

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 C3H6N6 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 (C₃H₆N₆) 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 aawad@gafco.com.ga E-mail

Only representative of a non-Community manufacturer

Company Identification QatarEnergy Marketing B.V. Address Prinses Margrietplantsoen 88

2595 BR, La Haye

Pays Bas

E-mail REACH@qatarenergy.qa Website www.qatatenergy.qa

1.4 Emergency telephone number

For Spill, Leak, Fire, Exposure or Within USA and Canada: 1-800-424-9300

Accident, Call CHEMTREC Day or 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)

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.

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

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

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

Unsuitable extinguishing media

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

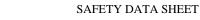
Fire fighters should wear complete protective clothing including self-contained

breathing apparatus.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

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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. Ambient.

Storage temperature

Storage life

Incompatible materials
7.3 Specific end use(s)

Stable under normal conditions.

Strongly acidic, Strong oxidising agents.

• 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	LTEL (8 hr TWA	STEL (ppm)	STEL (mg/m³)	Note
		ppm)	mg/m³)			
Melamine	108-78-1					None assigned

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

8.1.2 PNECs and DNELs

DNEL / DMEL	Oral	Inhalation	Dermal
Industry - Long Term - Local effects			
Industry - Long Term - Systemic effects		8.3 mg/m ³	11.8 mg/kg bw/day
Industry - Short term - Local effects			
Industry - Short term - Systemic effects		82.3 mg/m ³	
Consumer - Long Term - Local effects			
Consumer - Long Term - Systemic effects	0.42 mg/kg bw/day	1.5 mg/m ³	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

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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 >361°C (Sublimation)

boiling range

Flammability

Lower and upper explosion limit

Flash Point

Auto-ignition temperature

Decomposition Temperature

Non-flammable.

Not known.

Not applicable.

>400°C

>361°C

pH 7.5 - 8.0 (aqueous solution)

Kinematic Viscosity Not applicable.

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 -1.22 @ 20°C

value)

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.

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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.

rm 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.

 ${\bf 14.6~Special~precautions~for~user}$

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 Melamine (108-78-1)

High Concern for Authorisation

REACH: Annex XIV list of substances Not listed

subject to authorisation

REACH: Annex XVII Restrictions on Not listed

the manufacture, placing on the market

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and use of certain dangerous substances, mixtures and articles

Community Rolling Action Plan

(CoRAP)

Regulation (EU) N° 2019/1021 of the

European Parliament and of the Council

on persistent organic pollutants Regulation (EC) N° 1005/2009 on

substances that deplete the ozone layer

Regulation (EU) N° 649/2012 of the

European Parliament and of the Council concerning the export and import of hazardous chemicals

National regulations

Inventory Status

Listed in: Australia, Canada (DSL), China, Japan, Korea, Taiwan, New Zealand (HSNO) – HSNO Approval: HSR002503, New Zealand (NZIoC), Philippines.

Not listed

Not listed

Not listed

Not listed

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)



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 Regulation (EC) No. 1272/2008 (CLP) data used to compile the SDS

Training Advice Regular safety training as appropriate

Disclaimers

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cannot be assumed.

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

SECTI	ON 1:	1.0 Title of Exposure Scenario:		
		Formulation or re-packing - Formulation or re-packaging		
Contril	buting scenario controlli	ing environmental exposure		
CS1	Formulation or re-packs	ERC2		
Contril	buting scenario controlli	ing worker exposure		
CS2	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			
CS4	Chemical production w	here opportunity for exposure arises	PROC4	
CS5	Mixing or blending in b	eatch processes (Solid)	PROC5	
CS6	Transfer of substance o facilities (Solid)	r mixture (charging and discharging) at non-dedicated	PROC8a	
CS7	Transfer of substance o (Solid)	r mixture (charging and discharging) at dedicated facilities	PROC8b	
CS8	Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC9			
CS9	Tabletting, compression	n, extrusion, pelletisation, granulation	PROC14	
CS10	Use as laboratory reage	nt (Solid)	PROC15	
CS11	Hand-mixing with intin	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 reager	nt (Liquid)	PROC15	
CS16	Manual maintenance (cl	leaning and repair) of machinery (Liquid)	PROC28	
CS17	Hand-mixing with intim	nate contact and only PPE available (Liquid)	PROC19	
CS18	Transfer of substance o facilities (Liquid)	r mixture (charging and discharging) at non-dedicated	PROC8a	
SECTI	ON 2:	2.0 Conditions of use		
		Contributing scenario controlling environmental exposur 2.1 Formulation or re-packaging (ERC2)	re:	
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.				
Condit	ions and measures relat	ed 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				

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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	n mixture/article: <= 100 %			
Physical form of the used produc	ct: Solid (medium dusty form)			
Amount used, frequency and d	luration of use (or from service life)			
Duration of activity: <=8.0 h/day				
	sures to control dispersion from source towards the worker			
General ventilation: Basic gener	al ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)			
Occupational Health and Safety	Management System: Advanced			
Local exhaust ventilation: No [E	ffectiveness inhalation: 0%, Dermal: 0%]			
Conditions and measures relat	ed to personal protection, hygiene and health evaluation			
Respiratory protection: No. (Eff	ectiveness inhalation: 0 %)			
Dermal protection: No. (Effective	reness dermal: 0 %)			
Other given operational condit	tions 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	n mixture/article: <= 100 %			
Physical form of the used produc	ct: Solid (medium dusty form)			
Amount used, frequency and d	luration of use (or from service life)			
Duration of activity: <=8.0 h/day	y			
Technical conditions and meas	sures to control dispersion from source towards the worker			
General ventilation: Basic gener	al 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 relat	ed to personal protection, hygiene and health evaluation			
Respiratory protection: No. (Effe	ectiveness inhalation: 0 %)			
Dermal protection: No. (Effectiveness dermal: 0 %)				
Other given operational condit	tions 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	n 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

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 %)

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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

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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: <=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

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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%]

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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%]

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Place of use: Indoor

Operating temperature: <= 115 °C

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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

 $\textbf{Contributing scenario controlling environmental exposure:} \ Formulation \ or \ re-packaging \ (ERC2)$

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

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	Melamine	
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 wo likelihood of exposure or processes with		
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 wo batch processes with occasional control		lation in the chemical industry in closed ent containment conditions (PROC3)
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	1 mg/m ³	0.12
Inhalation, Systemic effects, Acute	4 mg/m ³	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 wo (PROC4)	rker exposure: Chemical production v	where opportunity for exposure arises
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	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 wo	orker 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/m ³	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 wo non-dedicated facilities (Solid) (PROC		or mixture (charging and discharging) a

