

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
 We do not find the strict of the stri

PU foams - Workers (industrial)Intumescent coatings - Workers (industrial)

Intumescent coatings - Professional Workers

Uses Advised Against Addition to food or feed products.

1.3 Details of the supplier of the safety data sheet

Company Identification Qatar Melamine Co
Address P.O. Box 50001, Mesaieed,

Qatar.

Telephone (+974) 44228888
E-mail aawad@qafco.com.qa
Only representative of a non-Community manufacturer

Common Manufacturer

Company Identification MUNTAJAT B.V.

Address Prinses Margrietplantsoen 78-A

2595 BR, La Haye

Pays Bas

 $\begin{array}{lll} \text{Telephone} & +31(0)70\ 219\ 7000 \\ \text{E-mail} & \underline{\text{REACH@muntajatbv.com}} \\ \text{Website} & \underline{\text{www.muntajatbv.com}} \end{array}$

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

Night 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)

CH208

GHS08 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.

Page: 1 - 88 Revision: 9 - Replaces: 8



SAFETY DATA SHEET

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

Precautionary Statement(s) P201: Obtain special instructions before use.

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

P260: Do not breathe dust.

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

P308+P313: IF exposed or concerned: Get medical advice/attention.

P501: Dispose of contents in accordance with local, state or national legislation.

2.3 Other hazards

May be harmful if swallowed.

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

2.4 Additional Information

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

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

HAZARDOUS INGREDIENT(S)		EC No. / REACH Registration No.	%W/W		Hazard 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

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

Unsuitable extinguishing media Water with full jet. 5.2 Special hazards arising from the substance or mixture

Decomposes in a fire giving off toxic fumes: Carbon monoxide, Carbon dioxide,

Oxides of nitrogen. Ammonia is released when melamine is heated above 500°C.

5.3 Advice for firefighters

Fire fighters should wear complete protective clothing including self-contained

breathing apparatus.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Ensure suitable personal protection (including respiratory protection) during removal of spillages. Avoid generation of dust. Do

Page: 2 - 88 Revision: 9 - Replaces: 8

SAFETY DATA SHEET

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

not breathe dust.

6.2 Environmental precautions

Do not allow to enter drains, sewers or watercourses.

6.3 Methods and material for containment and cleaning up

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

6.4 Reference to other sections

See Also Section 8, 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

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

7.2 Conditions for safe storage, including any incompatibilities

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

tightly closed.

Storage temperature

Ambient. Stable under normal conditions. Storage life

Incompatible materials 7.3 Specific end use(s) 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

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

Page: 3 - 88 Revision: 9 - Replaces: 8



Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

8.2 Exposure controls

8.2.1. Appropriate engineering controls Ensure adequate ventilation.

8.2.2. Personal protection equipment

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



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.

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 Non-flammable. Lower and upper explosion limit Not known. Flash Point Not applicable. Auto-ignition temperature >400°C >361°C **Decomposition Temperature**

7.5 - 8.0 (aqueous solution)

Kinematic Viscosity Not applicable.

Solubility Solubility (Water): Slightly soluble: 3.48 g/l @ 20°C

Solubility (Other): Very slightly soluble: Acetone (0.3 g/l), Ethanol (0.6 g/l), Dimethylformamide (0.1 g/l), Soluble: Ethyl cellosolve (11.2 g/l) @ 30°C

Partition coefficient n-octanol/water (log -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

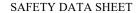
Stable under normal conditions.

10.2 Chemical Stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Page: 4 - 88 Revision: 9 - Replaces: 8





Melamine

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 Germ cell mutagenicity Not classified. 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

ract.

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.

Page: 5 - 88 Revision: 9 - Replaces: 8



Melamine

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

EC50 Fresh water: 325 mg/l Algae

NOEC Fresh water: 98 mg/l

12.2 Persistence and degradability

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

biodegradable.

12.3 Bioaccumulative potential

The substance has no potential for bioaccumulation.

Bioconcentration factor (BCF): 3.8 L/kg ww

12.4 Mobility in soil

The substance is predicted to have moderate mobility in soil.

12.5 Results of PBT and vPvB assessment

Not classified as PBT or vPvB.

12.6 Endocrine disrupting properties

Does not cause endocrine disruption.

12.7 Other adverse effects

None anticipated.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

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

13.2 Additional Information

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

SECTION 14: TRANSPORT INFORMATION

Not classified as hazardous for transport.

14.1 UN number or ID number

Not applicable

14.2 UN proper shipping name

Not applicable

14.3 Transport hazard class(es)

Not applicable

14.4 Packing group

Not applicable

14.5 Environmental hazards

Not classified as a Marine Pollutant.

14.6 Special precautions for user

Not known

14.7 Maritime transport in bulk according to IMO instruments

Not known

SECTION 15: REGULATORY INFORMATION

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

European Regulations - Authorisations and/or Restrictions On Use Candidate List of Substances of Very 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 and use of certain dangerous substances,

> Page: 6 - 88 Revision: 9 - Replaces: 8



Melamine

mixtures and articles

Community Rolling Action Plan Not listed

(CoRAP)

Regulation (EU) N° 2019/1021 of the Not listed

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.

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)



Not listed

Not listed

GHS08

Hazard classification Carc. 2 : Carcinogenicity, Category 2

Repr. 2 : Reproductive toxicity, Category 2

STOT RE 2 : Specific target organ toxicity — repeated exposure, Category 2

Hazard Statement(s) H351: Suspected of causing cancer.

H361f: Suspected of damaging fertility.

H373: May cause damage to organs through prolonged or repeated exposure.

Precautionary Statement(s) P201: Obtain special instructions before use.

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

P260: Do not breathe dust.

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

P308+P313: IF exposed or concerned: Get medical advice/attention.

P314: Get medical advice/attention if you feel unwell.

