3.1. Environmental release and exposure: Widespread use leading to inclusion into/onto article (indoor) (ERC8c) / Widespread use leading to inclusion into/onto article (outdoor) (ERC8f)

Release route	Release rate	Release estimation method
Water	0 kg/day	Estimated release factor
Air	0 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor



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Compartment	Exposure level	RCR
Freshwater	0,00059 mg/L (EUSES)	< 0,01
Freshwater sediment	0,015 mg/kg dry weight (EUSES)	< 0,01
Marine water	0,00006 mg/L (EUSES)	< 0,01
Marine sediment	0,00145 mg/kg dry weight (EUSES)	< 0,01
Sewage treatment plant	0 mg/L (EUSES)	< 0,01
Agricultural soil	0,00066 mg/kg dry weight (EUSES)	< 0,01
Man via environment - Inhalation	0 mg/m³ (EUSES)	< 0,01
Man via environment - Oral	0,00002 mg/kg bw/day (EUSES)	< 0,01
combined routes		< 0,01

7.3.2. Worker exposure: Mixing or blending in batch processes (PROC5)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	5 mg/m ³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m ³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	2,743 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,835	

7.3.3. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

Exposure route		Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,525 mg/m ³ (ECETOC TRA worker v3)	0,063	



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inhalative	systemic	short-term	0,525 mg/m ³ (ECETOC TRA worker v3)	< 0,01	
dermal	systemic	long-term	2,743 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,296	

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,525 mg/m ³ (ECETOC TRA worker v3)	0,063	
inhalative	systemic	short-term	0,525 mg/m³ (ECETOC TRA worker v3)	< 0,01	
dermal	systemic	long-term	2,743 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,296	

7.3.5. Worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,525 mg/m ³ (ECETOC TRA worker v3)	0,063	
inhalative	systemic	short-term	0,525 mg/m ³ (ECETOC TRA worker v3)	< 0,01	
dermal	systemic	long-term	2,743 mg/kg bw/day (ECETOC TRA worker v3)	0,232	



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combined routes	systemic	long-term		0,296	

7.3.6. Worker exposure: Roller application or brushing (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	3,61 mg/m ³ (Stoffenmanager v5.6.10)	0,435	
inhalative	systemic	short-term	3,61 mg/m ³ (Stoffenmanager v5.6.10)	0,044	
dermal	systemic	long-term	5,486 mg/kg bw/day (ECETOC TRA worker v3)	0,465	
combined routes	systemic	long-term		0,9	

7.3.7. Worker exposure: Non-industrial spraying (PROC11)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,398 mg/m ³ (Stoffenmanager v5.6.10)	0,048	
inhalative	systemic	short-term	0,398 mg/m ³ (Stoffenmanager v5.6.10)	< 0,01	
dermal	systemic	long-term	10,71 mg/kg bw/day (ECETOC TRA worker v3)	0,908	
combined routes	systemic	long-term		0,956	

7.3.8. Worker exposure: Treatment of articles by dipping and pouring (PROC13)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,525 mg/m ³ (ECETOC TRA	0,063	



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			worker v3)		
inhalative	systemic	short-term	0,525 mg/m ³ (ECETOC TRA worker v3)	< 0,01	
dermal	systemic	long-term	2,743 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,296	

7.3.9. Worker exposure: Manual maintenance (cleaning and repair) of machinery (PROC28)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0,525 mg/m ³ (ECETOC TRA worker v3)	0,063	
inhalative	systemic	short-term	0,525 mg/m ³ (ECETOC TRA worker v3)	< 0,01	
dermal	systemic	long-term	2,743 mg/kg bw/day (ECETOC TRA worker v3)	0,232	
combined routes	systemic	long-term		0,296	

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

The safety data sheet at hand provides the user with risk management measures and operational conditions which enables him to work safely with the substance / mixture. If other risk management measures / operational conditions are adopted, the user has to ensure, that the risks are managed to at least equivalent levels.

Additional information available from:

https://lat-web-prod-storage-

cdn.azureedge.net/nitrogenblob/storage/local/unMlcCNEco1jAEuzdf0ibZWRKBU7y19BBhYUxt7f.pdf





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ES8: PU foams - Workers (industrial)

8.1. Title section

Structured Short Title	: Service life - workers, PU foams - Workers (industrial); Vehicles
	covered by End of Life Vehicles (ELV) directive (AC1a).; Plastic
	articles (AC13).; Other plastic articles (AC13g).

