Melamine

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2020/878

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

1.1 Product identifier

Product Name	Melamine
Chemical Name	1,3,5-triazine-2,4,6-triamine
Chemical Formula	$C_3H_6N_6$
CAS No.	108-78-1
EC No.	203-615-4
REACH Registration No.	01-2119485947-16-0017

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

Identified Use(s): Melamine ($C_3H_6N_6$) is a product in form of white powder used for the production of a wide range of synthetic resins.

- Formulation or re-packing
- Use as intermediate for resins (reacted melamine)
- Use as additive in foams
- Use as additive in intumescent coatings
- PU foams - Workers (industrial)
- Intumescent coatings - Workers (industrial)
- Intumescent coatings - Professional Workers

Uses Advised Against: Addition to food or feed products.

1.3 Details of the supplier of the safety data sheet

Company Identification	Qatar Melamine Co
Address	P.O. Box 50001, Mesaieed, Qatar.
Telephone	(+974) 44228888
E-mail	aawad@qafco.com.qa

Only representative of a non-Community manufacturer

Company Identification	MUNTAJAT B.V.
Address	Prinses Margrietplantsoen 78-A 2595 BR, La Haye Pays Bas
Telephone	+31(0)70 219 7000
E-mail	REACH@muntajatbv.com
Website	www.muntajatbv.com

1.4 Emergency telephone number

For Spill, Leak, Fire, Exposure or Accident, Call CHEMTREC Day or Night	Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 and +1-703-527-3887 (collect calls accepted)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Regulation (EC) No. 1272/2008 (CLP):
Carc. 2 :Suspected of causing cancer.
Repr. 2 :Suspected of damaging fertility. (Testes, Sperm)
STOT RE 2 : May cause damage to organs through prolonged or repeated exposure: Urinary tract.

2.2 Label elements

According to Regulation (EC) No. 1272/2008 (CLP)

Product Name: Melamine

Hazard Pictogram(s):

GHS08

Signal Word(s): Warning

Hazard Statement(s):
H351: Suspected of causing cancer.
H361f: Suspected of damaging fertility. (Testes, Sperm)
H373: May cause damage to organs through prolonged or repeated exposure: Urinary tract.

Precautionary Statement(s)	P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P260: Do not breathe dust. P280: Wear protective gloves/protective clothing/eye protection/face protection. P308+P313: IF exposed or concerned: Get medical advice/attention. P501: Dispose of contents in accordance with local, state or national legislation.

2.3 Other hazards

May be harmful if swallowed.
Dust may have irritant effect on skin, eyes and air passages.

2.4 Additional Information

For full text of H/P Statements see section 16.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

HAZARDOUS INGREDIENT(S)	CAS No.	EC No. / REACH Registration No.	%W/W	Hazard Statement(s)	Hazard Pictogram(s)
Melamine	108-78-1	203-615-4 01-2119485947-16-0017	80-100	Carc. 2 H351 Repr. 2 H361f STOT RE 2 H373	GHS08

Contains no non-classified vPvB substances or substances with a Union workplace exposure limit.
For full text of H/P Statements see section 16.

3.2 Mixtures

Not applicable.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation	If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If symptoms persist, obtain medical attention.
Skin Contact	After contact with skin, wash immediately with plenty of soap and water.
Eye Contact	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
Ingestion	If swallowed, rinse mouth with water (only if the person is conscious). Get medical advice/attention if you feel unwell.

4.2 Most important symptoms and effects, both acute and delayed

Dust may have irritant effect on skin, eyes and air passages.

4.3 Indication of any immediate medical attention and special treatment needed

IF exposed or concerned: Get medical advice/attention.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable Extinguishing media	Extinguish with carbon dioxide, dry chemical, foam or waterspray.
Unsuitable extinguishing media	Water with full jet.

5.2 Special hazards arising from the substance or mixture

Decomposes in a fire giving off toxic fumes: Carbon monoxide, Carbon dioxide, Oxides of nitrogen. Ammonia is released when melamine is heated above 500°C.

5.3 Advice for firefighters

Fire fighters should wear complete protective clothing including self-contained breathing apparatus.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Ensure suitable personal protection (including respiratory protection) during removal of spillages. Avoid generation of dust. Do not breathe dust.

6.2 Environmental precautions

Do not allow to enter drains, sewers or watercourses.

6.3 Methods and material for containment and cleaning up

Sweep spilled substances into containers if appropriate moisten first to prevent dusting. Carefully collect remainder. Do not wash spillage with water as area will be slippery and will block sewage.

6.4 Reference to other sections

See Also Section 8, 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Provide adequate ventilation. Avoid generation of dust. Do not breathe dust. Wear protective gloves/protective clothing/eye protection/face protection. Wash hands and exposed skin thoroughly after handling.

7.2 Conditions for safe storage, including any incompatibilities

Keep from direct sunlight. Store locked up. Store in dry place. Keep container tightly closed.

Storage temperature	Ambient.
Storage life	Stable under normal conditions.
Incompatible materials	Strongly acidic, Strong oxidising agents.

7.3 Specific end use(s)

- Formulation or re-packing
- Use as intermediate for resins (reacted melamine)
- Use as additive in foams
- Use as additive in intumescent coatings
- PU foams - Workers (industrial)
- Intumescent coatings - Workers (industrial)
- Intumescent coatings - Professional Workers

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Occupational Exposure Limits

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m³)	STEL (ppm)	STEL (mg/m³)	Note
Melamine	108-78-1					None assigned

Source: UK Workplace Exposure Limits EH40/2005 (Fourth edition, published 2020), United Kingdom

8.1.2 PNECs and DNELs

DNEL / DMEL	Oral	Inhalation	Dermal
Industry - Long Term - Local effects			
Industry - Long Term - Systemic effects		8.3 mg/m³	11.8 mg/kg bw/day
Industry - Short term - Local effects			
Industry - Short term - Systemic effects		82.3 mg/m³	
Consumer - Long Term - Local effects			
Consumer - Long Term - Systemic effects	0.42 mg/kg bw/day	1.5 mg/m³	4.2 mg/kg bw/day
Consumer - Short term - Local effects			
Consumer - Short term - Systemic effects			

Environment	PNEC
Aquatic Compartment (including sediment)	Fresh water: 0.51 mg/l Intermittent release: 2 mg/l Sea water: 0.051 mg/l Fresh water (Sediment): 13.06 mg/kg dw Sea water (Sediment): 1.306 mg/kg dw

Terrestrial Compartment	Sewage Treatment Plant: 100 mg/l
Atmospheric Compartment	Soil: 2.312 mg/kg dw

8.2 Exposure controls

8.2.1. Appropriate engineering controls: Ensure adequate ventilation.

8.2.2. Personal protection equipment

Eye Protection: Wear protective eyewear (goggles, face shield, or safety glasses).

Skin protection: Wear protective gloves.
Breakthrough time of the glove material: refer to the information provided by the gloves' producer.

Respiratory protection: An approved dust mask should be worn if dust is generated during handling.

Thermal hazards: Not applicable.

8.2.3. Environmental Exposure Controls: Do not allow to enter drains, sewers or watercourses.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	Powder.
Colour	White.
Odour	Odourless.
Melting point/freezing point	361°C @ 101.3 kPa
Boiling point or initial boiling point and boiling range	>361°C (Sublimation)
Flammability	Non-flammable.
Lower and upper explosion limit	Not known.
Flash Point	Not applicable.
Auto-ignition temperature	>400°C
Decomposition Temperature	>361°C
pH	7.5 - 8.0 (aqueous solution)
Kinematic Viscosity	Not applicable.
Solubility	Solubility (Water) : Slightly soluble: 3.48 g/l @ 20°C Solubility (Other): Very slightly soluble: Acetone (0.3 g/l), Ethanol (0.6 g/l), Dimethylformamide (0.1 g/l), Soluble: Ethyl cellosolve (11.2 g/l) @ 30°C
Partition coefficient n-octanol/water (log value)	-1.22 @ 20°C
Vapour pressure	1.0E-8 Pa @ 20°C
Density and/or relative density	Density (g/ml): 1570 kg/m³, Relative density: 1.57 @ 20°C
Relative vapour density	Not applicable.
Particle characteristics	Fine powder with mass median diameter: <100 µm

9.2 Other information

Dissociation constant	6.7 pKa @ 20°C
Molecular weight	126.12 g/mol
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Stable under normal conditions.

10.2 Chemical Stability

Stable under normal conditions.

Melamine

10.3 Possibility of hazardous reactions

No hazardous reactions known if used for its intended purpose.

10.4 Conditions to avoid

Keep away from moisture.

10.5 Incompatible materials

Strongly acidic, Strong oxidising agents.

10.6 Hazardous decomposition products

No hazardous decomposition products known.

SECTION 11: TOXICOLOGICAL INFORMATION

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

Acute toxicity - Ingestion	May be harmful if swallowed. LD50 (rat): 3161 mg/kg
Acute toxicity - Skin Contact	Not classified. Low acute toxicity. LD50 (rat): >2000 mg/kg
Acute toxicity - Inhalation	Not classified. Low acute toxicity. LC50 (rat): >5190 mg/m³
Skin corrosion/irritation	Not classified. Non-irritant.
Serious eye damage/irritation	Not classified. Unlikely to cause eye irritation.
Skin sensitization data	Not classified. It is not a skin sensitiser in animal tests. Sensitisation (guinea pig) - Negative
Respiratory sensitization data	Not classified.
Germ cell mutagenicity	Not classified. There is no evidence of mutagenic potential. Many mutagenicity tests, covering various endpoints of mutagenicity/genotoxicity, were performed with melamine. The predominant result is negative.
Carcinogenicity	Suspected of causing cancer. LOAEL (oral) (rat): 126 mg/kg bw/day (Chronic, Bladder). Statistically significant increases in the incidence of transitional-cell carcinoma and combined incidences of transitional-cell carcinoma and papilloma in the urinary bladder were observed in male rats exposed to 4500 ppm melamine (ca. 263 mg/kg bw/day), but not when exposed to 2250 ppm melamine. With one exception, urinary bladder stones were observed in male rats that had transitional-cell carcinomas. Female rats did not develop tumours even when exposed up to 9000 ppm. No neoplastic findings related to treatment were observed in male or female mice.
Reproductive toxicity	Suspected of damaging fertility in male rats. (Testes, Sperm) NOAEL (oral): 89 mg/kg bw/day (Sub-chronic, 168 hours/week rat). Adverse effects on the male reproductive system were detected in an EOGRTS performed according to OECD TG 443 in rats, following the ECHA decision number TPE-D-2114373433-50-01. Tubular degeneration/atrophy in the testis was observed with related minimal cellular debris in the epididymis in F0 and F1 males. In addition, an increase in sperm abnormalities (detached heads) was observed in the F0 and F1 males.
Lactation	Not classified.
STOT - single exposure	None anticipated.
STOT - repeated exposure	May cause damage to organs through prolonged or repeated exposure: Urinary tract. NOAEL (oral) (rat): 72 mg/kg bw/day (Sub-chronic, Bladder, Kidneys) When tested in oral repeated dose toxicity studies in rats, melamine caused formation of urinary calculi in the bladder and hyperplasia in the bladder epithelium of both sexes. The effects were dose-related, with the male rats being more sensitive than females to the effects in the bladder. Mice were also investigated: The incidence of bladder stones was dose related as in rats, being greater in males than in females, but starting at much higher doses than in rats.
Aspiration hazard	Not classified.