P405: Store locked up.

P501: Dispose of contents in accordance with local, state or national legislation.

Acronyms CAS : Chemical Abstracts Service

CLP: Regulation (EC) No 1272/2008 on classification, labelling and packaging of

substances and mixtures
DNEL : Derived No Effect Level

EC : European Community LTEL : Long term exposure limit

PBT : Persistent, Bioaccumulative and Toxic PNEC : Predicted No Effect Concentration

REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals

STEL : Short term exposure limit STOT : Specific Target Organ Toxicity

vPvB: very Persistent and very Bioaccumulative

Key literature references and sources for Regulation (EC) No. 1272/2008 (CLP) data used to compile the SDS

Page: 7 - 88 Revision: 9 - Replaces: 8



Melamine

Training Advice

Regular safety training as appropriate

Disclaimers

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Contents

Exposure Scenario 1: Formulation or re-packing - Formulation or re-packaging	10
1.0 Title of Exposure Scenario:	10
2.0 Conditions of use	
3.0 Exposure estimation	18
4.0 Guidance to DU to evaluate whether he works inside the boundaries set by the ES	
Exposure Scenario 2: Use at industrial sites- Use as monomer (intermediate) for melamine	
1.0 Title of Exposure Scenario:	22
2.0 Conditions of use	
3.0 Exposure estimation	30
4.0 Guidance to DU to evaluate whether he works inside the boundaries set by the ES	34
Exposure Scenario 3: Use at industrial sites- Use as monomer (intermediate) in melamine	9
	34
1.0 Title of Exposure Scenario:	34
2.0 Conditions of use	34
3.0 Exposure estimation	39
4.0 Guidance to DU to evaluate whether he works inside the boundaries set by the ES	
Exposure Scenario 4: Use at industrial sites - Use as intermediate for the production of other	
melamine salt (reacted melamine)	41
1.0 Title of Exposure Scenario:	41
2.0 Conditions of use	
3.0 Exposure estimation	
4.0 Guidance to DU to evaluate whether he works inside the boundaries set by the ES	
Exposure Scenario 5: Use at industrial sites - Use as additive in foams	50
1.0 Title of Exposure Scenario:	
2.0 Conditions of use	50
3.0 Exposure estimation	
4.0 Guidance to DU to evaluate whether he works inside the boundaries set by the ES	
Exposure Scenario 6: Use at industrial sites - Use as additive in intumescent coatings	58
1.0 Title of Exposure Scenario:	
2.0 Conditions of use	
3.0 Exposure estimation	
4.0 Guidance to DU to evaluate whether he works inside the boundaries set by the ES	70



Melamine

Exposure Scenario 7: Widespread use by professional workers - Use as additive in intumescent coatings	70
1.0 Title of Exposure Scenario:	70
2.0 Conditions of use	
3.0 Exposure estimation	75
4.0 Guidance to DU to evaluate whether he works inside the boundaries set by the ES	
Exposure Scenario 8: Service life (worker at industrial site) - PU foams - Workers (industrial)	
1.0 Title of Exposure Scenario:	77
2.0 Conditions of use	77
3.0 Exposure estimation	78
4.0 Guidance to DU to evaluate whether he works inside the boundaries set by the ES	79
Exposure Scenario 9: Service life (worker at industrial site) - Intumescent coatings - Workers (industrial)	
1.0 Title of Exposure Scenario:	80
2.0 Conditions of use	80
3.0 Exposure estimation	81
4.0 Guidance to DU to evaluate whether he works inside the boundaries set by the ES	82
Exposure Scenario 10: Service life (professional worker) - Intumescent coatings - Professional Workers	82
1.0 Title of Exposure Scenario:	82
2.0 Conditions of use	83
3.0 Exposure estimation	83
4.0 Guidance to DU to evaluate whether he works inside the boundaries set by the ES	84
Exposure Scenario 11: Service life (consumers) - PU foams - Consumers	
1.0 Title of Exposure Scenario:	84
2.0 Conditions of use	84
3.0 Exposure estimation	
4.0 Guidance to DU to evaluate whether he works inside the boundaries set by the ES	86
Exposure Scenario 12: Service life (consumers) - Intumescent coating - Consumers	86
1.0 Title of Exposure Scenario:	
2.0 Conditions of use	
3.0 Exposure estimation	
4.0 Guidance to DU to evaluate whether he works inside the boundaries set by the ES	87

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

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	
Contrib	outing scenario controlli	ng environmental exposure	
CS1	Formulation or re-packa	nging	ERC2
Contrib	outing scenario controlli	ng worker exposure	
CS2		refinery in closed process without likelihood of exposure or nt containment conditions	PROC2
CS3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions		PROC3
CS4	Chemical production wh	nere opportunity for exposure arises	PROC4
CS5	Mixing or blending in b	atch processes (Solid)	PROC5
CS6	Transfer of substance or facilities (Solid)	mixture (charging and discharging) at non-dedicated	PROC8a
CS7	Transfer of substance or (Solid)	mixture (charging and discharging) at dedicated facilities	PROC8b
CS8	Transfer of substance or weighing)	mixture into small containers (dedicated filling line, including	PROC9
CS9	Tabletting, compression	, extrusion, pelletisation, granulation	PROC14
CS10	Use as laboratory reagen	nt (Solid)	PROC15
CS11	Hand-mixing with intim	ate contact and only PPE available (Solid)	PROC19
CS12	Manual maintenance (cl	eaning and repair) of machinery (Solid)	PROC28
CS13	3 Mixing or blending in batch processes (Liquid) PROC5		PROC5
CS14	Transfer of substance or mixture (charging and discharging) at dedicated facilities (Liquid)		PROC8b
CS15	Use as laboratory reagen	nt (Liquid)	PROC15
CS16	Manual maintenance (cl	eaning and repair) of machinery (Liquid)	PROC28
CS17	Hand-mixing with intim	ate contact and only PPE available (Liquid)	PROC19
CS18	Transfer of substance or facilities (Liquid)	mixture (charging and discharging) at non-dedicated	PROC8a
SECTI	ON 2:	2.0 Conditions of use	
2.1		Contributing scenario controlling environmental exposure 2.1 Formulation or re-packaging (ERC2)	:
Amoun	t used, frequency and du	uration of use (or from service life)	
Daily us	se amount at site: Not rele	vant for this material.	
Annual	use amount at site: Not re	levant for this material.	
Conditi	ions and measures relate	d to biological sewage treatment plant	
Biologi	cal STP: Standard [Effecti	iveness water: 2.77%]	
Dischar	ge rate of STP: >= 2E3 m	3/day	
Applica	ation of the STP sludge on	agricultural soil: Yes	
Other g		ons affecting environmental exposure r flow: >= 1.8E4 m3/day	