Environm	Environment					
CS1	PU foams - Workers (industrial)	ERC12a				
Worker						
CS2	Low energy manipulation and handling of substances bound in/on materials and/or articles	PROC21				
CS3	High (mechanical) energy work-up of substances bound in/on materials and/or articles	PROC24				

8.2. Conditions of use affecting exposure

8.2.1. Control of environmental exposure: Processing of articles at industrial sites with low release (ERC12a)

Conditions and measures related to sewage treatment plant				
:	Municipal Sewage Treatment Plant			
:	Biological elimination			
:	Controlled application of sewage sludge to agricultural soil			
:	2.000 m³/d			
Other conditions affecting environmental exposure				
Receiving surface water flow : 18.000 m ³ /d				
	::			



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Local freshwater dilution factor : 10

8.2.2. Control of worker exposure:Low energy manipulation and handling of substances bound in/on materials and/or articles (PROC21)

Product (article) characteristics				
Covers percentage substance	in the product up to 100 %.			
Physical form of product	: Solid, medium dustiness			
Amount used, frequency and duration of use (or from service life)				
Duration	: Covers daily exposures up to 8 hours			
Other conditions affecting w	orkers exposure			
Indoor or outdoor use	: Indoor use			
Temperature	: 40 °C			
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply				
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision. Ensure regular inspection, cleaning and maintenance of equipment and machines.				

Clear spills immediately. Ensure daily cleaning of the equipment.

8.2.3. Control of worker exposure: High (mechanical) energy work-up of substances bound in/on materials and/or articles (PROC24)

Product (article) characteristics				
Covers percentage substance in the product up to 100 %.				
Physical form of product	Physical form of product : Solid, medium dustiness			
Amount used, frequency and duration of use (or from service life)				
Duration	: Covers daily exposures up to 8 hours			





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Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
Temperature	:	40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

8.3. Exposure estimation and reference to its source

8.3.1. Environmental release and exposure: Processing of articles at industrial sites with low release (ERC12a)

Release route	Release rate	Release estimation method
Water	0 kg/day	Estimated release factor
Air	0 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Compartment	Exposure level	RCR	
Freshwater	0,00059 mg/L (EUSES)	< 0,01	
Freshwater sediment	0,015 mg/kg dry weight (EUSES)	< 0,01	
Marine water	0,00006 mg/L (EUSES)	< 0,01	
Marine sediment	0,00145 mg/kg dry weight (EUSES)	< 0,01	
Sewage treatment plant	0 mg/L (EUSES)	< 0,01	
Agricultural soil	0,00066 mg/kg dry weight (EUSES)	< 0,01	
Man via environment - Inhalation	0 mg/m ³ (EUSES)	< 0,01	



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Man via environment - Oral	0,00002 mg/kg bw/day (EUSES)	< 0,01
combined routes		< 0,01

8.3.2. Worker exposure: Low energy manipulation and handling of substances bound in/on materials and/or articles (PROC21)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	3 mg/m ³ (ECETOC TRA worker v3)	0,361	
inhalative	systemic	short-term	12 mg/m ³ (ECETOC TRA worker v3)	0,146	
dermal	systemic	long-term	2,83 mg/kg bw/day (ECETOC TRA worker v3)	0,24	
combined routes	systemic	long-term		0,601	

8.3.3. Worker exposure: High (mechanical) energy work-up of substances bound in/on materials and/or articles (PROC24)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	1 mg/m ³ (ECETOC TRA worker v3)	0,12	
inhalative	systemic	short-term	4 mg/m ³ (ECETOC TRA worker v3)	0,049	
dermal	systemic	long-term	2,83 mg/kg bw/day (ECETOC TRA worker v3)	0,24	
combined routes	systemic	long-term		0,36	

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

The safety data sheet at hand provides the user with risk management measures and operational conditions which enables him to work safely with the substance / mixture. If other risk management



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measures / operational conditions are adopted, the user has to ensure, that the risks are managed to at least equivalent levels.

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ES9: Intumescent coatings - Workers (industrial)

9.1. Title section

Structured Short Title	:	Service life - workers, Intumescent coatings - Workers
		(industrial); Fabrics, textiles and apparel: Large surface area articles (AC5a).; Metal articles: Large surface area articles (AC7a).; Plastic articles (AC13).