11.2 Information on other hazards

Dust may have irritant effect on skin, eyes and air passages.

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SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

	Low toxicity to aquatic organisms.
Acute	LC50 (Rainbow trout): >3000 mg/l
	LC50 (Daphnia magna): 200 mg/l
Chronic	NOEC (Fathead minnow (Pimephales promelas)): ≥ 5.1 mg/l
	NOEC (Daphnia magna): ≥ 11 mg/l
Algae	EC50 Fresh water: 325 mg/l
	NOEC Fresh water: 98 mg/l

12.2 Persistence and degradability

This substance is not readily biodegradable. Not expected to be inherently biodegradable.

12.3 Bioaccumulative potential

The substance has no potential for bioaccumulation.
Bioconcentration factor (BCF): 3.8 L/kg ww

12.4 Mobility in soil

The substance is predicted to have moderate mobility in soil.

12.5 Results of PBT and vPvB assessment

Not classified as PBT or vPvB.

12.6 Endocrine disrupting properties

Does not cause endocrine disruption.

12.7 Other adverse effects

None anticipated.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Dispose of empty containers and wastes safely. Recover or recycle if possible.

13.2 Additional Information

Disposal should be in accordance with local, state or national legislation.

SECTION 14: TRANSPORT INFORMATION

Not classified as hazardous for transport.

14.1 UN number or ID number

Not applicable

14.2 UN proper shipping name

Not applicable

14.3 Transport hazard class(es)

Not applicable

14.4 Packing group

Not applicable

14.5 Environmental hazards

Not classified as a Marine Pollutant.

14.6 Special precautions for user

Not known

14.7 Maritime transport in bulk according to IMO instruments

Not known

SECTION 15: REGULATORY INFORMATION

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

European Regulations - Authorisations and/or Restrictions On Use

Candidate List of Substances of Very High Concern for Authorisation	Melamine (108-78-1)
REACH: Annex XIV list of substances subject to authorisation	Not listed
REACH: Annex XVII Restrictions on the manufacture, placing on the market	Not listed

and use of certain dangerous substances, mixtures and articles	
Community Rolling Action Plan (CoRAP)	Not listed
Regulation (EU) N° 2019/1021 of the European Parliament and of the Council on persistent organic pollutants	Not listed
Regulation (EC) N° 1005/2009 on substances that deplete the ozone layer	Not listed
Regulation (EU) N° 649/2012 of the European Parliament and of the Council concerning the export and import of hazardous chemicals	Not listed
National regulations	
Inventory Status	Listed in: Australia, Canada (DSL), China, Japan, Korea, Taiwan, New Zealand (HSNO) – HSNO Approval: HSR002503, New Zealand (NZIoC), Philippines.

15.2 Chemical Safety Assessment

A REACH chemical safety assessment has been carried out.

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: 1-16

LEGEND

Hazard Pictogram(s)

GHS08

Hazard classification

Carc. 2 : Carcinogenicity, Category 2
Repr. 2 : Reproductive toxicity, Category 2
STOT RE 2 : Specific target organ toxicity — repeated exposure, Category 2

Hazard Statement(s)

H351: Suspected of causing cancer.
H361f: Suspected of damaging fertility.
H373: May cause damage to organs through prolonged or repeated exposure.

Precautionary Statement(s)

P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P260: Do not breathe dust.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P308+P313: IF exposed or concerned: Get medical advice/attention.
P314: Get medical advice/attention if you feel unwell.
P405: Store locked up.
P501: Dispose of contents in accordance with local, state or national legislation.

Acronyms

CAS : Chemical Abstracts Service
CLP : Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
DNEL : Derived No Effect Level
EC : European Community
LTEL : Long term exposure limit
PBT : Persistent, Bioaccumulative and Toxic
PNEC : Predicted No Effect Concentration
REACH : Registration, Evaluation, Authorisation and Restriction of Chemicals
STEL : Short term exposure limit
STOT : Specific Target Organ Toxicity
vPvB : very Persistent and very Bioaccumulative

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Key literature references and sources for data used to compile the SDS	Regulation (EC) No. 1272/2008 (CLP)
Training Advice	Regular safety training as appropriate
Disclaimers	Information contained in this publication or as otherwise supplied to Users is believed to be accurate and is given in good faith, but it is for the Users to satisfy themselves of the suitability of the product for their own particular purpose. Qatar Melamine Co gives no warranty as to the fitness of the product for any particular purpose and any implied warranty or condition (statutory or otherwise) is excluded except to the extent that exclusion is prevented by law. Qatar Melamine Co accepts no liability for loss or damage (other than that arising from death or personal injury caused by defective product, if proved), resulting from reliance on this information. Freedom under Patents, Copyright and Designs cannot be assumed.

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Exposure Scenario 1: **Formulation or re-packing - Formulation or re-packaging**

SECTION 1:	**1.0 Title of Exposure Scenario:**	
	Formulation or re-packing - Formulation or re-packaging	
Contributing scenario controlling environmental exposure		
CS1	Formulation or re-packaging	ERC2
Contributing scenario controlling worker exposure		
CS2	Chemical production or refinery in closed process without likelihood of 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 conditions	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 and discharging) at non-dedicated facilities (Solid)	PROC8a
CS7	Transfer of substance or mixture (charging and 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, pelletisation, granulation	PROC14
CS10	Use as laboratory reagent (Solid)	PROC15
CS11	Hand-mixing with intimate contact and only PPE available (Solid)	PROC19
CS12	Manual maintenance (cleaning and repair) of machinery (Solid)	PROC28
CS13	Mixing or blending in batch processes (Liquid)	PROC5
CS14	Transfer of substance or mixture (charging and discharging) at dedicated facilities (Liquid)	PROC8b
CS15	Use as laboratory reagent (Liquid)	PROC15
CS16	Manual maintenance (cleaning and repair) of machinery (Liquid)	PROC28
CS17	Hand-mixing with intimate contact and only PPE available (Liquid)	PROC19
CS18	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Liquid)	PROC8a

SECTION 2:	**2.0 Conditions of use**
2.1	**Contributing scenario controlling environmental exposure:** 2.1 Formulation or re-packaging (ERC2)

Amount used, frequency and duration of use (or from service life)
Daily use amount at site: Not relevant for this material.
Annual use amount at site: Not relevant for this material.
Conditions and measures related to biological sewage treatment plant
Biological STP**:** Standard [Effectiveness water: 2.77%]
Discharge rate of STP: >= 2E3 m3/day
Application of the STP sludge on agricultural soil**:** Yes
Other given operational conditions affecting environmental exposure • Receiving surface water flow**:** >= 1.8E4 m3/day

2.2	**Contributing scenario controlling worker exposure exposure:** 2.2 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC2)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.3	**Contributing scenario controlling worker exposure exposure:** 2.3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC3)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.4	**Contributing scenario controlling worker exposure exposure:** 2.4 Chemical production where opportunity for exposure arises (PROC4)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	

Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.5	**Contributing scenario controlling worker exposure exposure:** 2.5 Mixing or blending in batch processes (Solid) (PROC5)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.6	**Contributing scenario controlling worker exposure exposure:** 2.6 Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Solid) (PROC8a)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	

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Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.7	**Contributing scenario controlling worker exposure exposure:** 2.7 Transfer of substance or mixture (charging and discharging) at dedicated facilities (Solid) (PROC8b)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.8	**Contributing scenario controlling worker exposure exposure:** 2.8 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Effectiveness inhalation: 0 %)	

Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.9	**Contributing scenario controlling worker exposure exposure:** 2.9 Tabletting, compression, extrusion, pelletisation, granulation (PROC14)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.10	**Contributing scenario controlling worker exposure exposure:** 2.10 Use as laboratory reagent (Solid) (PROC15)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.11	**Contributing scenario controlling worker exposure exposure:** 2.11 Hand-mixing with intimate contact and only PPE available (Solid) (PROC19)
Product (article) characteristic	

Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=4.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 95%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.12	**Contributing scenario controlling worker exposure exposure:** 2.12 Manual maintenance (cleaning and repair) of machinery (Solid) (PROC28)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.13	**Contributing scenario controlling worker exposure exposure:** 2.13 Mixing or blending in batch processes (Liquid) (PROC5)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 30 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	

General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: <= 115 °C	
2.14	**Contributing scenario controlling worker exposure exposure:** 2.14 Transfer of substance or mixture (charging and discharging) at dedicated facilities (Liquid) (PROC8b)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 30 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: <= 115 °C	
2.15	**Contributing scenario controlling worker exposure exposure:** 2.15 Use as laboratory reagent (Liquid) (PROC15)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 30 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	

Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: <= 115 °C	
2.16	**Contributing scenario controlling worker exposure exposure:** 2.16 Manual maintenance (cleaning and repair) of machinery (Liquid) (PROC28)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 30 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: <= 115 °C	
2.17	**Contributing scenario controlling worker exposure exposure:** 2.17 Hand-mixing with intimate contact and only PPE available (Liquid) (PROC19)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 30 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
Ventilation working room: General ventilation (mechanical)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 95%]	

Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: <= 115 °C	
2.18	**Contributing scenario controlling worker exposure exposure:** 2.18 Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Liquid) (PROC8a)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 30 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: <= 115 °C	
SECTION 3:	**3.0 Exposure estimation**
3.1. Environment	
Contributing scenario controlling environmental exposure: Formulation or re-packaging (ERC2)	

Release	**Release estimation method**	**Explanations**
Water	Estimated release rate	Local release rate: 5 kg/day
Air	Estimated release rate	Local release rate: 1 kg/day
Non-Agricultural Soil	Estimated release factor	Release factor after on site RMM: 0%
Protection target	**Exposure concentration**	**Risk quantification (RCR)**
Fresh water	Local PEC: 0.248 mg/l	0.49
Sedimentation (Fresh water)	Local PEC: 6.348 mg/kg dw	0.49
Marine water	Local PEC: 0.025 mg/l	0.50
Sedimentation (Marine water)	Local PEC: 0.652 mg/kg dw	0.50
Sewage Treatment Plant	Local PEC: 2.431 mg/l	0.02
Agricultural soil	Local PEC: 1.7 mg/kg dw	0.75
Man via Environment - Inhalation (Systemic effects)	Concentration in air: 2.78E-4 mg/m³	< 0.01

Man via Environment - Oral	Exposure via food consumption: 0.025 mg/kg bw/day	0.06
Man via Environment - Combined routes		0.06
3.2. Workers		
Contributing scenario controlling worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC2)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.5 mg/m³	0.06
Inhalation, Systemic effects, Acute	2 mg/m³	0.024
Dermal, Systemic effects, Long Term	1.37 mg/kg bw/day	0.116
Combined routes, Systemic effects, Long Term		0.176
Contributing scenario controlling worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC3)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	1 mg/m³	0.12
Inhalation, Systemic effects, Acute	4 mg/m³	0.049
Dermal, Systemic effects, Long Term	0.69 mg/kg bw/day	0.058
Combined routes, Systemic effects, Long Term		0.179
Contributing scenario controlling worker exposure: Chemical production where opportunity for exposure arises (PROC4)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	1.372 mg/kg bw/day	0.116
Combined routes, Systemic effects, Long Term		0.719
Contributing scenario controlling worker exposure: Mixing or blending in batch processes (Solid) (PROC5)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Solid) (PROC8a)		