Page: 10 - 88 Revision: 9 - Replaces: 8



Melamine

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

Page: 11 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

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 %)

Page: 12 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

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 %)

Page: 13 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

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

Page: 14 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

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

Page: 15 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

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%]

Page: 16 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

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

operating temperatures.

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%]

Page: 17 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

Contributing scenario controlling worker exposure exposure:

Other given operational conditions affecting workers exposure

Place of use: Indoor

Operating temperature: <= 115 °C

2.18

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 Evnosure estimation
SECTION 3.	1 4 U Exposure estimation

3.1. Environment

Contributing scenario controlling environmental exposure: Formulation or re-packaging (ERC2)

Release	Release estimation method	Explanations
Water	Estimated release rate	Local release rate: 5 kg/day
Air	Estimated release rate	Local release rate: 1 kg/day
Non-Agricultural Soil	Estimated release factor	Release factor after on site RMM: 0%
Protection target	Exposure concentration	Risk quantification (RCR)
Fresh water	Local PEC: 0.248 mg/l	0.49
Sedimentation (Fresh water)	Local PEC: 6.348 mg/kg dw	0.49
Marine water	Local PEC: 0.025 mg/l	0.50
Sedimentation (Marine water)	Local PEC: 0.652 mg/kg dw	0.50
Sewage Treatment Plant	Local PEC: 2.431 mg/l	0.02
Agricultural soil	Local PEC: 1.7 mg/kg dw	0.75
Man via Environment - Inhalation (Systemic effects)	Concentration in air: 2.78E-4 mg/m ³	< 0.01
Man via Environment - Oral	Exposure via food consumption: 0.025	0.06

Page: 18 - 88 Revision: 9 - Replaces: 8



Melamine

	mg/kg bw/day	
Man via Environment - Combined routes		0.06
3.2. Workers		
Contributing scenario controlling wor 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/m ³	0.06
Inhalation, Systemic effects, Acute	2 mg/m ³	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 wor batch processes with occasional controll		nulation in the chemical industry in closed valent 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 wor (PROC4)	ker exposure: Chemical production	n 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
	ker exposure: Mixing or blending	in batch processes (Solid) (PROC5)
Contributing scenario controlling wor		1
	Exposure concentration	Risk quantification (RCR)
Route of exposure and type of effects Inhalation, Systemic effects, Long	Exposure concentration 5 mg/m ³	
Route of exposure and type of effects Inhalation, Systemic effects, Long Term	•	Risk quantification (RCR)
Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute	5 mg/m³	Risk quantification (RCR) 0.602
Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute Dermal, Systemic effects, Long Term Combined routes, Systemic effects,	5 mg/m ³ 20 mg/m ³	Risk quantification (RCR) 0.602 0.243
Contributing scenario controlling wor Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute Dermal, Systemic effects, Long Term Combined routes, Systemic effects, Long Term Contributing scenario controlling wor dedicated facilities (Solid) (PROC8a)	5 mg/m ³ 20 mg/m ³ 2.742 mg/kg bw/day	Risk quantification (RCR) 0.602 0.243 0.232
Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute Dermal, Systemic effects, Long Term Combined routes, Systemic effects, Long Term Contributing scenario controlling wor	5 mg/m ³ 20 mg/m ³ 2.742 mg/kg bw/day	Risk quantification (RCR) 0.602 0.243 0.232 0.835