Environm	Environment				
CS1	Intumescent coatings - Workers (industrial)	ERC12a			
Worker					
CS2	Low energy manipulation and handling of substances bound in/on materials and/or articles	PROC21			
CS3	High (mechanical) energy work-up of substances bound in/on materials and/or articles	PROC24			

9.2. Conditions of use affecting exposure

9.2.1. Control of environmental exposure: Processing of articles at industrial sites with low release (ERC12a)

Conditions and measures related to sewage treatment plant				
STP type	:	Municipal Sewage Treatment Plant		
Additional information on STP	:	Biological elimination		
STP sludge treatment	:	Controlled application of sewage sludge to agricultural soil		
STP effluent	: 2.000 m³/d			
Other conditions affecting environmental exposure				
Receiving surface water flow	:	18.000 m³/d		



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Local freshwater dilution factor : 10

9.2.2. Control of worker exposure:Low energy manipulation and handling of substances bound in/on materials and/or articles (PROC21)

Product (article) characteristics					
Covers percentage substance	in the product up to 100 %.				
Physical form of product	: Solid, medium dustiness				
Amount used, frequency and	d duration of use (or from service life)				
Duration	: Covers daily exposures up to 8 hours				
Other conditions affecting w	orkers exposure				
Indoor or outdoor use	: Indoor use				
Temperature	: 40 °C				
Additional good practice adv	vice. Obligations according to Article 37(4) of REACH do not apply				
personnel operating under sup	dertaken with appropriate and well maintained equipment by trained ervision. aning and maintenance of equipment and machines.				

Clear spills immediately.

Ensure daily cleaning of the equipment.

9.2.3. Control of worker exposure: High (mechanical) energy work-up of substances bound in/on materials and/or articles (PROC24)

Product (article) characteristics							
Covers percentage substance in the product up to 100 %.							
Physical form of product	Physical form of product : Solid, medium dustiness						
Amount used, frequency and duration of use (or from service life)							
Duration	: Covers daily exposures up to 8 hours						





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Other conditions affecting workers exposure

Indoor or outdoor use	:	Indoor use
Temperature	:	40 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.

Ensure regular inspection, cleaning and maintenance of equipment and machines.

Clear spills immediately.

Ensure daily cleaning of the equipment.

9.3. Exposure estimation and reference to its source

9.3.1. Environmental release and exposure: Processing of articles at industrial sites with low release (ERC12a)

Release route	Release rate	Release estimation method	
Water	0 kg/day	Estimated release factor	
Air	0 kg/day	Estimated release factor	
Soil	0 kg/day	Estimated release factor	

Compartment	Exposure level	RCR
Freshwater	0,00059 mg/L (EUSES)	< 0,01
Freshwater sediment	0,015 mg/kg dry weight (EUSES)	< 0,01
Marine water	0,00006 mg/L (EUSES)	< 0,01
Marine sediment	0,00145 mg/kg dry weight (EUSES)	< 0,01
Sewage treatment plant	0 mg/L (EUSES)	< 0,01
Agricultural soil	0,00066 mg/kg dry weight (EUSES)	< 0,01
Man via environment - Inhalation	0 mg/m ³ (EUSES)	< 0,01



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Man via environment - Oral	0,00002 mg/kg bw/day (EUSES)	< 0,01
combined routes		< 0,01

9.3.2. Worker exposure: Low energy manipulation and handling of substances bound in/on materials and/or articles (PROC21)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	3 mg/m ³ (ECETOC TRA worker v3)	0,361	
inhalative	systemic	short-term	12 mg/m ³ (ECETOC TRA worker v3)	0,146	
dermal	systemic	long-term	2,83 mg/kg bw/day (ECETOC TRA worker v3)	0,24	
combined routes	systemic	long-term		0,601	

9.3.3. Worker exposure: High (mechanical) energy work-up of substances bound in/on materials and/or articles (PROC24)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	1 mg/m ³ (ECETOC TRA worker v3)	0,12	
inhalative	systemic	short-term	4 mg/m ³ (ECETOC TRA worker v3)	0,049	
dermal	systemic	long-term	2,83 mg/kg bw/day (ECETOC TRA worker v3)	0,24	
combined routes	systemic	long-term		0,36	

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

The safety data sheet at hand provides the user with risk management measures and operational conditions which enables him to work safely with the substance / mixture. If other risk management



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measures / operational conditions are adopted, the user has to ensure, that the risks are managed to at least equivalent levels.

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ES10: Intumescent coatings - Professional Workers

10.1. Title section

Structured Short Title	:	Service life - workers, Intumescent coatings - Professional
		Workers; Fabrics, textiles and apparel: Large surface area articles (AC5a).; Metal articles: Large surface area articles (AC7a).; Plastic articles (AC13).