Melamine

Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at dedicated facilities (Solid) (PROC8b)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	1 mg/m³	0.12
Inhalation, Systemic effects, Acute	4 mg/m³	0.049
Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.353
Contributing scenario controlling worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	1.372 mg/kg bw/day	0.116
Combined routes, Systemic effects, Long Term		0.719
Contributing scenario controlling worker exposure: Tabletting, compression, extrusion, pelletisation, granulation (PROC14)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	1 mg/m³	0.12
Inhalation, Systemic effects, Acute	4 mg/m³	0.049
Dermal, Systemic effects, Long Term	3.43 mg/kg bw/day	0.291
Combined routes, Systemic effects, Long Term		0.411
Contributing scenario controlling worker exposure: Use as laboratory reagent (Solid) (PROC15)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.5 mg/m³	0.06
Inhalation, Systemic effects, Acute	2 mg/m³	0.024
Dermal, Systemic effects, Long Term	0.34 mg/kg bw/day	0.029
Combined routes, Systemic effects, Long Term		0.089

Melamine

Contributing scenario controlling worker exposure: Hand-mixing with intimate contact and only PPE available (Solid) (PROC19)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	3 mg/m³	0.361
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	7.072 mg/kg bw/day	0.599
Combined routes, Systemic effects, Long Term		0.961
Contributing scenario controlling worker exposure: Manual maintenance (cleaning and repair) of machinery (Solid) (PROC28)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Mixing or blending in batch processes (Liquid) (PROC5)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.525 mg/m³	0.063
Inhalation, Systemic effects, Acute	0.525 mg/m³	<0.01
Dermal, Systemic effects, Long Term	2.743 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.296
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at dedicated facilities (Liquid) (PROC8b)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.525 mg/m³	0.063
Inhalation, Systemic effects, Acute	0.525 mg/m³	<0.01
Dermal, Systemic effects, Long Term	2.743 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.296
Contributing scenario controlling worker exposure: Use as laboratory reagent (Liquid) (PROC15)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.525 mg/m³	0.063
Inhalation, Systemic effects, Acute	0.525 mg/m³	<0.01
Dermal, Systemic effects, Long Term	0.34 mg/kg bw/day	0.029

Combined routes, Systemic effects, Long Term		0.092
Contributing scenario controlling worker exposure: Manual maintenance (cleaning and repair) of machinery (Liquid) (PROC28)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.525 mg/m³	0.063
Inhalation, Systemic effects, Acute	0.525 mg/m³	<0.01
Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.296
Contributing scenario controlling worker exposure: Hand-mixing with intimate contact and only PPE available (Liquid) (PROC19)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	1.74 mg/m³	0.21
Inhalation, Systemic effects, Acute	1.74 mg/m³	0.021
Dermal, Systemic effects, Long Term	7.072 mg/kg bw/day	0.599
Combined routes, Systemic effects, Long Term		0.809
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Liquid) (PROC8a)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.525 mg/m³	0.063
Inhalation, Systemic effects, Acute	0.525 mg/m³	<0.01
Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.296

SECTION 4:	**4.0 Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

4.1. Health

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

4.2. Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling could be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use, additional RMMs or a site-specific chemical safety assessment is required.

Exposure Scenario 2: **Use at industrial sites- Use as monomer (intermediate) for melamine based resins production**

SECTION 1:	**1.0 Title of Exposure Scenario:**	
	Use at industrial sites- Use as monomer (intermediate) for melamine based resins production	
Contributing scenario controlling environmental exposure		
CS1	Use as monomer (intermediate) for melamine based resins production	ERC6a, ERC6c
Contributing scenario controlling worker exposure		
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 conditions	PROC3
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 and discharging) at non-dedicated facilities (Solid)	PROC8a
CS9	Transfer of substance or mixture (charging and 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, pelletisation, granulation	PROC14
CS12	Use as laboratory reagent	PROC15
CS13	Manual maintenance (cleaning and repair) of machinery	PROC28
CS14	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Liquid)	PROC8a
CS15	Transfer of substance or mixture (charging and discharging) at dedicated facilities (Liquid)	PROC8b
CS16	Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (Liquid)	PROC9
SECTION 2:	**2.0 Conditions of use**	
2.1	**Contributing scenario controlling environmental exposure:** 2.1 Use as monomer (intermediate) for melamine based resins production (ERC6a, ERC6c)	
Amount used, frequency and duration of use (or from service life)		
Daily use amount at site: Not relevant for this material.		
Annual use amount at site: Not relevant for this material.		
Conditions and measures related to biological sewage treatment plant		

Melamine

Biological STP: Standard [Effectiveness water: 2.77%]	
Discharge rate of STP: >= 2E3 m3/day	
Application of the STP sludge on agricultural soil: Yes	
Other given operational conditions affecting environmental exposure • Receiving surface water flow: >= 1.8E4 m3/day	
2.2	**Contributing scenario controlling worker exposure exposure:** 2.2 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.3	**Contributing scenario controlling worker exposure exposure:** 2.3 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	

Melamine

2.4	**Contributing scenario controlling worker exposure exposure:** 2.4 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC3)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.5	**Contributing scenario controlling worker exposure exposure:** 2.5 Chemical production where opportunity for exposure arises (PROC4)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.6	**Contributing scenario controlling worker exposure exposure:** 2.6 Mixing or blending in batch processes (PROC5)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	

Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.7	**Contributing scenario controlling worker exposure exposure:** 2.7 Calendering operations (PROC6)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 90%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.8	**Contributing scenario controlling worker exposure exposure:** 2.8 Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Solid) (PROC8a)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	

Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.9	**Contributing scenario controlling worker exposure exposure:** 2.9 Transfer of substance or mixture (charging and discharging) at dedicated facilities (Solid) (PROC8b)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.10	**Contributing scenario controlling worker exposure exposure:** 2.10 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (Solid) (PROC9)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Effectiveness inhalation: 0 %)	

Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.11	**Contributing scenario controlling worker exposure exposure:** 2.11 Tabletting, compression, extrusion, pelletisation, granulation (PROC14)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.12	**Contributing scenario controlling worker exposure exposure:** 2.12 Use as laboratory reagent (PROC15)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.13	**Contributing scenario controlling worker exposure exposure:** 2.13 Manual maintenance (cleaning and repair) of machinery (PROC28)
Product (article) characteristic	

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Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.14	**Contributing scenario controlling worker exposure exposure:** 2.14 Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Liquid) (PROC8a)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 10 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: <= 115 °C	
2.15	**Contributing scenario controlling worker exposure exposure:** 2.15 Transfer of substance or mixture (charging and discharging) at dedicated facilities (Liquid) (PROC8b)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 10 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	

Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: <= 115 °C	
2.16	**Contributing scenario controlling worker exposure exposure:** 2.16 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (Liquid) (PROC9)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 10 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: <= 115 °C	
SECTION 3:	**3.0 Exposure estimation**
3.1. Environment	
Contributing scenario controlling environmental exposure: Use as monomer (intermediate) for melamine based resins production (ERC6a, ERC6c)	

Release	**Release estimation method**	**Explanations**
Water	Estimated release rate	Local release rate: 3 kg/day
Air	Estimated release rate	Local release rate: 0.5 kg/day
Non-Agricultural Soil	Estimated release factor	Release factor after on site RMM: 0%
Protection target	**Exposure concentration**	**Risk quantification (RCR)**

Fresh water	Local PEC: 0.151 mg/l	0.30
Sedimentation (Fresh water)	Local PEC: 3.86 mg/kg dw	0.30
Marine water	Local PEC: 0.015 mg/l	0.29
Sedimentation (Marine water)	Local PEC: 0.396 mg/kg dw	0.30
Sewage Treatment Plant	Local PEC: 1.458 mg/l	0.02
Agricultural soil	Local PEC: 1.014 mg/kg dw	0.44
Man via Environment - Inhalation (Systemic effects)	Concentration in air: 1.39E-4 mg/m³	< 0.01
Man via Environment - Oral	Exposure via food consumption: 0.014 mg/kg bw/day	0.03
Man via Environment - Combined routes		0.03
3.2. Workers		
Contributing scenario controlling worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.01 mg/m³	<0.01
Inhalation, Systemic effects, Acute	0.04 mg/m³	<0.01
Dermal, Systemic effects, Long Term	0.034 mg/kg bw/day	<0.01
Combined routes, Systemic effects, Long Term		<0.01
Contributing scenario controlling worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.5 mg/m³	0.06
Inhalation, Systemic effects, Acute	2 mg/m³	0.024
Dermal, Systemic effects, Long Term	1.37 mg/kg bw/day	0.116
Combined routes, Systemic effects, Long Term		0.176
Contributing scenario controlling worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC3)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	1 mg/m³	0.12
Inhalation, Systemic effects, Acute	4 mg/m³	0.049
Dermal, Systemic effects, Long Term	0.69 mg/kg bw/day	0.058
Combined routes, Systemic effects, Long Term		0.179
Contributing scenario controlling worker exposure: Chemical production where opportunity for exposure arises (PROC4)		

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Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	1.372 mg/kg bw/day	0.116
Combined routes, Systemic effects, Long Term		0.719
Contributing scenario controlling worker exposure: Mixing or blending in batch processes (PROC5)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Calendering operations (PROC6)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	2.743 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Solid) (PROC8a)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at dedicated facilities (Solid) (PROC8b)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	1 mg/m³	0.12
Inhalation, Systemic effects, Acute	4 mg/m³	0.049
Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.353

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Contributing scenario controlling worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (Solid) (PROC9)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	1.372 mg/kg bw/day	0.116
Combined routes, Systemic effects, Long Term		0.719
Contributing scenario controlling worker exposure: Tabletting, compression, extrusion, pelletisation, granulation (PROC14)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	1 mg/m³	0.12
Inhalation, Systemic effects, Acute	4 mg/m³	0.049
Dermal, Systemic effects, Long Term	3.43 mg/kg bw/day	0.291
Combined routes, Systemic effects, Long Term		0.411
Contributing scenario controlling worker exposure: Use as laboratory reagent (PROC15)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.5 mg/m³	0.06
Inhalation, Systemic effects, Acute	2 mg/m³	0.024
Dermal, Systemic effects, Long Term	0.34 mg/kg bw/day	0.029
Combined routes, Systemic effects, Long Term		0.089
Contributing scenario controlling worker exposure: Manual maintenance (cleaning and repair) of machinery (PROC28)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Liquid) (PROC8a)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.315 mg/m³	0.038
Inhalation, Systemic effects, Acute	0.315 mg/m³	<0.01
Dermal, Systemic effects, Long Term	8.226 mg/kg bw/day	0.697

Combined routes, Systemic effects, Long Term		0.735
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at dedicated facilities (Liquid) (PROC8b)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.315 mg/m³	0.038
Inhalation, Systemic effects, Acute	0.315 mg/m³	<0.01
Dermal, Systemic effects, Long Term	8.226 mg/kg bw/day	0.697
Combined routes, Systemic effects, Long Term		0.735
Contributing scenario controlling worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (Liquid) (PROC9)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.315 mg/m³	0.038
Inhalation, Systemic effects, Acute	0.315 mg/m³	<0.01
Dermal, Systemic effects, Long Term	4.114 mg/kg bw/day	0.349
Combined routes, Systemic effects, Long Term		0.387
SECTION 4:	**4.0 Guidance to DU to evaluate whether he works inside the boundaries set by the ES**	
4.1. Health		
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.		
4.2. Environment		
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling could be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use, additional RMMs or a site-specific chemical safety assessment is required.		