Melamine

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 wor dedicated facilities (Solid) (PROC8b)	ker 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	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 wor filling line, including weighing) (PROCS		e 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/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 wor	ker exposure: Tabletting, compress	sion, extrusion, pelletisation, granulation
(PROC14)		
	Exposure concentration	Risk quantification (RCR)
Route of exposure and type of effects Inhalation, Systemic effects, Long	Exposure concentration 1 mg/m ³	Risk quantification (RCR) 0.12
Route of exposure and type of effects Inhalation, Systemic effects, Long Term	-	* * * * * * * * * * * * * * * * * * * *
Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute	1 mg/m³	0.12
Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute Dermal, Systemic effects, Long Term Combined routes, Systemic effects,	1 mg/m³ 4 mg/m³	0.12
Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute Dermal, Systemic effects, Long Term Combined routes, Systemic effects, Long Term	1 mg/m ³ 4 mg/m ³ 3.43 mg/kg bw/day	0.12 0.049 0.291 0.411
Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute Dermal, Systemic effects, Long Term Combined routes, Systemic effects, Long Term Contributing scenario controlling wor	1 mg/m ³ 4 mg/m ³ 3.43 mg/kg bw/day	0.12 0.049 0.291 0.411
Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute Dermal, Systemic effects, Long Term Combined routes, Systemic effects, Long Term Contributing scenario controlling wor Route of exposure and type of effects Inhalation, Systemic effects, Long	1 mg/m³ 4 mg/m³ 3.43 mg/kg bw/day ker exposure: Use as laboratory re	0.12 0.049 0.291 0.411 eagent (Solid) (PROC15)
Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute Dermal, Systemic effects, Long Term Combined routes, Systemic effects, Long Term Contributing scenario controlling wor Route of exposure and type of effects Inhalation, Systemic effects, Long Term	1 mg/m³ 4 mg/m³ 3.43 mg/kg bw/day ker exposure: Use as laboratory re Exposure concentration	0.12 0.049 0.291 0.411 eagent (Solid) (PROC15) Risk quantification (RCR)
Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute Dermal, Systemic effects, Long Term Combined routes, Systemic effects, Long Term Contributing scenario controlling wor Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute	1 mg/m³ 4 mg/m³ 3.43 mg/kg bw/day ker exposure: Use as laboratory re Exposure concentration 0.5 mg/m³	0.12 0.049 0.291 0.411 cagent (Solid) (PROC15) Risk quantification (RCR) 0.06
Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute Dermal, Systemic effects, Long Term Combined routes, Systemic effects, Long Term Contributing scenario controlling wor Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute Dermal, Systemic effects, Long Term Combined routes, Systemic effects,	1 mg/m³ 4 mg/m³ 3.43 mg/kg bw/day ker exposure: Use as laboratory re Exposure concentration 0.5 mg/m³ 2 mg/m³	0.12 0.049 0.291 0.411 eagent (Solid) (PROC15) Risk quantification (RCR) 0.06 0.024
Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute Dermal, Systemic effects, Long Term Combined routes, Systemic effects, Long Term Contributing scenario controlling wor Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute Dermal, Systemic effects, Long Term Combined routes, Systemic effects, Long Term	1 mg/m³ 4 mg/m³ 3.43 mg/kg bw/day ker exposure: Use as laboratory re Exposure concentration 0.5 mg/m³ 2 mg/m³ 0.34 mg/kg bw/day	0.12 0.049 0.291 0.411 eagent (Solid) (PROC15) Risk quantification (RCR) 0.06 0.024 0.029
Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute Dermal, Systemic effects, Long Term Combined routes, Systemic effects, Long Term Contributing scenario controlling wor Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute Dermal, Systemic effects, Long Term Combined routes, Systemic effects, Long Term Combined routes, Systemic effects, Long Term Contributing scenario controlling wor	1 mg/m³ 4 mg/m³ 3.43 mg/kg bw/day ker exposure: Use as laboratory re Exposure concentration 0.5 mg/m³ 2 mg/m³ 0.34 mg/kg bw/day	0.12 0.049 0.291 0.411 cagent (Solid) (PROC15) Risk quantification (RCR) 0.06 0.024 0.029 0.089

Page: 20 - 88 Revision: 9 - Replaces: 8



Melamine

Inhalation, Systemic effects, Acute	20 mg/m ³	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 wor (PROC28)	ker exposure: Manual maintenance (c	leaning 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/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 wor	ker exposure: Mixing or blending in b	eatch processes (Liquid) (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	2.743 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.296
Contributing scenario controlling word dedicated facilities (Liquid) (PROC8b)	ker 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/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 wor	ker exposure: Use as laboratory reager	nt (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/m ³	< 0.01
Dermal, Systemic effects, Long Term	0.34 mg/kg bw/day	0.029
Combined routes, Systemic effects,	0.34 mg/kg bw/day	0.029
Dermal, Systemic effects, Long Term Combined routes, Systemic effects, Long Term Contributing scenario controlling wor (PROC28)		0.092
Combined routes, Systemic effects, Long Term Contributing scenario controlling wor		0.092
Combined routes, Systemic effects, Long Term Contributing scenario controlling wor (PROC28)	ker exposure: Manual maintenance (cl	0.092 eaning and repair) of machinery (Liquid)



SAFETY DATA SHEET Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

Dermal, Systemic effects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Systemic effects, Long Term		0.296

Contributing scenario controlling worker exposure: Hand-mixing with intimate contact and only PPE available (Liquid) (PROC19)

Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	1.74 mg/m³	0.21
Inhalation, Systemic effects, Acute	1.74 mg/m ³	0.021
Dermal, Systemic effects, Long Term	7.072 mg/kg bw/day	0.599
Combined routes, Systemic effects, Long Term		0.809

Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Liquid) (PROC8a)

Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.525 mg/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

SECTION 4:	4.0 Guidance to DU to evaluate whether he works inside 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 2: Use at industrial sites- Use as monomer (intermediate) for melamine based resins production

SECTION 1:	1.0 Title of Exposure Scenario:
	Use at industrial sites- Use as monomer (intermediate) for melamine based resins

Page: 22 - 88 Revision: 9 - Replaces: 8



Melamine

		production	
Contri	buting scenario controlli	ng environmental exposure	
CS1	Use as monomer (intern	nediate) for melamine based resins production	ERC6a, ERC6c
Contri	buting scenario controlli	ng worker exposure	
CS2		refinery in closed process without likelihood of exposure or nt containment conditions	PROC1
CS3		refinery in closed continuous process with occasional processes with equivalent containment conditions	PROC2
CS4		tion in the chemical industry in closed batch processes with sposure or processes with equivalent containment conditions	PROC3
CS5	Chemical production wl	nere opportunity for exposure arises	PROC4
CS6	Mixing or blending in b	atch processes	PROC5
CS7	Calendering operations		PROC6
CS8	Transfer of substance or (Solid)	mixture (charging and discharging) at non-dedicated facilities	PROC8a
CS9	Transfer of substance or (Solid)	mixture (charging and discharging) at dedicated facilities	PROC8b
CS10	Transfer of substance or weighing) (Solid)	mixture into small containers (dedicated filling line, including	PROC9
CS11	Tabletting, compression	, extrusion, pelletisation, granulation	PROC14
CS12	Use as laboratory reager	nt	PROC15
CS13	Manual maintenance (cl	eaning and repair) of machinery	PROC28
CS14	Transfer of substance or facilities (Liquid)	mixture (charging and discharging) at non-dedicated	PROC8a
CS15	Transfer of substance or (Liquid)	mixture (charging and discharging) at dedicated facilities	PROC8b
CS16	Transfer of substance or weighing) (Liquid)	mixture into small containers (dedicated filling line, including	PROC9
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 ERC6c)	
Amour	nt used, frequency and du	rration of use (or from service life)	
	se amount at site: Not rele		
	use amount at site: Not re		
		d to biological sewage treatment plant	
	ical STP: Standard [Effect		
	rge rate of STP: >= 2E3 m	·	
	ation of the STP sludge on		
Other		ons affecting environmental exposure r flow: >= 1.8E4 m3/day	
2.2		Contributing scenario controlling worker exposure exposure 2.2 Chemical production or refinery in closed process without processes with equivalent containment conditions (PROC1)	