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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
Contributing scenario controlling wo dedicated facilities (Solid) (PROC8b)	rker exposure: Transfer of substance	or mixture (charging and discharging) at
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	1 mg/m ³	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 wo filling line, including weighing) (PROC		or mixture into small containers (dedicated
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	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 wo (PROC14)	rker exposure: Tabletting, compression	on, extrusion, pelletisation, granulation
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	1 mg/m ³	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 wo	rker exposure: Use as laboratory reas	gent (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

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Route of exposure and type of	Exposure concentration	Risk quantification (RCR)
effects	Exposure concentration	Kisk quantification (KCK)
Inhalation, Systemic effects, Long Term	3 mg/m ³	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 wo (PROC28)	rker exposure: Manual maintenance (cleaning and repair) of machinery (Solid)
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 wo	rker 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 wo dedicated facilities (Liquid) (PROC8b)	orker exposure: Transfer of substance	or mixture (charging and discharging) at
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 wo	rker exposure: Use as laboratory reage	ent (Liquid) (PROC15)
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.525 mg/m ³	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

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Combined routes, Systemic effect Long Term	ts,	0.092	
Contributing scenario controlli (PROC28)	ng worker exposure: Manu	ual maintenance (cleaning and repair) of machinery (Liqu	id)
Route of exposure and type of effects	Exposure concentr	ration Risk quantification (RCR)	_
Inhalation, Systemic effects, Long Term	g 0.525 mg/m³	0.063	
Inhalation, Systemic effects, Acu	te 0.525 mg/m ³	<0.01	
Dermal, Systemic effects, Long T	Term 2.742 mg/kg bw/day	y 0.232	
Combined routes, Systemic effect Long Term	ts,	0.296	
Contributing scenario controlli (Liquid) (PROC19)	ng worker exposure: Hand	d-mixing with intimate contact and only PPE available	
Route of exposure and type of effects	Exposure concentr	ration Risk quantification (RCR)	
Inhalation, Systemic effects, Long Term	g 1.74 mg/m³	0.21	
Inhalation, Systemic effects, Acu	te 1.74 mg/m³	0.021	
Dermal, Systemic effects, Long T	Germ 7.072 mg/kg bw/day	y 0.599	
Combined routes, Systemic effect Long Term	ts,	0.809	
Contributing scenario controlli non-dedicated facilities (Liquid) (nsfer of substance or mixture (charging and discharging)	at
Route of exposure and type of effects	Exposure concentr	ration Risk quantification (RCR)	
Inhalation, Systemic effects, Long Term	g 0.525 mg/m³	0.063	
Inhalation, Systemic effects, Acu	te 0.525 mg/m ³	<0.01	
Dermal, Systemic effects, Long T	Cerm 2.742 mg/kg bw/day	y 0.232	
Combined routes, Systemic effect Long Term	ts,	0.296	
SECTION 4: 4.0 Guidan	nce to DU to evaluate whet	ther he works inside the boundaries set by the ES	
4.1. Health			
Where other Risk Management M managed to at least equivalent lev		tions are adopted, then users should ensure that risks are	
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.



Melamine

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

SECTI	ON 1:	1.0 Title of Exposure Scenario:	
	Use at industrial sites- Use as monomer (intermediate) for melamine based resins production		
Contril	buting scenario controlli	ing environmental exposure	
CS1	Use as monomer (interr	mediate) for melamine based resins production	ERC6a, ERC6c
Contril	buting scenario controlli	ing worker exposure	
CS2		refinery in closed process without likelihood of exposure or ent containment conditions	PROC1
CS3		refinery in closed continuous process with occasional processes with equivalent containment conditions	PROC2
CS4		ation in the chemical industry in closed batch processes with exposure or processes with equivalent containment conditions	PROC3
CS5	Chemical production w	here opportunity for exposure arises	PROC4
CS6	Mixing or blending in b	patch processes	PROC5
CS7	Calendering operations PROC6		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)		
CS10	Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (Solid) PROC9		PROC9
CS11	Tabletting, compression, extrusion, pelletisation, granulation PROC14		PROC14
CS12	Use as laboratory reagent PROC15		PROC15
CS13	Manual maintenance (cleaning and repair) of machinery PROC28		PROC28
CS14	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Liquid) PROC8a		PROC8a
CS15	Transfer of substance or mixture (charging and discharging) at dedicated facilities (Liquid) PROC8b		PROC8b
CS16			
SECTI	ON 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)		
Amoun	t used, frequency and d	uration of use (or from service life)	
Daily u	se amount at site: Not rele	evant for this material.	
Annual	Annual use amount at site: Not relevant for this material.		
Condit	ions and measures relat	ed to biological sewage treatment plant	

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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

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

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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	n mixture/article: <= 100 %	
Physical form of the used produc	ct: Solid (medium dusty form)	
Amount used, frequency and d	luration of use (or from service life)	
Duration of activity: <=8.0 h/day	у	
Technical conditions and meas	sures to control dispersion from source towards the worker	
General ventilation: Basic gener	al ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety	Management System: Advanced	
Local exhaust ventilation: No [E	ffectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures relat	ed to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Eff	ectiveness inhalation: 0 %)	
Dermal protection: No. (Effective	reness dermal: 0 %)	
Other given operational condi	tions 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		
Physical form of the used product: Solid (medium dusty form)		
	duration of use (or from service life)	
Duration of activity: <=8.0 h/day	y	
	sures to control dispersion from source towards the worker	
General ventilation: Basic gener	al ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety		
Local exhaust ventilation: No [E	ffectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures relat	ed to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Eff-	ectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemic [Effectiveness dermal: 80%]	ally resistant gloves conforming to EN374) and (other) appropriate dermal protection	
Other given operational conditional	tions 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	1 HHATUIT/ afficie. <- 100 70	

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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

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 %)

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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

2.9 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 %)

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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)

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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)