Exposure Scenario 3: **Use at industrial sites- Use as monomer (intermediate) in melamine based resins before curing**

SECTION 1:	**1.0 Title of Exposure Scenario:**	
	Use at industrial sites- Use as monomer (intermediate) in melamine based resins before curing	
Contributing scenario controlling environmental exposure		
CS1	Use as monomer (intermediate) in melamine based resins before curing	ERC6c
Contributing scenario controlling worker exposure		
CS2	Industrial spraying	PROC7
CS3	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Liquid)	PROC8a
CS4	Transfer of substance or mixture (charging and discharging) at dedicated facilities (Liquid)	PROC8b

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CS5	Roller application or brushing	PROC10
CS6	Hand-mixing with intimate contact and only PPE available	PROC19
CS7	Manual maintenance (cleaning and repair) of machinery	PROC28
CS8	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Solid)	PROC8a
CS9	Transfer of substance or mixture (charging and discharging) at dedicated facilities (Solid)	PROC8b
CS10	Calendering operations	PROC6

SECTION 2:	**2.0 Conditions of use**
2.1	**Contributing scenario controlling environmental exposure:** 2.1 Use as monomer (intermediate) in melamine based resins before curing (ERC6c)
Amount used, frequency and duration of use (or from service life)	
Daily use amount at site: Not relevant for this material.	
Annual use amount at site: Not relevant for this material.	
Conditions and measures related to biological sewage treatment plant	
Biological STP**:** Standard [Effectiveness water: 2.77%]	
Discharge rate of STP**:** >= 2E3 m3/day	
Application of the STP sludge on agricultural soil**:** Yes	
Other given operational conditions affecting environmental exposure • Receiving surface water flow: >= 1.8E4 m3/day	
2.2	**Contributing scenario controlling worker exposure exposure:** 2.2 Industrial spraying (PROC7)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 10 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
Ventilation working room: General ventilation (mechanical)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: <= 115 °C	
2.3	**Contributing scenario controlling worker exposure exposure:** 2.3 Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Liquid) (PROC8a)

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Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 10 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: <= 115 °C	
2.4	**Contributing scenario controlling worker exposure exposure:** 2.4 Transfer of substance or mixture (charging and discharging) at dedicated facilities (Liquid) (PROC8b)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 10 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: General ventilation (mechanical)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: <= 120 °C	
2.5	**Contributing scenario controlling worker exposure exposure:** 2.5 Roller application or brushing (PROC10)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 10 %	
Physical form of the used product: Liquid	

Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
Ventilation working room: General ventilation (mechanical)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: <= 115 °C	
2.6	**Contributing scenario controlling worker exposure exposure:** 2.6 Hand-mixing with intimate contact and only PPE available (PROC19)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 10 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
Ventilation working room: General ventilation (mechanical)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 90%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: <= 115 °C	
2.7	**Contributing scenario controlling worker exposure exposure:** 2.7 Manual maintenance (cleaning and repair) of machinery (PROC28)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 10 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	

General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: <= 115 °C	
2.8	**Contributing scenario controlling worker exposure exposure:** 2.8 Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Solid) (PROC8a)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 10 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.9	**Contributing scenario controlling worker exposure exposure:** 2.9 Transfer of substance or mixture (charging and discharging) at dedicated facilities (Solid) (PROC8b)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 10 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	

Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.10	**Contributing scenario controlling worker exposure exposure:** 2.10 Calendering operations (PROC6)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 10 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: <= 115 °C	
SECTION 3:	**3.0 Exposure estimation**
3.1. Environment	
Contributing scenario controlling environmental exposure: Use as monomer (intermediate) in melamine based resins before curing (ERC6c)	

Release	**Release estimation method**	**Explanations**
Water	Estimated release rate	Local release rate: 0.5 kg/day
Air	Estimated release rate	Local release rate: 0 kg/day
Non-Agricultural Soil	Estimated release factor	Release factor after on site RMM: 0%
Protection target	**Exposure concentration**	**Risk quantification (RCR)**
Fresh water	Local PEC: 0.029 mg/l	0.06
Sedimentation (Fresh water)	Local PEC: 0.75 mg/kg dw	0.06
Marine water	Local PEC: 2.98E-3 mg/l	0.06
Sedimentation (Marine water)	Local PEC: 0.076 mg/kg dw	0.06
Sewage Treatment Plant	Local PEC: 0.243 mg/l	<0.01
Agricultural soil	Local PEC: 0.164 mg/kg dw	0.07

Man via Environment - Inhalation (Systemic effects)	Concentration in air: 9.38E-16 mg/m³	< 0.01
Man via Environment - Oral	Exposure via food consumption: 1.65 E-3 mg/kg bw/day	< 0.01
Man via Environment - Combined routes		< 0.01
3.2. Workers		
Contributing scenario controlling worker exposure: Industrial spraying (PROC7)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	3.85 mg/m³	0.464
Inhalation, Systemic effects, Acute	3.85 mg/m³	0.05
Dermal, Systemic effects, Long Term	5.143 mg/kg bw/day	0.436
Combined routes, Systemic effects, Long Term		0.9
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Liquid) (PROC8a)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.315 mg/m³	0.038
Inhalation, Systemic effects, Acute	0.315 mg/m³	<0.01
Dermal, Systemic effects, Long Term	8.226 mg/kg bw/day	0.697
Combined routes, Systemic effects, Long Term		0.735
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at dedicated facilities (Liquid) (PROC8b)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.38 mg/m³	0.046
Inhalation, Systemic effects, Acute	0.38 mg/m³	<0.01
Dermal, Systemic effects, Long Term	8.226 mg/kg bw/day	0.697
Combined routes, Systemic effects, Long Term		0.743
Contributing scenario controlling worker exposure: Roller application or brushing (PROC10)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	1.74 mg/m³	0.210
Inhalation, Systemic effects, Acute	1.74 mg/m³	0.021
Dermal, Systemic effects, Long Term	3.29 mg/kg bw/day	0.279
Combined routes, Systemic effects, Long Term		0.489
Contributing scenario controlling worker exposure: Hand-mixing with intimate contact and only PPE available (PROC19)		

Melamine

Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.84 mg/m³	0.101
Inhalation, Systemic effects, Acute	0.84 mg/m³	0.01
Dermal, Systemic effects, Long Term	8.486 mg/kg bw/day	0.719
Combined routes, Systemic effects, Long Term		0.820
Contributing scenario controlling worker exposure: Manual maintenance (cleaning and repair) of machinery (PROC28)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.315 mg/m³	0.038
Inhalation, Systemic effects, Acute	0.315 mg/m³	<0.01
Dermal, Systemic effects, Long Term	8.226 mg/kg bw/day	0.697
Combined routes, Systemic effects, Long Term		0.735
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Solid) (PROC8a)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	3 mg/m³	0.361
Inhalation, Systemic effects, Acute	12 mg/m³	0.146
Dermal, Systemic effects, Long Term	1.645 mg/kg bw/day	0.139
Combined routes, Systemic effects, Long Term		0.500
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at dedicated facilities (Solid) (PROC8b)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.6 mg/m³	0.072
Inhalation, Systemic effects, Acute	2.4 mg/m³	0.029
Dermal, Systemic effects, Long Term	8.226 mg/kg bw/day	0.697
Combined routes, Systemic effects, Long Term		0.769
Contributing scenario controlling worker exposure: Calendering operations (PROC6)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.315 mg/m³	0.038
Inhalation, Systemic effects, Acute	0.315 mg/m³	<0.01
Dermal, Systemic effects, Long Term	3.291 mg/kg bw/day	0.279
Combined routes, Systemic effects, Long Term		0.317

SECTION 4:	**4.0 Guidance to DU to evaluate whether he works inside the boundaries set by the ES**
4.1. Health	
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	
4.2. Environment	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling could be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use, additional RMMs or a site-specific chemical safety assessment is required.	

Exposure Scenario 4: **Use at industrial sites - Use as intermediate for the production of other substances e.g. melamine salt (reacted melamine)**

SECTION 1:	**1.0 Title of Exposure Scenario:**	
	Use at industrial sites - Use as intermediate for the production of other substances e.g. melamine salt (reacted melamine)	
Contributing scenario controlling environmental exposure		
CS1	Use as intermediate for the production of other substances e.g. melamine salt (reacted melamine)	ERC6a
Contributing scenario controlling worker exposure		
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 conditions	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 and discharging) at non-dedicated facilities	PROC8a
CS8	Transfer of substance or mixture (charging and 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
SECTION 2:	**2.0 Conditions of use**	
2.1	**Contributing scenario controlling environmental exposure:** 2.1 Use as intermediate for the production of other substances e.g. melamine salt (reacted melamine) (ERC6a)	
Amount used, frequency and duration of use (or from service life)		
Daily use amount at site: Not relevant for this material.		
Annual use amount at site: Not relevant for this material.		

Conditions and measures related to biological sewage treatment plant	
Biological STP**:** Standard [Effectiveness water: 2.77%]	
Discharge rate of STP**:** >= 2E3 m3/day	
Application of the STP sludge on agricultural soil**:** Yes	
Other given operational conditions affecting environmental exposure • Receiving surface water flow: >= 1.8E4 m3/day	
2.2	**Contributing scenario controlling worker exposure exposure:** 2.2 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.3	**Contributing scenario controlling worker exposure exposure:** 2.3 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	

Place of use: Indoor	
2.4	**Contributing scenario controlling worker exposure exposure:** 2.4 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC3)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.5	**Contributing scenario controlling worker exposure exposure:** 2.5 Chemical production where opportunity for exposure arises (PROC4)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.6	**Contributing scenario controlling worker exposure exposure:** 2.6 Mixing or blending in batch processes (PROC5)
Product (article) characteristic	

Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.7	**Contributing scenario controlling worker exposure exposure:** 2.7 Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.8	**Contributing scenario controlling worker exposure exposure:** 2.8 Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC8b)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	

Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.9	**Contributing scenario controlling worker exposure exposure:** 2.9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.10	**Contributing scenario controlling worker exposure exposure:** 2.10 Use as laboratory reagent (PROC15)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	

Melamine

Respiratory protection: No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.11	**Contributing scenario controlling worker exposure exposure:** 2.11 Manual maintenance (cleaning and repair) of machinery (PROC28)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
SECTION 3:	**3.0 Exposure estimation**
3.1. Environment	
Contributing scenario controlling environmental exposure: Use as intermediate for the production of other substances e.g. melamine salt (reacted melamine) (ERC6a)	

Release	**Release estimation method**	**Explanations**
Water	Estimated release rate	Local release rate: 3 kg/day
Air	Estimated release rate	Local release rate: 0.5 kg/day
Non-Agricultural Soil	Estimated release factor	Release factor after on site RMM: 0%
Protection target	**Exposure concentration**	**Risk quantification (RCR)**
Fresh water	Local PEC: 0.151 mg/l	0.30
Sedimentation (Fresh water)	Local PEC: 3.86 mg/kg dw	0.30
Marine water	Local PEC: 0.015 mg/l	0.29
Sedimentation (Marine water)	Local PEC: 0.396 mg/kg dw	0.30
Sewage Treatment Plant	Local PEC: 1.458 mg/l	0.02
Agricultural soil	Local PEC: 1.014 mg/kg dw	0.44
Man via Environment - Inhalation (Systemic effects)	Concentration in air: 1.39E-4 mg/m³	< 0.01