Page: 23 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

Product (article) characteristic Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form) Amount used, frequency and duration of use (or from service life) Duration of activity: <=8.0 h/day Technical conditions and measures to control dispersion from source towards the worker General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %) Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%] Conditions and measures related to personal protection, hygiene and health evaluation Respiratory protection: No. (Effectiveness inhalation: 0 %) Dermal protection: No. (Effectiveness dermal: 0 %) Other given operational conditions affecting workers exposure Place of use: Indoor 2.3 Contributing scenario controlling worker exposure exposure: 2.3 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2) Product (article) characteristic Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form) Amount used, frequency and duration of use (or from service life) Duration of activity: <=8.0 h/day Technical conditions and measures to control dispersion from source towards the worker General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %) Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%] Conditions and measures related to personal protection, hygiene and health evaluation Respiratory protection: No. (Effectiveness inhalation: 0 %) Dermal protection: No. (Effectiveness dermal: 0 %) Other given operational conditions affecting workers exposure Place of use: Indoor 2.4 Contributing scenario controlling worker exposure exposure: 2.4 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC3) Product (article) characteristic Percentage (w/w) of substance in mixture/article: <= 100 %

Page: 24 - 88 Revision: 9 - Replaces: 8

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

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

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

Duration of activity: <=8.0 h/day

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

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

Occupational Health and Safety Management System: Advanced

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

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

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

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

Other given operational conditions affecting workers exposure

Place of use: Indoor

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

Product (article) characteristic

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

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

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

Duration of activity: <=8.0 h/day

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

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

Occupational Health and Safety Management System: Advanced

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

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

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

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

[Effectiveness dermal: 80%]

Other given operational conditions affecting workers exposure

Place of use: Indoor

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

Product (article) characteristic

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

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

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

Duration of activity: <=8.0 h/day

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

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

Occupational Health and Safety Management System: Advanced

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

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

Page: 25 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

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

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

[Effectiveness dermal: 80%]

Other given operational conditions affecting workers exposure

Place of use: Indoor

2.7 Contributing scenario controlling worker exposure exposure: 2.7 Calendering operations (PROC6)

Product (article) characteristic

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

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

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

Duration of activity: <=8.0 h/day

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

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

Occupational Health and Safety Management System: Advanced

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

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

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

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

[Effectiveness dermal: 90%]

Other given operational conditions affecting workers exposure

Place of use: Indoor

2.8 Contributing scenario controlling worker exposure exposure:
2.8 Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Solid) (PROC8a)