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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/m ³	<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/m ³	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/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	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 wo	rker 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/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	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 wo	rker exposure: Calendering operation	s (PROC6)
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	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 wo non-dedicated facilities (Solid) (PROC8		or mixture (charging and discharging) at
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	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 wo dedicated facilities (Solid) (PROC8b)	rker exposure: Transfer of substance of	or mixture (charging and discharging) at
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 wo filling line, including weighing) (Solid)		nce or mixture into small containers (dedicated
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 wo (PROC14)	rker exposure: Tabletting, compre	ession, extrusion, pelletisation, granulation
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 wo	rker exposure: Use as laboratory r	reagent (PROC15)
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.5 mg/m ³	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 wo (PROC28)	rker exposure: Manual maintenan	ce (cleaning and repair) of machinery
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 wo non-dedicated facilities (Liquid) (PRO		ance or mixture (charging and discharging) at
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/m ³	<0.01
Dermal, Systemic effects, Long Term	8.226 mg/kg bw/day	0.697

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Combined routes, Systemic effects, Long Term			0.735			
Contributing scenario dedicated facilities (Lic		rker exposure: Transfer of substance	ee or mixture (charging and discharging) at			
Route of exposure and type of effects		Exposure concentration	Risk quantification (RCR)			
Inhalation, Systemic effects, Long Term		0.315 mg/m ³	0.038			
Inhalation, Systemic effects, Acute		0.315 mg/m ³	<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/m ³	<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

	e seemans s. ese at ma	ustrial sites. Ose as monomer (intermediate) in melanine i	ouseu resums serore euring		
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 of (Liquid)	PROC8b			

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CS5	Roller application or br	PROC10			
CS6	Hand-mixing with intir	PROC19			
CS7	Manual maintenance (c	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)				
CS10	Calendering operations PROC6				
SECTI	ON 2:				
2.1		Contributing scenario controlling environmental exposure: 2.1 Use as monomer (intermediate) in melamine based resins before curing (ERC6c)			
Amour	nt used, frequency and d	uration of use (or from service life)			
Daily u	se amount at site: Not rel	evant for this material.			
Annual	use amount at site: Not r	elevant for this material.			
Condit	ions and measures relat	ed to biological sewage treatment plant			
Biologi	ical STP: Standard [Effec	tiveness water: 2.77%]			
Dischar	rge rate of STP: >= 2E3 r	n3/day			
Applica	ation of the STP sludge or	n agricultural soil: Yes			
Other s		ions affecting environmental exposure er flow: >= 1.8E4 m3/day			
2.2		Contributing scenario controlling worker exposure expo 2.2 Industrial spraying (PROC7)	osure:		
Produc	ct (article) characteristic				
Percent	tage (w/w) of substance in	n mixture/article: <= 10 %			
Physica	al form of the used produc	et: Liquid			
-		uration of use (or from service life)			
Duratio	on of activity: <=8.0 h/day	/			
Techni	cal conditions and meas	ures to control dispersion from source towards the worke	r		
Ventila	tion working room: Gene	ral ventilation (mechanical)			
Occupa	ational Health and Safety	Management System: Advanced			
Local e	xhaust ventilation: No [E	ffectiveness inhalation: 0%, Dermal: 0%]			
Condit	Conditions and measures related to personal protection, hygiene and health evaluation				
Respiratory protection: No. (Effectiveness inhalation: 0 %)					
	protection: Yes (Chemic iveness dermal: 80%]	ally resistant gloves conforming to EN374) and (other) appro	priate dermal protection		
Other given operational conditions affecting workers exposure					
Place o	f use: Indoor				
Operating temperature: <= 115 °C					
2.3		Contributing scenario controlling worker exposure expo	osure:		
		2.3 Transfer of substance or mixture (charging and dischar 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

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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: 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

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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%]

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QATAR MELAMINE CO.

SAFE

SAFETY DATA SHEET

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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

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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 wo	rker exposure: Industrial spraying (PRO	OC7)
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/m ³	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 wo non-dedicated facilities (Liquid) (PROC	rker exposure: Transfer of substance or C8a)	mixture (charging and discharging) at
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.315 mg/m ³	0.038
Inhalation, Systemic effects, Acute	0.315 mg/m ³	<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 wo dedicated facilities (Liquid) (PROC8b)	rker exposure: Transfer of substance or	mixture (charging and discharging) at
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.38 mg/m ³	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 wo	rker exposure: Roller application or bru	ushing (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 wo (PROC19)	rker exposure: Hand-mixing with intim	ate contact and only PPE available



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Route of exposure and type of	Exposure concentration	Risk quantification (RCR)	
effects		2.404	
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/m ³	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 wo non-dedicated facilities (Solid) (PROC8	rker exposure: Transfer of substance or a)	mixture (charging and discharging) at	
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 wo dedicated facilities (Solid) (PROC8b)	rker exposure: Transfer of substance or	mixture (charging and discharging) at	
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/m ³	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	



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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)

SECTI	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)			n of other substances e.g.
Contri	buting scenario controll	ing environmental exposure	
CS1	Use as intermediate for the production of other substances e.g. melamine salt (reacted melamine)		ERC6a
Contri	buting scenario controll	ing worker exposure	
CS2		refinery in closed process without likelihood of exposure or ent containment conditions	PROC1
CS3	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions		
CS4	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions		
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		PROC8a
CS8	Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC8b		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		PROC28
SECTI	ECTION 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)		
Amour	nt used, frequency and d	uration of use (or from service life)	
Daily use amount at site: Not relevant for this material.			
Annual	use amount at site: Not re	elevant for this material.	