Man via Environment - Oral	Exposure via food consumption: 0.014 mg/kg bw/day	0.03
Man via Environment - Combined routes		0.03
3.2. Workers		
Contributing scenario controlling worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.01 mg/m³	<0.01
Inhalation, Systemic effects, Acute	0.04 mg/m³	<0.01
Dermal, Systemic effects, Long Term	0.034 mg/kg bw/day	<0.01
Combined routes, Systemic effects, Long Term		<0.01
Contributing scenario controlling worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.5 mg/m³	0.06
Inhalation, Systemic effects, Acute	2 mg/m³	0.024
Dermal, Systemic effects, Long Term	1.37 mg/kg bw/day	0.116
Combined routes, Systemic effects, Long Term		0.176
Contributing scenario controlling worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC3)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	1 mg/m³	0.12
Inhalation, Systemic effects, Acute	4 mg/m³	0.049
Dermal, Systemic effects, Long Term	0.69 mg/kg bw/day	0.058
Combined routes, Systemic effects, Long Term		0.179
Contributing scenario controlling worker exposure: Chemical production where opportunity for exposure arises (PROC4)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	1.372 mg/kg bw/day	0.116
Combined routes, Systemic effects, Long Term		0.719
Contributing scenario controlling worker exposure: Mixing or blending in batch processes (PROC5)		

Melamine

Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC8b)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	1 mg/m³	0.12
Inhalation, Systemic effects, Acute	4 mg/m³	0.049
Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.353
Contributing scenario controlling worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	1.372 mg/kg bw/day	0.116
Combined routes, Systemic effects, Long Term		0.719
Contributing scenario controlling worker exposure: Use as laboratory reagent (PROC15)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.5 mg/m³	0.06
Inhalation, Systemic effects, Acute	2 mg/m³	0.024
Dermal, Systemic effects, Long Term	0.34 mg/kg bw/day	0.029
Combined routes, Systemic effects, Long Term		0.089

Contributing scenario controlling worker exposure: Manual maintenance (cleaning and repair) of machinery (PROC28)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
SECTION 4:	**4.0 Guidance to DU to evaluate whether he works inside the boundaries set by the ES**	
4.1. Health		
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.		
4.2. Environment		
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling could be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use, additional RMMs or a site-specific chemical safety assessment is required.		

Exposure Scenario 5: Use at industrial sites - Use as additive in foams

SECTION 1:	**1.0 Title of Exposure Scenario:**	
	Use at industrial sites - Use as additive in foams	
Contributing scenario controlling environmental exposure		
CS1	Use as additive in foams	ERC5
Contributing scenario controlling worker exposure		
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 conditions	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 and discharging) at non-dedicated facilities	PROC8a
CS8	Transfer of substance or mixture (charging and 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	Hand-mixing with intimate contact and only PPE available	PROC19
CS12	Manual maintenance (cleaning and repair) of machinery	PROC28

SECTION 2:	**2.0 Conditions of use**
2.1	**Contributing scenario controlling environmental exposure:** 2.1 Use as additive in foams (ERC5)

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

Daily use amount at site: Not relevant for this material.

Annual use amount at site: Not relevant for this material.

Conditions and measures related to biological sewage treatment plant

Biological STP**:** Standard [Effectiveness water: 2.77%]

Discharge rate of STP**:** >= 2E3 m3/day

Application of the STP sludge on agricultural soil**:** Yes

Other given operational conditions affecting environmental exposure

- Receiving surface water flow: >= 1.8E4 m3/day

2.2	**Contributing scenario controlling worker exposure exposure:** 2.2 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Product (article) characteristic

Percentage (w/w) of substance in mixture/article: <= 100 %

Physical form of the used product: Solid (medium dusty form)

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

Duration of activity: <=8.0 h/day

Technical conditions and measures to control dispersion from source towards the worker

General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)

Occupational Health and Safety Management System: Advanced

Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]

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

Respiratory protection**:** No. (Effectiveness inhalation: 0 %)

Dermal protection: No. (Effectiveness dermal: 0 %)

Other given operational conditions affecting workers exposure

Place of use: Indoor

2.3	**Contributing scenario controlling worker exposure exposure:** 2.3 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.4	**Contributing scenario controlling worker exposure exposure:** 2.4 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC3)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.5	**Contributing scenario controlling worker exposure exposure:** 2.5 Chemical production where opportunity for exposure arises (PROC4)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	

Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.6	**Contributing scenario controlling worker exposure exposure:** 2.6 Mixing or blending in batch processes (PROC5)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.7	**Contributing scenario controlling worker exposure exposure:** 2.7 Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	

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Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.8	**Contributing scenario controlling worker exposure exposure:** 2.8 Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC8b)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.9	**Contributing scenario controlling worker exposure exposure:** 2.9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	

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Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.10	**Contributing scenario controlling worker exposure exposure:** 2.10 Use as laboratory reagent (PROC15)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.11	**Contributing scenario controlling worker exposure exposure:** 2.11 Hand-mixing with intimate contact and only PPE available (PROC19)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=4.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 95%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.12	**Contributing scenario controlling worker exposure exposure:** 2.12 Manual maintenance (cleaning and repair) of machinery (PROC28)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	

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Physical form of the used product: Solid (medium dusty form)		
Amount used, frequency and duration of use (or from service life)		
Duration of activity: <=8.0 h/day		
Technical conditions and measures to control dispersion from source towards the worker		
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)		
Occupational Health and Safety Management System: Advanced		
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]		
Conditions and measures related to personal protection, hygiene and health evaluation		
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)		
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]		
Other given operational conditions affecting workers exposure		
Place of use: Indoor		
SECTION 3:	**3.0 Exposure estimation**	
3.1. Environment		
Contributing scenario controlling environmental exposure: Use as additive in foams (ERC5)		
Release	**Release estimation method**	**Explanations**
Water	Estimated release rate	Local release rate: 3 kg/day
Air	Estimated release rate	Local release rate: 0.5 kg/day
Non-Agricultural Soil	Estimated release factor	Release factor after on site RMM: 0%
Protection target	**Exposure concentration**	**Risk quantification (RCR)**
Fresh water	Local PEC: 0.151 mg/l	0.30
Sedimentation (Fresh water)	Local PEC: 3.86 mg/kg dw	0.30
Marine water	Local PEC: 0.015 mg/l	0.29
Sedimentation (Marine water)	Local PEC: 0.396 mg/kg dw	0.30
Sewage Treatment Plant	Local PEC: 1.458 mg/l	0.02
Agricultural soil	Local PEC: 1.014 mg/kg dw	0.44
Man via Environment - Inhalation (Systemic effects)	Concentration in air: 1.39E-4 mg/m³	< 0.01
Man via Environment - Oral	Exposure via food consumption: 0.014 mg/kg bw/day	0.03
Man via Environment - Combined routes		0.03
3.2. Workers		
Contributing scenario controlling worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.01 mg/m³	<0.01
Inhalation, Systemic effects, Acute	0.04 mg/m³	<0.01

Dermal, Systemic effects, Long Term	0.034 mg/kg bw/day	<0.01
Combined routes, Systemic effects, Long Term		<0.01
Contributing scenario controlling worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.5 mg/m³	0.06
Inhalation, Systemic effects, Acute	2 mg/m³	0.024
Dermal, Systemic effects, Long Term	1.37 mg/kg bw/day	0.116
Combined routes, Systemic effects, Long Term		0.176
Contributing scenario controlling worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC3)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	1 mg/m³	0.12
Inhalation, Systemic effects, Acute	4 mg/m³	0.049
Dermal, Systemic effects, Long Term	0.69 mg/kg bw/day	0.058
Combined routes, Systemic effects, Long Term		0.179
Contributing scenario controlling worker exposure: Chemical production where opportunity for exposure arises (PROC4)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	1.372 mg/kg bw/day	0.116
Combined routes, Systemic effects, Long Term		0.719
Contributing scenario controlling worker exposure: Mixing or blending in batch processes (PROC5)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**

Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC8b)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	1 mg/m³	0.12
Inhalation, Systemic effects, Acute	4 mg/m³	0.049
Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.353
Contributing scenario controlling worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	1.372 mg/kg bw/day	0.116
Combined routes, Systemic effects, Long Term		0.719
Contributing scenario controlling worker exposure: Use as laboratory reagent (PROC15)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.5 mg/m³	0.06
Inhalation, Systemic effects, Acute	2 mg/m³	0.024
Dermal, Systemic effects, Long Term	0.34 mg/kg bw/day	0.029
Combined routes, Systemic effects, Long Term		0.089
Contributing scenario controlling worker exposure: Hand-mixing with intimate contact and only PPE available (PROC19)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	3 mg/m³	0.361
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	7.072 mg/kg bw/day	0.599
Combined routes, Systemic effects, Long Term		0.961
Contributing scenario controlling worker exposure: Manual maintenance (cleaning and repair) of machinery (PROC28)		

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Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.835

SECTION 4:	**4.0 Guidance to DU to evaluate whether he works inside the boundaries set by the ES**
4.1. Health	
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	
4.2. Environment	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling could be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use, additional RMMs or a site-specific chemical safety assessment is required.	

Exposure Scenario 6: **Use at industrial sites - Use as additive in intumescent coatings**

SECTION 1:	**1.0 Title of Exposure Scenario:**	
	Use at industrial sites - Use as additive in intumescent coatings	
Contributing scenario controlling environmental exposure		
CS1	Use as additive in intumescent coatings	ERC5
Contributing scenario controlling worker exposure		
CS2	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions	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 (LEV)	PROC7
CS6	Industrial spraying without Local Exhaust Ventilation (LEV)	PROC7
CS7	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Solid)	PROC8a
CS8	Transfer of substance or mixture (charging and 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
CS13	Hand-mixing with intimate contact and only PPE available	PROC19
CS14	Manual maintenance (cleaning and repair) of machinery (Solid)	PROC28
CS15	Transfer of substance or mixture (charging and discharging) at dedicated facilities (Liquid)	PROC8b

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CS16	Manual maintenance (cleaning and repair) of machinery (Liquid)	PROC28
CS17	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Liquid)	PROC8a

SECTION 2:	**2.0 Conditions of use**
2.1	**Contributing scenario controlling environmental exposure:** 2.1 Use as additive in intumescent coatings (ERC5)

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

Daily use amount at site: Not relevant for this material.

Annual use amount at site: Not relevant for this material.