Environm	ient	
CS1	Intumescent coatings - Professional Workers	ERC10a, ERC11a
Worker		
CS2	Low energy manipulation and handling of substances bound in/on materials and/or articles	PROC21

10.2. Conditions of use affecting exposure

10.2.1. Control of environmental exposure: Widespread use of articles with low release (outdoor) (ERC10a) / Widespread use of articles with low release (indoor) (ERC11a)

Conditions and measures related	to s	ewage treatment plant
STP type	:	Municipal Sewage Treatment Plant
Additional information on STP	:	Biological elimination
STP sludge treatment	:	Controlled application of sewage sludge to agricultural soil
STP effluent	:	2.000 m³/d
Other conditions affecting enviror	nme	ntal exposure
Receiving surface water flow	:	18.000 m³/d
Local freshwater dilution factor		10



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10.2.2. Control of worker exposure:Low energy manipulation and handling of substances bound in/on materials and/or articles (PROC21)

Product (article) characteristics	
Covers percentage substance in the	he product up to 100 %.
Physical form of product	: Solid, medium dustiness
Amount used, frequency and du	ration of use (or from service life)
Duration	: Covers daily exposures up to 8 hours
Other conditions affecting work	ers exposure
Indoor or outdoor use	: Indoor use
Temperature	: 40 °C

10.3. Exposure estimation and reference to its source

10.3.1. Environmental release and exposure: Widespread use of articles with low release (outdoor) (ERC10a) / Widespread use of articles with low release (indoor) (ERC11a)

Release route	Release rate	Release estimation method
Water	0 kg/day	Estimated release factor
Air	0 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,00059 mg/L (EUSES)	< 0,01
Freshwater sediment	0,015 mg/kg dry weight (EUSES)	< 0,01
Marine water	0,00006 mg/L (EUSES)	< 0,01
Marine sediment	0,00145 mg/kg dry weight (EUSES)	< 0,01



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Sewage treatment plant	0 mg/L (EUSES)	< 0,01
Agricultural soil	0,00066 mg/kg dry weight (EUSES)	< 0,01
Man via environment - Inhalation	0 mg/m³ (EUSES)	< 0,01
Man via environment - Oral	0,00002 mg/kg bw/day (EUSES)	< 0,01
combined routes		< 0,01

10.3.2. Worker exposure: Low energy manipulation and handling of substances bound in/on materials and/or articles (PROC21)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	5 mg/m ³ (ECETOC TRA worker v3)	0,602	
inhalative	systemic	short-term	20 mg/m ³ (ECETOC TRA worker v3)	0,243	
dermal	systemic	long-term	2,83 mg/kg bw/day (ECETOC TRA worker v3)	0,24	
combined routes	systemic	long-term		0,842	

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

The safety data sheet at hand provides the user with risk management measures and operational conditions which enables him to work safely with the substance / mixture. If other risk management measures / operational conditions are adopted, the user has to ensure, that the risks are managed to at least equivalent levels.

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ES11: PU foams - Consumers

11.1. Title section

Structured Short Title	: Service life - consumers, PU foams - Consumers; Plastic
	articles (AC13).

Environm	ent	
CS1	PU foams - Consumers	ERC10a, ERC11a
Consume	r	
CS2	Plastic articles	AC13

11.2. Conditions of use affecting exposure

11.2.1. Control of environmental exposure: Widespread use of articles with low release (outdoor) (ERC10a) / Widespread use of articles with low release (indoor) (ERC11a)

STP type	:	Municipal Sewage Treatment Plant
Additional information on STP	:	Biological elimination
STP sludge treatment	:	Controlled application of sewage sludge to agricultural soil
		2.000 m³/d
STP effluent	•	2.000 1190
Other conditions affecting enviro	onme	
	onme	ntal exposure

11.2.2. Control of consumer exposure: Plastic articles (AC13)

Product (article) characteristics



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Covers concentrations up to 30 %			
Physical form of product	: Solid		
Other conditions affecting consumers exposure			
Other conditions affecting cor	sumers exposure		

11.3. Exposure estimation and reference to its source

11.3.1. Environmental release and exposure: Widespread use of articles with low release (outdoor) (ERC10a) / Widespread use of articles with low release (indoor) (ERC11a)