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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	n mixture/article: <= 100 %		
Physical form of the used produc	ct: Solid (medium dusty form)		
Amount used, frequency and d	duration of use (or from service life)		
Duration of activity: <=8.0 h/day	y .		
Technical conditions and meas	sures to control dispersion from source towards the worker		
General ventilation: Basic general	al ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)		
Occupational Health and Safety	Management System: Advanced		
Local exhaust ventilation: No [E	ffectiveness inhalation: 0%, Dermal: 0%]		
Conditions and measures relat	ed to personal protection, hygiene and health evaluation		
Respiratory protection: No. (Effe	ectiveness inhalation: 0 %)		
Dermal protection: No. (Effective	reness dermal: 0 %)		
Other given operational condit	tions 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			
Product (article) characteristic			
Product (article) characteristic			
	n mixture/article: <= 100 %		
Percentage (w/w) of substance in Physical form of the used produc	n mixture/article: <= 100 %		
Percentage (w/w) of substance in Physical form of the used produc	n mixture/article: <= 100 % et: Solid (medium dusty form) duration of use (or from service life)		
Percentage (w/w) of substance in Physical form of the used product Amount used, frequency and dependency of activity: <=8.0 h/day	n mixture/article: <= 100 % et: Solid (medium dusty form) duration of use (or from service life)		
Percentage (w/w) of substance in Physical form of the used product Amount used, frequency and do Duration of activity: <=8.0 h/day Technical conditions and measurements.	n mixture/article: <= 100 % et: Solid (medium dusty form) luration of use (or from service life)		
Percentage (w/w) of substance in Physical form of the used product Amount used, frequency and do Duration of activity: <=8.0 h/day Technical conditions and measurements.	n mixture/article: <= 100 % ct: Solid (medium dusty form) duration of use (or from service life) dures to control dispersion from source towards the worker al ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)		
Percentage (w/w) of substance in Physical form of the used product Amount used, frequency and description of activity: <=8.0 h/day Technical conditions and measurements General ventilation: Basic general Coccupational Health and Safety	n mixture/article: <= 100 % ct: Solid (medium dusty form) duration of use (or from service life) dures to control dispersion from source towards the worker al ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)		
Percentage (w/w) of substance in Physical form of the used product Amount used, frequency and dependency of activity: <=8.0 h/day Technical conditions and meast General ventilation: Basic general Ventilation: Basic general Ventilation: No [E	n mixture/article: <= 100 % ct: Solid (medium dusty form) duration of use (or from service life) dures to control dispersion from source towards the worker al ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %) Management System: Advanced		
Percentage (w/w) of substance in Physical form of the used product Amount used, frequency and dependency of activity: <=8.0 h/day Technical conditions and meast General ventilation: Basic general Ventilation: Basic general Ventilation: No [E	n mixture/article: <= 100 % ct: Solid (medium dusty form) duration of use (or from service life) dures to control dispersion from source towards the worker al ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %) Management System: Advanced ffectiveness inhalation: 0%, Dermal: 0%] ed to personal protection, hygiene and health evaluation		
Percentage (w/w) of substance in Physical form of the used product Amount used, frequency and description of activity: <=8.0 h/day Technical conditions and measures General ventilation: Basic general Cocupational Health and Safety Local exhaust ventilation: No [Electric Conditions and measures related Respiratory protection: No. (Effective Conditions and Company Conditions and C	n mixture/article: <= 100 % ct: Solid (medium dusty form) duration of use (or from service life) dures to control dispersion from source towards the worker al ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %) Management System: Advanced ffectiveness inhalation: 0%, Dermal: 0%] ed to personal protection, hygiene and health evaluation		
Percentage (w/w) of substance in Physical form of the used product Amount used, frequency and department of activity: <=8.0 h/day Technical conditions and measures General ventilation: Basic general Cocupational Health and Safety Local exhaust ventilation: No [E. Conditions and measures related Respiratory protection: No. (Effectiveness dermal: 80%]	n mixture/article: <= 100 % ct: Solid (medium dusty form) duration of use (or from service life) dures to control dispersion from source towards the worker al ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %) Management System: Advanced ffectiveness inhalation: 0%, Dermal: 0%] ed to personal protection, hygiene and health evaluation ectiveness inhalation: 0 %)		
Percentage (w/w) of substance in Physical form of the used product Amount used, frequency and department of activity: <=8.0 h/day Technical conditions and measures General ventilation: Basic general Cocupational Health and Safety Local exhaust ventilation: No [E. Conditions and measures related Respiratory protection: No. (Effectiveness dermal: 80%]	mixture/article: <= 100 % ct: Solid (medium dusty form) duration of use (or from service life) duration of use (or from ser		
Percentage (w/w) of substance in Physical form of the used product Amount used, frequency and description of activity: <=8.0 h/day Technical conditions and measures General ventilation: Basic general Cocupational Health and Safety Local exhaust ventilation: No [Established Dermal protection: Yes (Chemic [Effectiveness dermal: 80%] Other given operational conditions and conditions are given operational conditions are given operational conditions and conditions are given operational conditions are given operations are giv	mixture/article: <= 100 % ct: Solid (medium dusty form) duration of use (or from service life) duration of use (or from ser		

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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

2.7 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

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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

2.9 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

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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

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Combined routes, Systemic effects,

Long Term

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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 wo likelihood of exposure or processes with		
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.01 mg/m ³	<0.01
Inhalation, Systemic effects, Acute	0.04 mg/m ³	<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 wo with occasional controlled exposure or		
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.5 mg/m ³	0.06
Inhalation, Systemic effects, Acute	2 mg/m³	0.024
Dermal, Systemic effects, Long Term	1.37 mg/kg bw/day	0.116

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/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	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)		

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0.176



Melamine

Route of exposure and type of	Exposure concentration	Risk quantification (RCR)	
effects	, , , , , , , , , , , , , , , , , , ,	0.602	
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/m ³	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 wo dedicated facilities (PROC8b)	rker exposure: Transfer of substance or	mixture (charging and discharging) at	
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 wo filling line, including weighing) (PROC	rker exposure: Transfer of substance or 9)	mixture into small containers (dedicated	
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)	
Inhalation, Systemic effects, Long Term	5 mg/m ³	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/m ³	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	



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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

SECTI	ON 1:	1.0 Title of Exposure Scenario:	
	Use at industrial sites - Use as additive in foams		
Contril	buting scenario controll	ing environmental exposure	
CS1	Use as additive in foam	s	ERC5
Contril	Contributing scenario controlling worker exposure		
CS2		refinery in closed process without likelihood of exposure or ent containment conditions	PROC1
CS3	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions		PROC2
CS4		tion in the chemical industry in closed batch processes with exposure or processes with equivalent containment conditions	PROC3
CS5	Chemical production w	here opportunity for exposure arises	PROC4