Conditions and measures related to biological sewage treatment plant

Biological STP**:** Standard [Effectiveness water: 2.77%]

Discharge rate of STP**:** >= 2E3 m3/day

Application of the STP sludge on agricultural soil**:** Yes

Other given operational conditions affecting environmental exposure

- Receiving surface water flow: >= 1.8E4 m3/day

2.2	**Contributing scenario controlling worker exposure exposure:** 2.2 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC3)

Product (article) characteristic

Percentage (w/w) of substance in mixture/article: <= 100 %

Physical form of the used product: Solid (medium dusty form)

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

Duration of activity: <=8.0 h/day

Technical conditions and measures to control dispersion from source towards the worker

General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)

Occupational Health and Safety Management System: Advanced

Local exhaust ventilation: No. [Effectiveness inhalation: 0%, Dermal: 0%]

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

Respiratory protection**:** No. (Effectiveness inhalation: 0 %)

Dermal protection: No. (Effectiveness dermal: 0 %)

Other given operational conditions affecting workers exposure

Place of use: Indoor

2.3	**Contributing scenario controlling worker exposure exposure:** 2.3 Chemical production where opportunity for exposure arises (PROC4)

Product (article) characteristic

Percentage (w/w) of substance in mixture/article: <= 100 %

Physical form of the used product: Solid (medium dusty form)

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

Duration of activity: <=8.0 h/day

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Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.4	**Contributing scenario controlling worker exposure exposure:** 2.4 Mixing or blending in batch processes (PROC5)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.5	**Contributing scenario controlling worker exposure exposure:** 2.5 Industrial spraying with Local Exhaust Ventilation (LEV) (PROC7)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 30 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
Ventilation working room: General ventilation (mechanical)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: Yes (TRA effectiveness)[Effectiveness inhalation: 95%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	

Respiratory protection: No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: >115 ºC	
2.6	**Contributing scenario controlling worker exposure exposure:** 2.6 Industrial spraying without Local Exhaust Ventilation (LEV) (PROC7)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 30 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
Ventilation working room: General ventilation (mechanical)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: Yes (Respirator with APF of 10) [Effectiveness inhalation: 90%]	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: >115 ºC	
2.7	**Contributing scenario controlling worker exposure exposure:** 2.7 Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Solid) (PROC8a)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	

Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.8	**Contributing scenario controlling worker exposure exposure:** 2.8 Transfer of substance or mixture (charging and discharging) at dedicated facilities (Solid) (PROC8b)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.9	**Contributing scenario controlling worker exposure exposure:** 2.9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.10	**Contributing scenario controlling worker exposure exposure:** 2.10 Roller application or brushing (PROC10)

Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 30 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
Ventilation working room: General ventilation (mechanical)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: >115 ºC	
2.11	**Contributing scenario controlling worker exposure exposure:** 2.11 Treatment of articles by dipping and pouring (PROC13)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 30 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.12	**Contributing scenario controlling worker exposure exposure:** 2.12 Use as laboratory reagent (PROC15)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	

Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.13	**Contributing scenario controlling worker exposure exposure:** 2.13 Hand-mixing with intimate contact and only PPE available (PROC19)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 30 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
Ventilation working room: General ventilation (mechanical)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 95%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: >115 ºC	
2.14	**Contributing scenario controlling worker exposure exposure:** 2.14 Manual maintenance (cleaning and repair) of machinery (Solid) (PROC28)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	

Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.15	**Contributing scenario controlling worker exposure exposure:** 2.15 Transfer of substance or mixture (charging and discharging) at dedicated facilities (Liquid) (PROC8b)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 30 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: >115 ºC	
2.16	**Contributing scenario controlling worker exposure exposure:** 2.16 Manual maintenance (cleaning and repair) of machinery (Liquid) (PROC28)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 30 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	

Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: >115 ºC	
2.17	**Contributing scenario controlling worker exposure exposure:** 2.17 Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Liquid) (PROC8a)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 30 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: >115 ºC	
SECTION 3:	**3.0 Exposure estimation**
3.1. Environment	
Contributing scenario controlling environmental exposure: Use as additive in intumescent coatings (ERC5)	

Release	**Release estimation method**	**Explanations**
Water	Estimated release rate	Local release rate: 3 kg/day
Air	Estimated release rate	Local release rate: 0.5 kg/day
Non-Agricultural Soil	Estimated release factor	Release factor after on site RMM: 0%
Protection target	**Exposure concentration**	**Risk quantification (RCR)**
Fresh water	Local PEC: 0.151 mg/l	0.30
Sedimentation (Fresh water)	Local PEC: 3.86 mg/kg dw	0.30
Marine water	Local PEC: 0.015 mg/l	0.29
Sedimentation (Marine water)	Local PEC: 0.396 mg/kg dw	0.30
Sewage Treatment Plant	Local PEC: 1.458 mg/l	0.02
Agricultural soil	Local PEC: 1.014 mg/kg dw	0.44
Man via Environment - Inhalation (Systemic effects)	Concentration in air: 1.39E-4 mg/m³	< 0.01

Man via Environment - Oral	Exposure via food consumption: 0.014 mg/kg bw/day	0.03
Man via Environment - Combined routes		0.03
3.2. Workers		
Contributing scenario controlling worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC3)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	1 mg/m³	0.12
Inhalation, Systemic effects, Acute	4 mg/m³	0.049
Dermal, Systemic effects, Long Term	0.69 mg/kg bw/day	0.058
Combined routes, Systemic effects, Long Term		0.179
Contributing scenario controlling worker exposure: Chemical production where opportunity for exposure arises (PROC4)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	1.372 mg/kg bw/day	0.116
Combined routes, Systemic effects, Long Term		0.719
Contributing scenario controlling worker exposure: Mixing or blending in batch processes (PROC5)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Industrial spraying with Local Exhaust Ventilation (LEV) (PROC7)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.4 mg/m³	0.048
Inhalation, Systemic effects, Acute	0.4 mg/m³	<0.01
Dermal, Systemic effects, Long Term	8.572 mg/kg bw/day	0.726
Combined routes, Systemic effects, Long Term		0.775
Contributing scenario controlling worker exposure: Industrial spraying without Local Exhaust Ventilation (LEV) (PROC7)		

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Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.795 mg/m³	0.096
Inhalation, Systemic effects, Acute	0.795 mg/m³	<0.01
Dermal, Systemic effects, Long Term	8.572 mg/kg bw/day	0.726
Combined routes, Systemic effects, Long Term		0.822
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Solid) (PROC8a)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at dedicated facilities (Solid) (PROC8b)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	1 mg/m³	0.12
Inhalation, Systemic effects, Acute	4 mg/m³	0.049
Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.353
Contributing scenario controlling worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	1.372 mg/kg bw/day	0.116
Combined routes, Systemic effects, Long Term		0.719
Contributing scenario controlling worker exposure: Roller application or brushing (PROC10)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	3.59 mg/m³	0.433
Inhalation, Systemic effects, Acute	3.59 mg/m³	0.044
Dermal, Systemic effects, Long Term	5.486 mg/kg bw/day	0.465
Combined routes, Systemic effects, Long Term		0.897

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Contributing scenario controlling worker exposure: Treatment of articles by dipping and pouring (PROC13)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.525 mg/m³	0.063
Inhalation, Systemic effects, Acute	0.525 mg/m³	<0.01
Dermal, Systemic effects, Long Term	2.743 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.296
Contributing scenario controlling worker exposure: Use as laboratory reagent (PROC15)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.5 mg/m³	0.06
Inhalation, Systemic effects, Acute	2 mg/m³	0.024
Dermal, Systemic effects, Long Term	0.34 mg/kg bw/day	0.029
Combined routes, Systemic effects, Long Term		0.089
Contributing scenario controlling worker exposure: Hand-mixing with intimate contact and only PPE available (PROC19)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	1.74 mg/m³	0.21
Inhalation, Systemic effects, Acute	1.74 mg/m³	0.021
Dermal, Systemic effects, Long Term	7.072 mg/kg bw/day	0.599
Combined routes, Systemic effects, Long Term		0.809
Contributing scenario controlling worker exposure: Manual maintenance (cleaning and repair) of machinery (Solid) (PROC28)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at dedicated facilities (Liquid) (PROC8b)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.525 mg/m³	0.063
Inhalation, Systemic effects, Acute	0.525 mg/m³	<0.01
Dermal, Systemic effects, Long Term	2.743 mg/kg bw/day	0.232

Combined routes, Systemic effects, Long Term		0.296
Contributing scenario controlling worker exposure: Manual maintenance (cleaning and repair) of machinery (Liquid) (PROC28)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.525 mg/m³	0.063
Inhalation, Systemic effects, Acute	0.525 mg/m³	<0.01
Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.296
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Liquid) (PROC8a)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.525 mg/m³	0.063
Inhalation, Systemic effects, Acute	0.525 mg/m³	<0.01
Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.296
SECTION 4:	**4.0 Guidance to DU to evaluate whether he works inside the boundaries set by the ES**	
4.1. Health		
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.		
4.2. Environment		
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling could be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use, additional RMMs or a site-specific chemical safety assessment is required.		

Exposure Scenario 7: **Widespread use by professional workers - Use as additive in intumescent coatings**

SECTION 1:	**1.0 Title of Exposure Scenario:**	
	Widespread use by professional workers - Use as additive in intumescent coatings	
Contributing scenario controlling environmental exposure		
CS1	Use as additive in intumescent coatings	ERC8c, ERC8f
Contributing scenario controlling worker exposure		

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CS2	Mixing or blending in batch processes	PROC5
CS3	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities	PROC8a
CS4	Transfer of substance or mixture (charging and 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

SECTION 2:	**2.0 Conditions of use**
2.1	**Contributing scenario controlling environmental exposure:** 2.1 Use as additive in intumescent coatings (ERC8c, ERC8f)

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

Daily local widespread use amount: Not relevant for this material.

Conditions and measures related to biological sewage treatment plant

Biological STP**:** Standard [Effectiveness water: 2.77%]

Discharge rate of STP**:** >= 2E3 m3/day

Application of the STP sludge on agricultural soil**:** Yes

Other given operational conditions affecting environmental exposure

- Receiving surface water flow: >= 1.8E4 m3/day

2.2	**Contributing scenario controlling worker exposure exposure:** 2.2 Mixing or blending in batch processes (PROC5)

Product (article) characteristic

Percentage (w/w) of substance in mixture/article: <= 30 %

Physical form of the used product: Liquid

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

Duration of activity: <=8.0 h/day

Technical conditions and measures to control dispersion from source towards the worker

General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)

Occupational Health and Safety Management System: Basic

Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]

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

Respiratory protection**:** No. (Effectiveness inhalation: 0 %)

Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]

Other given operational conditions affecting workers exposure

Place of use: Indoor

Operating temperature: 115 °C

2.3	**Contributing scenario controlling worker exposure exposure:**

	2.3 Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 30 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Basic	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: 115 °C	
2.4	**Contributing scenario controlling worker exposure exposure:** 2.4 Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC8b)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 30 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Basic	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: 115 °C	
2.5	**Contributing scenario controlling worker exposure exposure:** 2.5 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

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Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 30 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Basic	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: >115 ºC	
2.6	**Contributing scenario controlling worker exposure exposure:** 2.6 Roller application or brushing (PROC10)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 30 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
Ventilation working room: General ventilation (mechanical)	
Occupational Health and Safety Management System: Basic	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: >115 ºC	
2.7	**Contributing scenario controlling worker exposure exposure:** 2.7 Non industrial spraying (PROC11)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 30 %	
Physical form of the used product: Liquid	

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Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
Ventilation working room: General ventilation (mechanical)	
Occupational Health and Safety Management System: Basic	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** Yes (Respirator with APF of 20) Effectiveness inhalation: 95%	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 90%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: >115 ºC	
2.8	**Contributing scenario controlling worker exposure exposure:** 2.8 Treatment of articles by dipping and pouring (PROC13)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 30 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Basic	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
Operating temperature: >115 ºC	
2.9	**Contributing scenario controlling worker exposure exposure:** 2.9 Manual maintenance (cleaning and repair) of machinery (PROC28)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 30 %	
Physical form of the used product: Liquid	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	