Product (article) characteristic

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

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

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

Duration of activity: <=8.0 h/day

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

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

Occupational Health and Safety Management System: Advanced

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

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

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

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

Other given operational conditions affecting workers exposure

Place of use: Indoor

Page: 26 - 88 Revision: 9 - Replaces: 8



Melamine

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 produc	:: Solid (medium dusty form)
Amount used, frequency and du	rration of use (or from service life)
Duration of activity: <=8.0 h/day	
Technical conditions and measu	res to control dispersion from source towards the worker
General ventilation: Basic genera	l ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)
Occupational Health and Safety N	Management System: Advanced
Local exhaust ventilation: No [Ef	fectiveness inhalation: 0%, Dermal: 0%]
Conditions and measures relate	d to personal protection, hygiene and health evaluation
Respiratory protection: No. (Effe	ctiveness inhalation: 0 %)
Dermal protection: Yes (Chemica [Effectiveness dermal: 80%]	ally resistant gloves conforming to EN374) and (other) appropriate dermal protection
Other given operational conditi	ons 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 %
DI : 1.0 C.1 1 1	:: Solid (medium dusty form)
Physical form of the used produc	a sond (medium dusty form)
	uration of use (or from service life)
	·
Amount used, frequency and du Duration of activity: <=8.0 h/day	·
Amount used, frequency and do Duration of activity: <=8.0 h/day Technical conditions and measurements	aration of use (or from service life)
Amount used, frequency and do Duration of activity: <=8.0 h/day Technical conditions and measurements	arration of use (or from service life) arres to control dispersion from source towards the worker I ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)
Amount used, frequency and do Duration of activity: <=8.0 h/day Technical conditions and measu General ventilation: Basic genera Occupational Health and Safety M	arration of use (or from service life) arres to control dispersion from source towards the worker I ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)
Amount used, frequency and do Duration of activity: <=8.0 h/day Technical conditions and measu General ventilation: Basic genera Occupational Health and Safety M Local exhaust ventilation: No [Ef	res to control dispersion from source towards the worker I ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %) Management System: Advanced
Amount used, frequency and do Duration of activity: <=8.0 h/day Technical conditions and measu General ventilation: Basic genera Occupational Health and Safety M Local exhaust ventilation: No [Ef	res to control dispersion from source towards the worker I ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %) Management System: Advanced fectiveness inhalation: 0%, Dermal: 0%] d to personal protection, hygiene and health evaluation
Amount used, frequency and do Duration of activity: <=8.0 h/day Technical conditions and measu General ventilation: Basic genera Occupational Health and Safety N Local exhaust ventilation: No [Eff Conditions and measures relate Respiratory protection: No. (Effe	res to control dispersion from source towards the worker I ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %) Management System: Advanced fectiveness inhalation: 0%, Dermal: 0%] d to personal protection, hygiene and health evaluation
Amount used, frequency and do Duration of activity: <=8.0 h/day Technical conditions and measure General ventilation: Basic genera Occupational Health and Safety N Local exhaust ventilation: No [Effe Conditions and measures relate Respiratory protection: No. (Effe Dermal protection: Yes (Chemica)	Irration of use (or from service life) Irres to control dispersion from source towards the worker I ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %) Management System: Advanced fectiveness inhalation: 0%, Dermal: 0%] In the personal protection, hygiene and health evaluation Continued to personal protection (10 %)
Amount used, frequency and do Duration of activity: <=8.0 h/day Technical conditions and measu General ventilation: Basic genera Occupational Health and Safety M Local exhaust ventilation: No [Eff Conditions and measures relate Respiratory protection: No. (Effe Dermal protection: Yes (Chemica [Effectiveness dermal: 80%]	Irration of use (or from service life) Irres to control dispersion from source towards the worker I ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %) Management System: Advanced fectiveness inhalation: 0%, Dermal: 0%] In the personal protection, hygiene and health evaluation Continued to personal protection (10 %)
Amount used, frequency and do Duration of activity: <=8.0 h/day Technical conditions and measure General ventilation: Basic general Occupational Health and Safety M Local exhaust ventilation: No [Effe Conditions and measures related Respiratory protection: No. (Effe Dermal protection: Yes (Chemica [Effectiveness dermal: 80%] Other given operational conditions.	Trest to control dispersion from source towards the worker It ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %) Management System: Advanced Fectiveness inhalation: 0%, Dermal: 0%] Indicate the determinant of the description of the descrip
Amount used, frequency and do Duration of activity: <=8.0 h/day Technical conditions and measure General ventilation: Basic genera Occupational Health and Safety M Local exhaust ventilation: No [Eff Conditions and measures relate Respiratory protection: No. (Effe Dermal protection: Yes (Chemica [Effectiveness dermal: 80%] Other given operational condition Place of use: Indoor 2.11	arration of use (or from service life) ares to control dispersion from source towards the worker I ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %) Management System: Advanced fectiveness inhalation: 0%, Dermal: 0%] d to personal protection, hygiene and health evaluation ctiveness inhalation: 0 %) ally resistant gloves conforming to EN374) and (other) appropriate dermal protection ons affecting workers exposure
Amount used, frequency and do Duration of activity: <=8.0 h/day Technical conditions and measure General ventilation: Basic genera Occupational Health and Safety M Local exhaust ventilation: No [Effe Conditions and measures relate Respiratory protection: No. (Effe Dermal protection: Yes (Chemica [Effectiveness dermal: 80%] Other given operational conditions Place of use: Indoor	Irres to control dispersion from source towards the worker I ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %) Management System: Advanced fectiveness inhalation: 0%, Dermal: 0%] d to personal protection, hygiene and health evaluation ctiveness inhalation: 0 %) ally resistant gloves conforming to EN374) and (other) appropriate dermal protection ons affecting workers exposure Contributing scenario controlling worker exposure exposure: 2.11 Tabletting, compression, extrusion, pelletisation, granulation (PROC14)

Page: 27 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

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

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

Page: 28 - 88 Revision: 9 - Replaces: 8

T Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

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

2.14 Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Liquid) (PROC8a)

Product (article) characteristic

Percentage (w/w) of substance in mixture/article: <= 10 %

Physical form of the used product: Liquid

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

Duration of activity: <=8.0 h/day

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

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

Occupational Health and Safety Management System: Advanced

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

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

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

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

Other given operational conditions affecting workers exposure

Place of use: Indoor

Operating temperature: <= 115 °C

2.15 Contributing scenario controlling worker exposure exposure:

2.15 Transfer of substance or mixture (charging and discharging) at dedicated facilities

(Liquid) (PROC8b)

Product (article) characteristic

Percentage (w/w) of substance in mixture/article: <= 10 %

Physical form of the used product: Liquid

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

Duration of activity: <=8.0 h/day

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

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

Occupational Health and Safety Management System: Advanced

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

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

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

Page: 29 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

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)

production (ERCoa, ERCoc)		1
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

Page: 30 - 88 Revision: 9 - Replaces: 8



Melamine

Inhalation, Systemic effects, Long	5 mg/m^3	0.602
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Contributing scenario controlling work	ker exposure: Mixing or blending in batc	ch processes (PROC5)
Combined routes, Systemic effects, Long Term		0.719
Dermal, Systemic effects, Long Term	1.372 mg/kg bw/day	0.116
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Contributing scenario controlling work (PROC4)	ker exposure: Chemical production when	re opportunity for exposure arises
Combined routes, Systemic effects, Long Term		0.179
Dermal, Systemic effects, Long Term	0.69 mg/kg bw/day	0.058
Inhalation, Systemic effects, Acute	4 mg/m ³	0.049
Term	-	
Inhalation, Systemic effects, Long	1 mg/m ³	0.12
batch processes with occasional controlle Route of exposure and type of effects	ed exposure or processes with equivalent c Exposure concentration	Risk quantification (RCR)
	ker exposure: Manufacture or formulation	
Combined routes, Systemic effects,		0.176
Dermal, Systemic effects, Long Term	1.37 mg/kg bw/day	0.116
Term Inhalation, Systemic effects, Acute	2 mg/m³	0.024
Inhalation, Systemic effects, Long	0.5 mg/m³	0.06
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
	ker exposure: Chemical production or ref ses with equivalent containment condition	
Combined routes, Systemic effects, Long Term		<0.01
Dermal, Systemic effects, Long Term	0.034 mg/kg bw/day	<0.01
Inhalation, Systemic effects, Acute	0.04 mg/m ³	<0.01
Inhalation, Systemic effects, Long Term	0.01 mg/m³	<0.01
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
	ker exposure: Chemical production or re equivalent containment conditions (PROC	
3.2. Workers		
Man via Environment - Combined routes		0.03
Man via Environment - Oral	Exposure via food consumption: 0.014 mg/kg bw/day	0.03