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	1		
CS6	Mixing or blending in l	patch processes	PROC5
CS7	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8a		PROC8a
CS8	Transfer of substance o	r mixture (charging and discharging) at dedicated facilities	PROC8b
CS9	Transfer of substance o including weighing)	r mixture into small containers (dedicated filling line,	PROC9
CS10	Use as laboratory reage	nt	PROC15
CS11	Hand-mixing with intin	nate contact and only PPE available	PROC19
CS12	Manual maintenance (c	leaning and repair) of machinery	PROC28
SECTI	ON 2:	2.0 Conditions of use	
2.1		Contributing scenario controlling environmental expost 2.1 Use as additive in foams (ERC5)	ure:
Amour	nt used, frequency and d	luration of use (or from service life)	
Daily u	se amount at site: Not rel	evant for this material.	
Annual	use amount at site: Not r	elevant for this material.	
Condit	ions and measures relat	ed to biological sewage treatment plant	
Biologi	ical STP: Standard [Effec	tiveness water: 2.77%]	
Dischar	rge rate of STP: >= 2E3 r	n3/day	
Applica	ation of the STP sludge or	n agricultural soil: Yes	
Other s		tions affecting environmental exposure er flow: >= 1.8E4 m3/day	
2.2		Contributing scenario controlling worker exposure exposure exposure 2.2 Chemical production or refinery in closed process with or processes with equivalent containment conditions (PRO	out likelihood of exposure
Produc	ct (article) characteristic		
Percent	tage (w/w) of substance in	n mixture/article: <= 100 %	
Physica	al form of the used produc	ct: Solid (medium dusty form)	
Amour	nt used, frequency and d	luration of use (or from service life)	
Duratio	on of activity: <=8.0 h/day	y	
Techni	cal conditions and meas	sures to control dispersion from source towards the work	er
Genera	l ventilation: Basic gener	al ventilation (1-3 air changes per hour) (Effectiveness inhala	ntion: 0 %)
Occupa	ntional Health and Safety	Management System: Advanced	
Local e	xhaust ventilation: No [E	ffectiveness inhalation: 0%, Dermal: 0%]	
Condit	ions and measures relat	ed to personal protection, hygiene and health evaluation	
Respira	atory protection: No. (Eff	ectiveness inhalation: 0 %)	
Dermal	protection: No. (Effective	veness dermal: 0 %)	
Other a	given operational condi	tions affecting workers exposure	
Place o	f use: Indoor		
2.3		Contributing scenario controlling worker exposure exp	osure:
		2.3 Chemical production or refinery in closed continuous production or processes with equivalent containing	process with occasional

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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

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)

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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 relat	ed to personal protection, hygiene and health evaluation
Respiratory protection: No. (Effe	ectiveness inhalation: 0 %)
Dermal protection: Yes (Chemic [Effectiveness dermal: 80%]	ally resistant gloves conforming to EN374) and (other) appropriate dermal protection
Other given operational condit	ions 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	n mixture/article: <= 100 %
Physical form of the used produc	et: Solid (medium dusty form)
Amount used, frequency and d	uration of use (or from service life)
Duration of activity: <=8.0 h/day	7
Technical conditions and meas	ures to control dispersion from source towards the worker
General ventilation: Basic general	al ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)
Occupational Health and Safety	Management System: Advanced
Local exhaust ventilation: No [E	ffectiveness inhalation: 0%, Dermal: 0%]
Conditions and measures relat	ed to personal protection, hygiene and health evaluation
Respiratory protection: No. (Effe	ectiveness inhalation: 0 %)
Dermal protection: Yes (Chemic [Effectiveness dermal: 80%]	ally resistant gloves conforming to EN374) and (other) appropriate dermal protection
Other given operational condit	ions 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	n mixture/article: <= 100 %
Physical form of the used produc	et: Solid (medium dusty form)
Amount used, frequency and d	uration of use (or from service life)
Duration of activity: <=8.0 h/day	ı
Technical conditions and meas	ures to control dispersion from source towards the worker
General ventilation: Basic general	al ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)
Occupational Health and Safety	Management System: Advanced
Local exhaust ventilation: No [E	ffectiveness inhalation: 0%, Dermal: 0%]
Conditions and measures relat	ed to personal protection, hygiene and health evaluation

Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection

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

[Effectiveness dermal: 80%]

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Other given operational condi	tions 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	n mixture/article: <= 100 %	
Physical form of the used produc	ct: Solid (medium dusty form)	
Amount used, frequency and d	luration of use (or from service life)	
Duration of activity: <=8.0 h/day	y	
Technical conditions and meas	sures to control dispersion from source towards the worker	
General ventilation: Basic gener	al ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety	Management System: Advanced	
Local exhaust ventilation: No [E	ffectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures relat	ed to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Eff	ectiveness inhalation: 0 %)	
Dermal protection: No. (Effective	reness dermal: 0 %)	
Other given operational condit	tions affecting workers exposure	
Place of use: Indoor		
2.11	Contributing scenario controlling worker exposure exposure:	
Due du et (entiele) els encetoristic	2.11 Hand-mixing with intimate contact and only PPE available (PROC19)	
Product (article) characteristic		
Percentage (w/w) of substance in	n mixture/article: <= 100 %	
Physical form of the used product: Solid (medium dusty form)		
Amount used, frequency and d	luration of use (or from service life)	
Duration of activity: <=4.0 h/day	у	
Technical conditions and meas	sures to control dispersion from source towards the worker	
General ventilation: Basic gener	al 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 relat	ed to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Effe	ectiveness inhalation: 0 %)	
Dermal protection: Yes (Chemic [Effectiveness dermal: 95%]	ally resistant gloves conforming to EN374) and (other) appropriate dermal protection	
Other given operational condition	tions affecting workers exposure	
Place of use: Indoor		
2.12	Contributing scenario controlling worker exposure exposure:	
Duradinas (author) shares 4	2.12 Manual maintenance (cleaning and repair) of machinery (PROC28)	
Product (article) characteristic	;	
Percentage (w/w) of substance in	n 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/m ³	<0.01
Inhalation, Systemic effects, Acute	0.04 mg/m³	<0.01



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Dermal, Systemic effects, Long Term	0.034 mg/kg bw/day	<0.01
Combined routes, Systemic effects, Long Term		<0.01
Contributing scenario controlling wo with occasional controlled exposure or		
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.5 mg/m ³	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 wo batch processes with occasional control		
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 wo (PROC4)	rker exposure: Chemical production	where opportunity for exposure arises
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	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 wo	rker 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/m ³	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 wo non-dedicated facilities (PROC8a)	rker exposure: Transfer of substance	e or mixture (charging and discharging) at
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)

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Inhalation, Systemic effects, Long Term	5 mg/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	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 wo dedicated facilities (PROC8b)	rker exposure: Transfer of substa	ance or mixture (charging and discharging) at
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 wo filling line, including weighing) (PROC		ance or mixture into small containers (dedicated
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 wo	rker 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/m ³	0.06
Inhalation, Systemic effects, Acute	2 mg/m ³	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 wo (PROC19)	rker exposure: Hand-mixing with	intimate contact and only PPE available
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 wo (PROC28)	rker exposure: Manual maintena	nce (cleaning and repair) of machinery

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Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	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