General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)		
Occupational Health and Safety Management System: Basic		
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]		
Conditions and measures related to personal protection, hygiene and health evaluation		
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)		
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]		
Other given operational conditions affecting workers exposure		
Place of use: Indoor		
Operating temperature: >115 ºC		
SECTION 3:	**3.0 Exposure estimation**	
3.1. Environment		
Contributing scenario controlling environmental exposure: Use as additive in intumescent coatings (ERC8c, ERC8f)		
Release	**Release estimation method**	**Explanations**
Water	Estimated release rate	Local release rate: 0 kg/day
Air	Estimated release rate	Local release rate: 0 kg/day
Non-Agricultural Soil	Estimated release factor	Release factor after on site RMM: 0%
Protection target	**Exposure concentration**	**Risk quantification (RCR)**
Fresh water	Local PEC: 5.0E-3 mg/l	0.01
Sedimentation (Fresh water)	Local PEC: 0.128 mg/kg dw	0.01
Marine water	Local PEC: 4.82E-4 mg/l	0.01
Sedimentation (Marine water)	Local PEC: 0.012 mg/kg dw	0.01
Sewage Treatment Plant	Local PEC: 0 mg/l	<0.01
Agricultural soil	Local PEC: 2.82E-11 mg/kg dw	<0.01
Man via Environment - Inhalation (Systemic effects)	Concentration in air: 1.3E-21 mg/m³	<0.01
Man via Environment - Oral	Exposure via food consumption: 1.74E-4 mg/kg bw/day	<0.01
Man via Environment - Combined routes		<0.01
3.2. Workers		
Contributing scenario controlling worker exposure: Mixing or blending in batch processes (PROC5)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.525 mg/m³	0.063
Inhalation, Systemic effects, Acute	0.525 mg/m³	<0.01
Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.296

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Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.525 mg/m³	0.063
Inhalation, Systemic effects, Acute	0.525 mg/m³	<0.01
Dermal, Systemic effects, Long Term	2.743 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.296
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC8b)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.525 mg/m³	0.063
Inhalation, Systemic effects, Acute	0.525 mg/m³	<0.01
Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.296
Contributing scenario controlling worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.525 mg/m³	0.063
Inhalation, Systemic effects, Acute	0.525 mg/m³	<0.01
Dermal, Systemic effects, Long Term	6.86 mg/kg bw/day	0.581
Combined routes, Systemic effects, Long Term		0.644
Contributing scenario controlling worker exposure: Roller application or brushing (PROC10)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	3.61 mg/m³	0.435
Inhalation, Systemic effects, Acute	3.61 mg/m³	0.044
Dermal, Systemic effects, Long Term	5.486 mg/kg bw/day	0.465
Combined routes, Systemic effects, Long Term		0.9
Contributing scenario controlling worker exposure: Non industrial spraying (PROC11)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.398 mg/m³	0.048
Inhalation, Systemic effects, Acute	0.398 mg/m³	<0.01
Dermal, Systemic effects, Long Term	10.71 mg/kg bw/day	0.908

Combined routes, Systemic effects, Long Term		0.956
Contributing scenario controlling worker exposure: Treatment of articles by dipping and pouring (PROC13)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.525 mg/m³	0.063
Inhalation, Systemic effects, Acute	0.525 mg/m³	<0.01
Dermal, Systemic effects, Long Term	2.743 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.296
Contributing scenario controlling worker exposure: Manual maintenance (cleaning and repair) of machinery (PROC28)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	0.525 mg/m³	0.063
Inhalation, Systemic effects, Acute	0.525 mg/m³	<0.01
Dermal, Systemic effects, Long Term	2.743 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.296
SECTION 4:	**4.0 Guidance to DU to evaluate whether he works inside the boundaries set by the ES**	
4.1. Health		
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.		
4.2. Environment		
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling could be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use, additional RMMs or a site-specific chemical safety assessment is required.		

Exposure Scenario 8: **Service life (worker at industrial site) - PU foams - Workers (industrial)**

SECTION 1:	**1.0 Title of Exposure Scenario:**	
	Widespread use by professional workers - Use as additive in intumescent coatings	
Contributing scenario controlling environmental exposure		
CS1	PU foams - Workers (industrial)	ERC12a
Contributing scenario controlling worker exposure		
CS2	Low energy manipulation of substances bound in materials and/or articles	PROC21
CS3	High (mechanical) energy work-up of substances bound in materials and/or articles	PROC24
SECTION 2:	**2.0 Conditions of use**	
2.1	**Contributing scenario controlling environmental exposure:** 2.1 PU foams - Workers (industrial) (ERC12a)	
Amount used, frequency and duration of use (or from service life)		
Daily use amount at site: Not relevant for this material.		
Annual use amount at site: Not relevant for this material.		

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Conditions and measures related to biological sewage treatment plant	
Biological STP: Standard [Effectiveness water: 2.77%]	
Discharge rate of STP: >= 2E3 m3/day	
Application of the STP sludge on agricultural soil: Yes	
Other given operational conditions affecting environmental exposure • Receiving surface water flow: >= 1.8E4 m3/day	
2.2	**Contributing scenario controlling worker exposure exposure:** 2.2 Low energy manipulation of substances bound in materials and/or articles (PROC21)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.3	**Contributing scenario controlling worker exposure exposure:** 2.3 High (mechanical) energy work-up of substances bound in materials and/or articles (PROC24)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	

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Place of use: Indoor		
SECTION 3:	**3.0 Exposure estimation**	
3.1. Environment		
Contributing scenario controlling environmental exposure: PU foams - Workers (industrial) (ERC12a)		
Release	**Release estimation method**	**Explanations**
Water	Estimated release rate	Local release rate: 0 kg/day
Air	Estimated release rate	Local release rate: 0 kg/day
Non-Agricultural Soil	Estimated release factor	Release factor after on site RMM: 0%
Protection target	**Exposure concentration**	**Risk quantification (RCR)**
Fresh water	Local PEC: 5.0E-3 mg/l	0.01
Sedimentation (Fresh water)	Local PEC: 0.128 mg/kg dw	0.01
Marine water	Local PEC: 3.87E-4 mg/l	0.01
Sedimentation (Marine water)	Local PEC: 9.9E-3 mg/kg dw	0.01
Sewage Treatment Plant	Local PEC: 0 mg/l	<0.01
Agricultural soil	Local PEC: 2.26E-11 mg/kg dw	<0.01
Man via Environment - Inhalation (Systemic effects)	Concentration in air: 1.3E-21 mg/m³	<0.01
Man via Environment - Oral	Exposure via food consumption: 1.74E-4 mg/kg bw/day	<0.01
Man via Environment - Combined routes		<0.01
3.2. Workers		
Contributing scenario controlling worker exposure: Low energy manipulation of substances bound in materials and/or articles (PROC21)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	3 mg/m³	0.361
Inhalation, Systemic effects, Acute	12 mg/m³	0.146
Dermal, Systemic effects, Long Term	2.83 mg/kg bw/day	0.24
Combined routes, Systemic effects, Long Term		0.601
Contributing scenario controlling worker exposure: High (mechanical) energy work-up of substances bound in materials and/or articles (PROC24)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	1 mg/m³	0.12
Inhalation, Systemic effects, Acute	4 mg/m³	0.049
Dermal, Systemic effects, Long Term	2.83 mg/kg bw/day	0.24
Combined routes, Systemic effects, Long Term		0.36
SECTION 4:	**4.0 Guidance to DU to evaluate whether he works inside the boundaries set by the ES**	

4.1. Health
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
4.2. Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling could be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use, additional RMMs or a site-specific chemical safety assessment is required.

Exposure Scenario 9: Service life (worker at industrial site) - Intumescent coatings - Workers (industrial)

SECTION 1:	**1.0 Title of Exposure Scenario:**	
	Service life (worker at industrial site) - Intumescent coatings - Workers (industrial)	
Contributing scenario controlling environmental exposure		
CS1	Intumescent coatings - Workers (industrial)	ERC12a
Contributing scenario controlling worker exposure		
CS2	Low energy manipulation of substances bound in materials and/or articles	PROC21
CS3	High (mechanical) energy work-up of substances bound in materials and/or articles	PROC24
SECTION 2:	**2.0 Conditions of use**	
2.1	**Contributing scenario controlling environmental exposure:** 2.1 Intumescent coatings - Workers (industrial) (ERC12a)	
Amount used, frequency and duration of use (or from service life)		
Daily use amount at site: Not relevant for this material.		
Annual use amount at site: Not relevant for this material.		
Conditions and measures related to biological sewage treatment plant		
Biological STP**:** Standard [Effectiveness water: 2.77%		
Discharge rate of STP**:** >= 2E3 m3/day		
Application of the STP sludge on agricultural soil**:** Yes		
Other given operational conditions affecting environmental exposure • Receiving surface water flow: >= 1.8E4 m3/day		
2.2	**Contributing scenario controlling worker exposure exposure:** 2.2 Low energy manipulation of substances bound in materials and/or articles (PROC21)	
Product (article) characteristic		
Percentage (w/w) of substance in mixture/article: <= 100 %		
Physical form of the used product: Solid (medium dusty form)		
Amount used, frequency and duration of use (or from service life)		

Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
2.3	**Contributing scenario controlling worker exposure exposure:** 2.3 High (mechanical) energy work-up of substances bound in materials and/or articles (PROC24)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)	
Amount used, frequency and duration of use (or from service life)	
Duration of activity: <=8.0 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)	
Dermal protection: No. (Effectiveness dermal: 0 %)	
Other given operational conditions affecting workers exposure	
Place of use: Indoor	
SECTION 3:	**3.0 Exposure estimation**
3.1. Environment	
Contributing scenario controlling environmental exposure: Intumescent coatings - Workers (industrial) (ERC12a)	

Release	**Release estimation method**	**Explanations**
Water	Estimated release rate	Local release rate: 0 kg/day
Air	Estimated release rate	Local release rate: 0 kg/day
Non-Agricultural Soil	Estimated release factor	Release factor after on site RMM: 0%
Protection target	**Exposure concentration**	**Risk quantification (RCR)**
Fresh water	Local PEC: 5.0E-3 mg/l	0.01
Sedimentation (Fresh water)	Local PEC: 0.128 mg/kg dw	0.01
Marine water	Local PEC: 4.82E-4 mg/l	0.01

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Sedimentation (Marine water)	Local PEC: 0.012 mg/kg dw	0.01
Sewage Treatment Plant	Local PEC: 0 mg/l	<0.01
Agricultural soil	Local PEC: 2.82E-11 mg/kg dw	<0.01
Man via Environment - Inhalation (Systemic effects)	Concentration in air: 1.3E-21 mg/m³	<0.01
Man via Environment - Oral	Exposure via food consumption: 1.74E-4 mg/kg bw/day	<0.01
Man via Environment - Combined routes		<0.01

3.2. Workers

Contributing scenario controlling worker exposure: Low energy manipulation of substances bound in materials and/or articles (PROC21)

Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	3 mg/m³	0.361
Inhalation, Systemic effects, Acute	12 mg/m³	0.146
Dermal, Systemic effects, Long Term	2.83 mg/kg bw/day	0.24
Combined routes, Systemic effects, Long Term		0.601

Contributing scenario controlling worker exposure: High (mechanical) energy work-up of substances bound in materials and/or articles (PROC24)

Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	1 mg/m³	0.12
Inhalation, Systemic effects, Acute	4 mg/m³	0.049
Dermal, Systemic effects, Long Term	2.83 mg/kg bw/day	0.24
Combined routes, Systemic effects, Long Term		0.36

SECTION 4: **4.0 Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

4.1. Health

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

4.2. Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling could be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use, additional RMMs or a site-specific chemical safety assessment is required.