Page: 31 - 88 Revision: 9 - Replaces: 8



Melamine

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 wor	ker exposure: Calendering operati	ions (PROC6)
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/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 wor dedicated facilities (Solid) (PROC8a)	ker exposure: Transfer of substance	ce or mixture (charging and discharging) at non-
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 wor dedicated facilities (Solid) (PROC8b)	ker exposure: Transfer of substance	ce 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/m ³	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 wor filling line, including weighing) (Solid) (e 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/m ³	0.243
Dermal, Systemic effects, Long Term	1.372 mg/kg bw/day	0.116
Combined routes, Systemic effects,		0.719
Long Term		
Long Term Contributing scenario controlling wor (PROC14)	ker exposure: Tabletting, compres	ssion, extrusion, pelletisation, granulation
Contributing scenario controlling wor (PROC14)	ker exposure: Tabletting, compres	Risk quantification (RCR)
Contributing scenario controlling wor		-



Melamine

Inhalation, Systemic effects, Acute	4 mg/m ³	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 wor	ker exposure: Use as laboratory rea	agent (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 wor	ker exposure: Manual maintenance	e (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/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 wor non-dedicated facilities (Liquid) (PROC		ce 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		
Long 16iiii		0.735
Contributing scenario controlling wor	ker exposure: Transfer of substance	e or mixture (charging and discharging) at
Contributing scenario controlling wor dedicated facilities (Liquid) (PROC8b)	ker exposure: Transfer of substance Exposure concentration	
Contributing scenario controlling wor dedicated facilities (Liquid) (PROC8b) Route of exposure and type of effects Inhalation, Systemic effects, Long	- T	e or mixture (charging and discharging) at
Contributing scenario controlling wor dedicated facilities (Liquid) (PROC8b) Route of exposure and type of effects Inhalation, Systemic effects, Long Term	Exposure concentration	e or mixture (charging and discharging) at Risk quantification (RCR)
Contributing scenario controlling word dedicated facilities (Liquid) (PROC8b) Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute	Exposure concentration 0.315 mg/m³	e or mixture (charging and discharging) at Risk quantification (RCR) 0.038
Contributing scenario controlling wor dedicated facilities (Liquid) (PROC8b) Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute Dermal, Systemic effects, Long Term Combined routes, Systemic effects,	Exposure concentration 0.315 mg/m³ 0.315 mg/m³	Risk quantification (RCR) 0.038 <0.01
Contributing scenario controlling wor dedicated facilities (Liquid) (PROC8b) Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute Dermal, Systemic effects, Long Term Combined routes, Systemic effects, Long Term Contributing scenario controlling wor	Exposure concentration 0.315 mg/m³ 0.315 mg/m³ 8.226 mg/kg bw/day ker exposure: Transfer of substance	Risk quantification (RCR) 0.038 <0.01 0.697
Contributing scenario controlling word dedicated facilities (Liquid) (PROC8b) Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute Dermal, Systemic effects, Long Term Combined routes, Systemic effects, Long Term Contributing scenario controlling worfilling line, including weighing) (Liquid)	Exposure concentration 0.315 mg/m³ 0.315 mg/m³ 8.226 mg/kg bw/day ker exposure: Transfer of substance	e or mixture (charging and discharging) at Risk quantification (RCR) 0.038 <0.01 0.697 0.735
Contributing scenario controlling word dedicated facilities (Liquid) (PROC8b) Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute Dermal, Systemic effects, Long Term Combined routes, Systemic effects, Long Term	Exposure concentration 0.315 mg/m³ 0.315 mg/m³ 8.226 mg/kg bw/day ker exposure: Transfer of substance (PROC9)	Risk quantification (RCR) 0.038 <0.01 0.697 0.735 e or mixture into small containers (dedicated



Melamine

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

SECTI	ON 1:	1.0 Title of Exposure Scenario:			
		Use at industrial sites- Use as monomer (intermediate) in melamine based resins before uring			
Contributing scenario controlling environmental exposure					
CS1	S1 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 facilities (Liquid)	PROC8a			
CS4	Transfer of substance or mixture (charging and discharging) at dedicated facilities (Liquid) PROC8b				
CS5	Roller application or brushing		PROC10		
CS6	Hand-mixing with intim	PROC19			
CS7	Manual maintenance (cl	PROC28			
CS8	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Solid)				
CS9	Transfer of substance or mixture (charging and discharging) at dedicated facilities (Solid)				
CS10	Calendering operations		PROC6		
SECTION 2: 2.0		2.0 Conditions of use			
2.1		Contributing scenario controlling environmental exposure: 2.1 Use as monomer (intermediate) in melamine based resins before curing (ERC6c)			
Amount used, frequency and duration of use (or from service life)					
Daily use amount at site: Not relevant for this material.					
Annual use amount at site: Not relevant for this material.					
Conditions and measures related to biological sewage treatment plant					
Biological STP: Standard [Effectiveness water: 2.77%]					