SECTI	TION 1: 1.0 Title of Exposure Scenario:		
		Use at industrial sites - Use as additive in intumescent coating	ıgs
Contri	buting scenario controll	ing environmental exposure	
CS1	Use as additive in intur	nescent coatings	ERC5
Contri	buting scenario controll	ing worker exposure	
CS2		ation in the chemical industry in closed batch processes with exposure or processes with equivalent containment conditions	PROC3
CS3	Chemical production w	here opportunity for exposure arises	PROC4
CS4	Mixing or blending in b	patch processes	PROC5
CS5	Industrial spraying with	n Local Exhaust Ventilation (LEV)	PROC7
CS6	Industrial spraying without Local Exhaust Ventilation (LEV)		PROC7
CS7	Transfer of substance of facilities (Solid)	r mixture (charging and discharging) at non-dedicated	PROC8a
CS8	Transfer of substance o (Solid)	r mixture (charging and discharging) at dedicated facilities	PROC8b
CS9	Transfer of substance of including weighing)	r mixture into small containers (dedicated filling line,	PROC9
CS10	Roller application or br	ushing	PROC10
CS11	Treatment of articles by	dipping and pouring	PROC13
CS12	Use as laboratory reage	nt	PROC15
CS13	Hand-mixing with intin	nate contact and only PPE available	PROC19
CS14	Manual maintenance (c	leaning and repair) of machinery (Solid)	PROC28
CS15	Transfer of substance of (Liquid)	r mixture (charging and discharging) at dedicated facilities	PROC8b

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CS16 Manual maintenance (cleaning and repair) of machinery (Liquid) PROC28			
Manual maintenance (cleaning and repair) of machinery (Liquid) PROC28 Transfer of substance or mixture (charging and discharging) at non-dedicated PROC8a			
facilities (Liquid)			
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 p with occasional controlled exposure or processes with equivalent contains			
conditions (PROC3)	ment		
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)			
Amount used, frequency and duration of use (or from service ine)			

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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

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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 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 °C

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%]

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Other given operational c	onditions 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) characte	ristic
Percentage (w/w) of substa	nce in mixture/article: <= 100 %
Physical form of the used p	product: Solid (medium dusty form)
	and duration of use (or from service life)
Duration of activity: <=8.0	
<u>-</u>	measures to control dispersion from source towards the worker
	general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)
	afety Management System: Advanced
	No [Effectiveness inhalation: 0%, Dermal: 0%]
	related to personal protection, hygiene and health evaluation
	(Effectiveness inhalation: 0 %)
	nemically resistant gloves conforming to EN374) and (other) appropriate dermal protection
	onditions 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) characte	ristic
Percentage (w/w) of substa	nce in mixture/article: <= 100 %
	product: Solid (medium dusty form)
	and duration of use (or from service life)
Duration of activity: <=8.0	
`	measures to control dispersion from source towards the worker
	general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)
	afety Management System: Advanced
*	No [Effectiveness inhalation: 0%, Dermal: 0%]
Conditions and measures	related to personal protection, hygiene and health evaluation
	(Effectiveness inhalation: 0 %)
Dermal protection: Yes (Ch [Effectiveness dermal: 80%	nemically resistant gloves conforming to EN374) and (other) appropriate dermal protection
	onditions affecting workers exposure
Place of use: Indoor	
2.10	Contributing scenario controlling worker exposure exposure: 2.10 Roller application or brushing (PROC10)

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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

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

2.11 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)

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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 °C

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%]

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[Effectiveness dermal: 80%]

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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 2.15 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 °C Contributing scenario controlling worker exposure exposure: 2.16 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

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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 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
21 5	

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	

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(PROC7)

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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 wo batch processes with occasional control		ulation in the chemical industry in closed lent 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/m ³	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 wo (PROC4)	rker exposure: Chemical production v	where opportunity for exposure arises		
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/m ³	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 wo	orker 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/m ³	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 wo (PROC7)	rker exposure: Industrial spraying wi	ith Local Exhaust Ventilation (LEV)		
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		

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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 wo non-dedicated facilities (Solid) (PROC		or mixture (charging and discharging) at
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	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 wo dedicated facilities (Solid) (PROC8b)	rker exposure: Transfer of substance	or mixture (charging and discharging) at
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	1 mg/m ³	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 wo filling line, including weighing) (PROC		or mixture into small containers (dedicated
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 wo	rker exposure: Roller application or b	orushing (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 wo	rker exposure: Treatment of article	es 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/m ³	0.063	
Inhalation, Systemic effects, Acute	0.525 mg/m ³	<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 wo	rker 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/m ³	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 wo (PROC19)	rker exposure: Hand-mixing with	intimate contact and only PPE available	
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 wo (PROC28)	rker exposure: Manual maintenan	ice (cleaning and repair) of machinery (Solid)	
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 wo dedicated facilities (Liquid) (PROC8b)	rker exposure: Transfer of substan	nce or mixture (charging and discharging) at	
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/m ³	<0.01	
Dermal, Systemic effects, Long Term	2.743 mg/kg bw/day	0.232	

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Combined routes, Systemic effects, Long Term			0.296
Contributing scenar (PROC28)	rio controlling wo	rker exposure: Manual maintenar	nce (cleaning and repair) of machinery (Liquid)
Route of exposure a effects	and type of	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic Term	effects, Long	0.525 mg/m³	0.063
Inhalation, Systemic	effects, Acute	0.525 mg/m ³	<0.01
Dermal, Systemic eff	fects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term			0.296
Contributing scenar			nce or mixture (charging and discharging) at
Route of exposure and type of effects		Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic Term	effects, Long	0.525 mg/m³	0.063
Inhalation, Systemic	effects, Acute	0.525 mg/m ³	<0.01
Dermal, Systemic eff	fects, 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 work	s inside the boundaries set by the ES
4.1. Health			
Where other Risk Ma managed to at least e		es/Operational Conditions are adop	oted, then users should ensure that risks are
4.2. Environment			
			licable to all sites; thus, scaling could be 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		intumescent coatings
Contributing scenario controlling environmental exposure			
CS1	Use as additive in intumescent coatings ERC8c, ERC8f		ERC8c, ERC8f
Contributing scenario controlling worker exposure			