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Exposure Scenario 10: **Service life (professional worker) - Intumescent coatings - Professional Workers**

SECTION 1:	**1.0 Title of Exposure Scenario:**	
	Service life (professional worker) - Intumescent coatings - Professional Workers	
Contributing scenario controlling environmental exposure		
CS1	Intumescent coatings - Professional Workers	ERC10a, ERC11a
Contributing scenario controlling worker exposure		
CS2	Low energy manipulation of substances bound in materials and/or articles	PROC21
SECTION 2:	**2.0 Conditions of use**	
2.1	**Contributing scenario controlling environmental exposure:** 2.1 Intumescent coatings - Professional Workers (ERC10a, ERC11a)	
Amount used, frequency and duration of use (or from service life)		
Daily local widespread use amount: Not relevant for this material.		
Conditions and measures related to biological sewage treatment plant		
Biological STP**:** Standard [Effectiveness water: 2.77%]		
Discharge rate of STP**:** >= 2E3 m3/day		
Application of the STP sludge on agricultural soil**:** Yes		
Other given operational conditions affecting environmental exposure • Receiving surface water flow: >= 1.8E4 m3/day		
2.2	**Contributing scenario controlling worker exposure exposure:** 2.2 Low energy manipulation of substances bound in materials and/or articles (PROC21)	
Product (article) characteristic		
Percentage (w/w) of substance in mixture/article: <= 100 %		
Physical form of the used product: Solid (medium dusty form)		
Amount used, frequency and duration of use (or from service life)		
Duration of activity: <=8.0 h/day		
Technical conditions and measures to control dispersion from source towards the worker		
General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)		
Occupational Health and Safety Management System: Basic		
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]		
Conditions and measures related to personal protection, hygiene and health evaluation		
Respiratory protection**:** No. (Effectiveness inhalation: 0 %)		
Dermal protection: No. (Effectiveness dermal: 0 %)		
Other given operational conditions affecting workers exposure		
Place of use: Indoor		
SECTION 3:	**3.0 Exposure estimation**	
3.1. Environment		
Contributing scenario controlling environmental exposure: Intumescent coatings - Professional Workers (ERC10a, ERC11a)		

Release	Release estimation method	Explanations
Water	Estimated release rate	Local release rate: 0 kg/day
Air	Estimated release rate	Local release rate: 0 kg/day
Non-Agricultural Soil	Estimated release factor	Release factor after on site RMM: 0%
Protection target	**Exposure concentration**	**Risk quantification (RCR)**
Fresh water	Local PEC: 5.0E-3 mg/l	0.01
Sedimentation (Fresh water)	Local PEC: 0.128 mg/kg dw	0.01
Marine water	Local PEC: 4.82E-4 mg/l	0.01
Sedimentation (Marine water)	Local PEC: 0.012 mg/kg dw	0.01
Sewage Treatment Plant	Local PEC: 0 mg/l	<0.01
Agricultural soil	Local PEC: 2.82E-11 mg/kg dw	<0.01
Man via Environment - Inhalation (Systemic effects)	Concentration in air: 1.3E-21 mg/m³	<0.01
Man via Environment - Oral	Exposure via food consumption: 1.74E-4 mg/kg bw/day	<0.01
Man via Environment - Combined routes		<0.01
3.2. Workers		
Contributing scenario controlling worker exposure: Low energy manipulation of substances bound in materials and/or articles (PROC21)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	2.83 mg/kg bw/day	0.24
Combined routes, Systemic effects, Long Term		0.842
SECTION 4:	**4.0 Guidance to DU to evaluate whether he works inside the boundaries set by the ES**	
4.1. Health		
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.		
4.2. Environment		
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling could be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use, additional RMMs or a site-specific chemical safety assessment is required.		

Exposure Scenario 11: Service life (consumers) - PU foams – Consumers

SECTION 1:	1.0 Title of Exposure Scenario:
	Service life (consumers) - PU foams – Consumers
Contributing scenario controlling environmental exposure	

CS1	PU foams – Consumers	ERC10a, ERC11a
Contributing scenario controlling worker exposure		
CS2	Use of articles containing foam with the substance embedded in a matrix (encapsulated)	AC13

SECTION 2:	**2.0 Conditions of use**
2.1	**Contributing scenario controlling environmental exposure:** 2.1 PU foams – Consumers (ERC10a, ERC11a)

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

Daily local widespread use amount: Not relevant for this material.

Conditions and measures related to biological sewage treatment plant

Biological STP**:** Standard [Effectiveness water: 2.77%]

Discharge rate of STP**:** >= 2E3 m3/day

Application of the STP sludge on agricultural soil**:** Yes

Other given operational conditions affecting environmental exposure

- Receiving surface water flow: >= 1.8E4 m3/day

2.2	**Contributing scenario controlling worker exposure exposure:** 2.2 Use of articles containing foam with the substance embedded in a matrix (encapsulated) (AC13)

Product (article) characteristic

Percentage (w/w) of substance in mixture/article: <= 30 % (embedded in the foam, contained in the article)

Exposure via inhalation route: Inhalation exposure is considered to be not relevant

Exposure via oral route: Oral exposure is considered to be not relevant

SECTION 3:	**3.0 Exposure estimation**

3.1. Environment

Contributing scenario controlling environmental exposure: PU foams – Consumers (ERC10a, ERC11a)

Release	**Release estimation method**	**Explanations**
Water	Estimated release rate	Local release rate: 0 kg/day
Air	Estimated release rate	Local release rate: 0 kg/day
Non-Agricultural Soil	Estimated release factor	Release factor after on site RMM: 0%
Protection target	**Exposure concentration**	**Risk quantification (RCR)**
Fresh water	Local PEC: 5.0E-3 mg/l	0.01
Sedimentation (Fresh water)	Local PEC: 0.128 mg/kg dw	0.01
Marine water	Local PEC: 4.82E-4 mg/l	0.01
Sedimentation (Marine water)	Local PEC: 0.012 mg/kg dw	0.01
Sewage Treatment Plant	Local PEC: 0 mg/l	<0.01
Agricultural soil	Local PEC: 2.82E-11 mg/kg dw	<0.01
Man via Environment - Inhalation (Systemic effects)	Concentration in air: 1.3E-21 mg/m³	<0.01
Man via Environment - Oral	Exposure via food consumption: 1.74E-4 mg/kg bw/day	<0.01

Man via Environment - Combined routes		<0.01
3.2. Workers		
Contributing scenario controlling worker exposure: Use of articles containing foam with the substance embedded in a matrix (encapsulated) (AC13)		
Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**
Inhalation, Systemic effects, Long Term	Negligible (Migration study)	<0.01
Dermal, Systemic effects, Long Term	0.1484 mg/kg bw/day for a baby, when using additional sheets for mattress protection and comfort (Migration study) 0.06375 mg/kg bw/day for an adult, when using additional sheets for mattress protection and comfort (Migration study) 0.6375 mg/kg bw/day for an adult, when sleeping directly on the mattress cover (Migration study) 1.484 mg/kg bw/day for a baby, when sleeping directly on the mattress cover (Migration study)	0.035 0.015
Oral, Systemic effects, Long Term	Negligible (Migration study)	<0.01
Combined routes, Systemic effects, Long Term		0.035 (for a baby) 0.015 (for an adult)
SECTION 4:	**4.0 Guidance to DU to evaluate whether he works inside the boundaries set by the ES**	
4.1. Health		
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.		
4.2. Environment		
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling could be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use, additional RMMs or a site-specific chemical safety assessment is required.		

Exposure Scenario 12: Service life (consumers) - Intumescent coating – Consumers

SECTION 1:	**1.0 Title of Exposure Scenario:**	
	Service life (consumers) - Intumescent coating – Consumers	
Contributing scenario controlling environmental exposure		
CS1	Intumescent coating – Consumers	ERC10a, ERC11a
Contributing scenario controlling worker exposure		
CS2	Use of articles with intumescent coating with the substance embedded in a matrix (encapsulated)	AC13
SECTION 2:	**2.0 Conditions of use**	
2.1	**Contributing scenario controlling environmental exposure:** 2.1 Intumescent coating – Consumers (ERC10a, ERC11a)	

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Amount used, frequency and duration of use (or from service life)	
Daily local widespread use amount: Not relevant for this material.	
Conditions and measures related to biological sewage treatment plant	
Biological STP**:** Standard [Effectiveness water: 2.77%]	
Discharge rate of STP**:** >= 2E3 m3/day	
Application of the STP sludge on agricultural soil**:** Yes	
Other given operational conditions affecting environmental exposure • Receiving surface water flow: >= 1.8E4 m3/day	
2.2	**Contributing scenario controlling worker exposure exposure:** 2.2 Use of articles with intumescent coating with the substance embedded in a matrix (encapsulated) (AC13)
Product (article) characteristic	
Percentage (w/w) of substance in mixture/article: <= 30 % (embedded in a solid matrix)	
Exposure via inhalation route: Inhalation exposure is considered to be not relevant	
Exposure via dermal route: Dermal exposure is considered to be not relevant	
Exposure via oral route: Oral exposure is considered to be not relevant	
SECTION 3:	**3.0 Exposure estimation**

3.1. Environment

Contributing scenario controlling environmental exposure: Intumescent coating – Consumers (ERC10a, ERC11a)

Release	**Release estimation method**	**Explanations**
Water	Estimated release rate	Local release rate: 0 kg/day
Air	Estimated release rate	Local release rate: 0 kg/day
Non-Agricultural Soil	Estimated release factor	Release factor after on site RMM: 0%
Protection target	**Exposure concentration**	**Risk quantification (RCR)**
Fresh water	Local PEC: 5.0E-3 mg/l	0.01
Sedimentation (Fresh water)	Local PEC: 0.128 mg/kg dw	0.01
Marine water	Local PEC: 4.82E-4 mg/l	0.01
Sedimentation (Marine water)	Local PEC: 0.012 mg/kg dw	0.01
Sewage Treatment Plant	Local PEC: 0 mg/l	<0.01
Agricultural soil	Local PEC: 2.82E-11 mg/kg dw	<0.01
Man via Environment - Inhalation (Systemic effects)	Concentration in air: 1.3E-21 mg/m³	<0.01
Man via Environment - Oral	Exposure via food consumption: 1.74E-4 mg/kg bw/day	<0.01
Man via Environment - Combined routes		<0.01

3.2. Workers

Contributing scenario controlling worker exposure: Use of articles with intumescent coating with the substance embedded in a matrix (encapsulated) (AC13)

Route of exposure and type of effects	**Exposure concentration**	**Risk quantification (RCR)**

Inhalation, Systemic effects, Long Term	0 mg/m³	<0.01
Dermal, Systemic effects, Long Term	0 mg/kg bw/day	<0.01
Oral, Systemic effects, Long Term	0 mg/kg bw/day	<0.01
Combined routes, Systemic effects, Long Term		<0.01

SECTION 4:	**4.0 Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

4.1. Health

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

4.2. Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling could be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use, additional RMMs or a site-specific chemical safety assessment is required.