Release route	Release rate Release estimation meth	
Water	0 kg/day	Estimated release factor
Air	0 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,00059 mg/L (EUSES)	< 0,01
Freshwater sediment	0,015 mg/kg dry weight (EUSES)	< 0,01
Marine water	0,00006 mg/L (EUSES)	< 0,01
Marine sediment	0,00145 mg/kg dry weight (EUSES)	< 0,01
Sewage treatment plant	0 mg/L (EUSES)	< 0,01
Agricultural soil	0,00066 mg/kg dry weight (EUSES)	< 0,01
Man via environment - Inhalation	0 mg/m³ (EUSES)	< 0,01
Man via environment - Oral	0,00002 mg/kg bw/day (EUSES)	< 0,01
combined routes		< 0,01



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11.3.2. Consumer exposure: Plastic articles (AC13)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	< 0,01 mg/m ³ (measured data)	< 0,01	
dermal	systemic for babies	long-term	0,148 mg/kg bw/day (measured data)	0,035	for babies
dermal	systemic for adults	long-term	0,064 mg/kg bw/day (measured data)	0,015	for adults
oral	systemic	long-term	< 0,01 mg/kg bw/day (measured data)	< 0,01	
combined routes	systemic for babies	long-term		0,035	for babies
combined routes	systemic for adults	long-term		0,015	for adults

Additional information on exposure estimation

Inhalation exposure is considered to be not relevant. Oral exposure is considered to be not relevant.

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

The safety data sheet at hand provides the user with risk management measures and operational conditions which enables him to work safely with the substance / mixture. If other risk management measures / operational conditions are adopted, the user has to ensure, that the risks are managed to at least equivalent levels.

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ES12: Intumescent coatings - Consumers

12.1. Title section

Plastic articles (AC13).	Structured Short Title	 Service life - consumers, Intumescent coatings - Consumers; Plastic articles (AC13).
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Environment						
CS1	Intumescent coatings - Consumers	ERC10a, ERC11a				
Consume	Consumer					
CS2	Plastic articles	AC13				

12.2. Conditions of use affecting exposure

12.2.1. Control of environmental exposure: Widespread use of articles with low release (outdoor) (ERC10a) / Widespread use of articles with low release (indoor) (ERC11a)

STP type	:	Municipal Sewage Treatment Plant
Additional information on STP	:	Biological elimination
STP sludge treatment	:	Controlled application of sewage sludge to agricultural soil
STP effluent		2.000 m³/d
STP ellident	•	2.000 m/u
Other conditions affecting environ	nme	

12.2.2. Control of consumer exposure: Plastic articles (AC13)

Product (article) characteristics



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Covers concentrations up to 30	6		
Physical form of product	: Solid		
Other conditions affecting consumers exposure			
Other conditions affecting cor	sumers exposure		

12.3. Exposure estimation and reference to its source

12.3.1. Environmental release and exposure: Widespread use of articles with low release (outdoor) (ERC10a) / Widespread use of articles with low release (indoor) (ERC11a)

Release route	Release rate Release estimation meth	
Water	0 kg/day	Estimated release factor
Air	0 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,00059 mg/L (EUSES)	< 0,01
Freshwater sediment	0,015 mg/kg dry weight (EUSES)	< 0,01
Marine water	0,00006 mg/L (EUSES)	< 0,01
Marine sediment	0,00145 mg/kg dry weight (EUSES)	< 0,01
Sewage treatment plant	0 mg/L (EUSES)	< 0,01
Agricultural soil	0,00066 mg/kg dry weight (EUSES)	< 0,01
Man via environment - Inhalation	0 mg/m³ (EUSES)	< 0,01
Man via environment - Oral	0,00002 mg/kg bw/day (EUSES)	< 0,01
combined routes		< 0,01



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12.3.2. Consumer exposure: Plastic articles (AC13)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR	Remarks
inhalative	systemic	long-term	0 mg/m³	< 0,01	
dermal	systemic	long-term	0 mg/kg bw/day	< 0,01	
oral	systemic	long-term	0 mg/kg bw/day	< 0,01	
combined routes	systemic	long-term		< 0,01	

Additional information on exposure estimation

Inhalation exposure is considered to be not relevant. Oral exposure is considered to be not relevant. Dermal exposure is considered to be not relevant.

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

The safety data sheet at hand provides the user with risk management measures and operational conditions which enables him to work safely with the substance / mixture. If other risk management measures / operational conditions are adopted, the user has to ensure, that the risks are managed to at least equivalent levels.

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