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SAFETY DATA SHEET

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CS2	Mixing or blending in b	patch 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 bro	ushing	PROC10	
CS7	Non industrial spraying		PROC11	
CS8	Treatment of articles by	dipping and pouring	PROC13	
CS9	Manual maintenance (cl	leaning and repair) of machinery	PROC28	
SECTI	ON 2:	2.0 Conditions of use		
2.1		Contributing scenario controlling environmental exposu	ire:	
		2.1 Use as additive in intumescent coatings (ERC8c, ERC8	f)	
Amour	nt used, frequency and d	uration of use (or from service life)		
Daily lo	ocal widespread use amou	ant: Not relevant for this material.		
Condit	ions and measures relat	ed to biological sewage treatment plant		
Biologi	ical STP: Standard [Effect	tiveness water: 2.77%]		
Dischar	rge rate of STP: >= 2E3 n	n3/day		
Applica	ation of the STP sludge or	n agricultural soil: Yes		
Other	Other given operational conditions affecting environmental exposure • Receiving surface water flow: >= 1.8E4 m3/day			
2.2				
	2.2 Mixing or blending in batch processes (PROC5)			
Product (article) characteristic				
Percent	Percentage (w/w) of substance in mixture/article: <= 30 %			
Physica	Physical form of the used product: Liquid			
Amount used, frequency and duration of use (or from service life)				
	on of activity: <=8.0 h/day			
Techni	Technical conditions and measures to control dispersion from source towards the worker			
Genera	l ventilation: Basic genera	al ventilation (1-3 air changes per hour) (Effectiveness inhala	tion: 0 %)	
Occupa	Occupational Health and Safety Management System: Basic			
Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%]				
Condit	ions and measures relat	ed 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 o	f use: Indoor			
Operating temperature: 115 °C				
2.3		Contributing scenario controlling worker exposure expo		

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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:

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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 °C

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 °C

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 °C

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 °C

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

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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

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/m ³	0.063
Inhalation, Systemic effects, Acute	0.525 mg/m ³	<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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Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.525 mg/m ³	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 wo dedicated facilities (PROC8b)	rker exposure: Transfer of substance o	r mixture (charging and discharging) at
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 wo filling line, including weighing) (PROC	rker exposure: Transfer of substance of 9)	r mixture into small containers (dedicated
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 wo	rker exposure: Roller application or br	ushing (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 wo	rker 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

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Combined routes, Systemic effects, Long Term			0.956
Contributing scena	rio controlling wo	rker exposure: Treatment of articles b	by dipping and pouring (PROC13)
Route of exposure a	and type of	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic Term	effects, Long	0.525 mg/m³	0.063
Inhalation, Systemic	effects, Acute	0.525 mg/m³	<0.01
Dermal, Systemic ef	fects, Long Term	2.743 mg/kg bw/day	0.232
Combined routes, Sy Long Term	ystemic effects,		0.296
Contributing scena (PROC28)	rio controlling wo	rker exposure: Manual maintenance	(cleaning and repair) of machinery
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 ef	fects, Long Term	2.743 mg/kg bw/day	0.232
Combined routes, Sy Long Term	ystemic effects,		0.296
SECTION 4:	4.0 Guidance to	DU to evaluate whether he works in	nside 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			
necessary to define a	appropriate site-spe	g conditions which may not be applica cific risk management measures. If sca mical safety assessment is required.	able to all sites; thus, scaling could be aling reveals a condition of unsafe use,

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

SECTI	ION 1:	: 1.0 Title of Exposure Scenario:		
	Widespread use by professional workers - Use as additive in intumescent coatings			
Contri	buting scenario controll	ing environmental exposure		
CS1	PU foams - Workers (in	ndustrial)	ERC12a	
Contri	buting scenario controll	ing worker exposure		
CS2	Low energy manipulati	ow energy manipulation of substances bound in materials and/or articles PROC21		
CS3	High (mechanical) ener	gy work-up of substances bound in materials and/or articles	PROC24	
SECTI	ION 2:	2.0 Conditions of use		
2.1	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 relat	Conditions and measures related to biological sewage treatment plant			
Biological STP: Standard [Effec	tiveness water: 2.77%]			
Discharge rate of STP: >= 2E3 r	n3/day			
Application of the STP sludge or	n agricultural soil: Yes			
	tions affecting environmental exposure er 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	n mixture/article: <= 100 %			
Physical form of the used produc	ct: Solid (medium dusty form)			
Amount used, frequency and d	luration of use (or from service life)			
Duration of activity: <=8.0 h/day	7			
Technical conditions and meas	ures to control dispersion from source towards the worker			
General ventilation: Basic general	al ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)			
Occupational Health and Safety	Management System: Advanced			
Local exhaust ventilation: No [E	ffectiveness inhalation: 0%, Dermal: 0%]			
Conditions and measures relat	ed to personal protection, hygiene and health evaluation			
Respiratory protection: No. (Effe	ectiveness inhalation: 0 %)			
Dermal protection: No. (Effective	eness dermal: 0 %)			
Other given operational condit	tions 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	n mixture/article: <= 100 %			
Physical form of the used produc	et: Solid (medium dusty form)			
Amount used, frequency and d	luration 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 - Wor	kers (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 and/or articles (PROC21)	worker exposure: Low energy manipulati	on of substances bound in materials	
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	n 2.83 mg/kg bw/day	0.24	
Combined routes, Systemic effects, Long Term		0.601	
Contributing scenario controlling materials and/or articles (PROC24)	worker exposure: High (mechanical) energ	gy work-up of substances bound in	
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	n 2.83 mg/kg bw/day	0.24	
Combined routes, Systemic effects, Long Term		0.36	
an amross 4	to DU to evaluate whether he works insi	de the boundaries set by the ES	

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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)

SECTI	SECTION 1: 1.0 Title of Exposure Scenario:		
	Service life (worker at industrial site) - Intumescent coatings - Workers (industrial)		
Contri	buting scenario controll	ing environmental exposure	
CS1	Intumescent coatings -	Workers (industrial)	ERC12a
Contri	buting scenario controll	ing worker exposure	
CS2	Low energy manipulati	on of substances bound in materials and/or articles	PROC21
CS3	High (mechanical) ener	rgy work-up of substances bound in materials and/or articles	PROC24
SECTI	ON 2:	2.0 Conditions of use	
2.1		Contributing scenario controlling environmental exposur 2.1 Intumescent coatings - Workers (industrial) (ERC12a)	e:
Amour	nt used, frequency and d	uration of use (or from service life)	
Daily u	se amount at site: Not rel	evant for this material.	
Annual	use amount at site: Not r	elevant for this material.	
Condit	ions and measures relat	ed to biological sewage treatment plant	
Biologi	cal STP: Standard [Effec	tiveness water: 2.77%	
Dischar	ge rate of STP: >= 2E3 r	n3/day	
Applica	ation of the STP sludge or	n agricultural soil: Yes	
Other a		ions affecting environmental exposure er flow: >= 1.8E4 m3/day	
2.2	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)			

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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

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 estimation method Release **Explanations** Water Estimated release rate Local release rate: 0 kg/day Estimated release rate Air 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) 0.01 Fresh water Local PEC: 5.0E-3 mg/l 0.01 Sedimentation (Fresh water) Local PEC: 0.128 mg/kg dw 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/m ³	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/m ³	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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 ${\bf Exposure\ Scenario\ 10: Service\ life\ (professional\ worker)-Intumescent\ coatings-Professional\ Workers}$

	SECTION 1: 1.0 Title of Exposure Scenario:			
DECT	1.0 The of Exposure Section 10.			
Q	Service life (professional worker) - Intumescent coatings - Professional Workers			
	T	controlling environmental exposure		
CS1	Intumescent coatings - l		ERC10a, ERC11a	
Contri	buting scenario controlli	ng worker exposure		
CS2	Low energy manipulation	on of substances bound in materials and/or articles	PROC21	
SECTI	ION 2:	2.0 Conditions of use		
2.1		Contributing scenario controlling environmental exposur 2.1 Intumescent coatings - Professional Workers (ERC10a, I		
Amoui	nt used, frequency and d	uration of use (or from service life)		
		nt: Not relevant for this material.		
Condit	tions and measures relate	ed to biological sewage treatment plant		
Biolog	ical STP: Standard [Effect	iveness water: 2.77%]		
Discha	rge rate of STP: >= 2E3 n	n3/day		
Applica	ation of the STP sludge on	agricultural soil: Yes		
Other		ions affecting environmental exposure r 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)		
Produc	ct (article) characteristic			
Percent	Percentage (w/w) of substance in mixture/article: <= 100 %			
Physica	al form of the used produc	t: Solid (medium dusty form)		
Amour	nt used, frequency and d	uration of use (or from service life)		
-	on of activity: <=8.0 h/day			
Techni	ical conditions and meas	ures to control dispersion from source towards the worker	• 	
Genera	l ventilation: Basic genera	l ventilation (1-3 air changes per hour) (Effectiveness inhalat	ion: 0 %)	
Occupa	ational Health and Safety I	Management System: Basic		
Local e	exhaust ventilation: No [Et	ffectiveness inhalation: 0%, Dermal: 0%]		
Condit	Conditions and measures related to personal protection, hygiene and health evaluation			
Respira	Respiratory protection: No. (Effectiveness inhalation: 0 %)			
Dermal protection: No. (Effectiveness dermal: 0 %)				
Other given operational conditions affecting workers exposure				
Place of use: Indoor				
SECTI	ION 3:	3.0 Exposure estimation		
3.1. En	3.1. Environment			
	Contributing scenario controlling environmental exposure: Intumescent coatings - Professional Workers (ERC10a, ERC11a)			

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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/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	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	

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CS1	CS1 PU foams – Consumers				ERC10a, ERC11a
Contri	Contributing scenario controlling worker exposure				
CS2	Use of articles containing foam with the substance embedded in a matrix (encapsulated) AC13			AC13	
SECTI	ION 2:	2.0 C	onditions of use		
2.1	2.1 Contributing scenario controlling environmental exposure:			·e:	
			U foams – Consumers (ERC10a, ERC11a	1)	
			n of use (or from service life)		
	•		t relevant for this material.		
			iological sewage treatment plant		
	ical STP: Standard [Effec		s water: 2.77%]		
	rge rate of STP: >= 2E3 r				
	ation of the STP sludge or				
Other •	given operational condit Receiving surface water		fecting environmental exposure :>= 1.8E4 m3/day		
2.2			ributing scenario controlling worker ex		
			se of articles containing foam with the suppulated) (AC13)	bstance embed	dded in a matrix
Produc	ct (article) characteristic		1		
Percent	tage (w/w) of substance in	n mixtu	re/article: <= 30 % (embedded in the foar	m, contained in	n the article)
Exposu	ıre via inhalation route: Ir	halatio	n exposure is considered to be not relevan	nt	
Exposu	ıre via oral route: Oral exp	osure	is considered to be not relevant		
SECTI	ION 3:	3.0	0 Exposure estimation		
3.1. En	vironment	•			
Contri	buting scenario controll	ing env	vironmental exposure: PU foams – Cons	sumers (ERC1	0a, ERC11a)
Releas	e		Release estimation method	Explanations	
Water			Estimated release rate	Local releas	e rate: 0 kg/day
Air			Estimated release rate	Local releas	e rate: 0 kg/day
Non-A	gricultural Soil		Estimated release factor	Release fact	or after on site RMM: 0%
Protec	tion target		Exposure concentration	Risk quanti	ification (RCR)
Fresh v	vater		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)		n	Concentration in air: 1.3E-21 mg/m³	<0.01	
Man vi	a Environment - Oral		Exposure via food consumption: 1.74E-4 mg/kg bw/day	<0.01	

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Man via Environment - Combined routes		<0.01
3.2. Workers		
Contributing generals controlling woulder experience. Her of articles containing from with the substance ambedded in		

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
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

SECTI	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		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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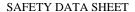


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Amount used, frequency and duration of use (or from service life)			
Daily local widespread use amount:			
Conditions and measures related to biological sewage treatment plant			
Biological STP: Standard [Effective	eness water: 2.77%]		
Discharge rate of STP: >= 2E3 m3/	day		
Application of the STP sludge on ag	gricultural soil: Yes		
Other given operational condition • Receiving surface water f	as affecting environmental exposure low: >= 1.8E4 m3/day		
2.2	ontributing scenario controlling worker e	xposure exposure:	
	2 Use of articles with intumescent coating vencapsulated) (AC13)	with the substance embedded in a matrix	
Product (article) characteristic	(1212)		
Percentage (w/w) of substance in m	ixture/article: <= 30 % (embedded in a solid	matrix)	
	ation exposure is considered to be not releva	nt	
•	exposure is considered to be not relevant		
Exposure via oral route: Oral expos			
	SECTION 3: 3.0 Exposure estimation		
3.1. Environment			
Contributing scenario controlling	environmental exposure: Intumescent coa	ting – 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)	

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Inhalation, Systemic effects, Long Term	0 mg/m ³	<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.

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