Page: 34 - 88 Revision: 9 - Replaces: 8



Melamine

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

Application of the STP sludge on agricultural soil: Yes

Other given operational conditions affecting environmental exposure

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

2.2 Contributing scenario controlling worker exposure exposure:
2.2 Industrial spraying (PROC7)

Product (article) characteristic

Percentage (w/w) of substance in mixture/article: <= 10 %

Physical form of the used product: Liquid

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

Duration of activity: <=8.0 h/day

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

Ventilation working room: General ventilation (mechanical)

Occupational Health and Safety Management System: Advanced

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

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

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

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

[Effectiveness dermal: 80%]

Other given operational conditions affecting workers exposure

Place of use: Indoor

Operating temperature: <= 115 °C

2.3 Contributing scenario controlling worker exposure exposure:

2.3 Transfer of substance or mixture (charging and discharging) at non-de

2.3 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

Page: 35 - 88 Revision: 9 - Replaces: 8



Melamine

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 Contributing scenario controlling worker exposure exposure: 2.5 Roller application or brushing (PROC10) Product (article) characteristic Percentage (w/w) of substance in mixture/article: <= 10 % Physical form of the used product: Liquid Amount used, frequency and duration of use (or from service life) Duration of activity: <=8.0 h/day Technical conditions and measures to control dispersion from source towards the worker Ventilation working room: General ventilation (mechanical) Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%] Conditions and measures related to personal protection, hygiene and health evaluation Respiratory protection: No. (Effectiveness inhalation: 0 %) Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%] Other given operational conditions affecting workers exposure Place of use: Indoor Operating temperature: <= 115 °C 2.6 Contributing scenario controlling worker exposure exposure:

Page: 36 - 88 Revision: 9 - Replaces: 8

2.6 Hand-mixing with intimate contact and only PPE available (PROC19)

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

Product (article) characteristic

Percentage (w/w) of substance in mixture/article: <= 10 %

Physical form of the used product: Liquid

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

Duration of activity: <=8.0 h/day

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

Ventilation working room: General ventilation (mechanical)

Occupational Health and Safety Management System: Advanced

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

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

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

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

[Effectiveness dermal: 90%]

Other given operational conditions affecting workers exposure

Place of use: Indoor

Operating temperature: <= 115 °C

2.7 Contributing scenario controlling worker exposure exposure:

2.7 Manual maintenance (cleaning and repair) of machinery (PROC28)

Product (article) characteristic

Percentage (w/w) of substance in mixture/article: <= 10 %

Physical form of the used product: Liquid

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

Duration of activity: <=8.0 h/day

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

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

Occupational Health and Safety Management System: Advanced

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

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

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

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

Other given operational conditions affecting workers exposure

Place of use: Indoor

Operating temperature: <= 115 °C

2.8 Contributing scenario controlling worker exposure exposure:

2.8 Transfer of substance or mixture (charging and discharging) at non-dedicated

facilities (Solid) (PROC8a)

Product (article) characteristic

Percentage (w/w) of substance in mixture/article: <= 10 %

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

Page: 37 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

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

Duration of activity: <=8.0 h/day

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

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

Occupational Health and Safety Management System: Advanced

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

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

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

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

[Effectiveness dermal: 80%]

Other given operational conditions affecting workers exposure

Place of use: Indoor

2.9 Contributing scenario controlling worker exposure exposure:
2.9 Transfer of substance or mixture (charging and discharging) at dedicated facilities (Solid) (PROC8b)

Product (article) characteristic

Percentage (w/w) of substance in mixture/article: <= 10 %

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

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

Duration of activity: <=8.0 h/day

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

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

Occupational Health and Safety Management System: Advanced

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

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

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

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

Other given operational conditions affecting workers exposure

Place of use: Indoor

2.10 Contributing scenario controlling worker exposure exposure: 2.10 Calendering operations (PROC6)

Product (article) characteristic

Percentage (w/w) of substance in mixture/article: <= 10 %

Physical form of the used product: Liquid

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

Duration of activity: <=8.0 h/day

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

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

Occupational Health and Safety Management System: Advanced

Page: 38 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

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)

otion turing (Erreys)			
Release	Release estimation method	Explanations	
Water	Estimated release rate	Local release rate: 0.5 kg/day	
Air	Estimated release rate	Local release rate: 0 kg/day	
Non-Agricultural Soil	Estimated release factor	Release factor after on site RMM: 0%	
Protection target	Exposure concentration	Risk quantification (RCR)	
Fresh water	Local PEC: 0.029 mg/l	0.06	
Sedimentation (Fresh water)	Local PEC: 0.75 mg/kg dw	0.06	
Marine water	Local PEC: 2.98E-3 mg/l	0.06	
Sedimentation (Marine water)	Local PEC: 0.076 mg/kg dw	0.06	
Sewage Treatment Plant	Local PEC: 0.243 mg/l	<0.01	
Agricultural soil	Local PEC: 0.164 mg/kg dw	0.07	
Man via Environment - Inhalation (Systemic effects)	Concentration in air: 9.38E-16 mg/m ³	< 0.01	
Man via Environment - Oral	Exposure via food consumption: 1.65 E-3 mg/kg bw/day	< 0.01	
Man via Environment - Combined routes		< 0.01	

3.2. Workers

Contributing scenario controlling worker exposure: Industrial spraying (PROC7)

Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	3.85 mg/m ³	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 worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Liquid) (PROC8a)

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

Page: 39 - 88 Revision: 9 - Replaces: 8



Melamine

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 wor dedicated facilities (Liquid) (PROC8b)	ker 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	0.38 mg/m³	0.046
Inhalation, Systemic effects, Acute	0.38 mg/m ³	<0.01
Dermal, Systemic effects, Long Term	8.226 mg/kg bw/day	0.697
Combined routes, Systemic effects, Long Term		0.743
Contributing scenario controlling wor	ker exposure: Roller application of	or brushing (PROC10)
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	1.74 mg/m³	0.210
Inhalation, Systemic effects, Acute	1.74 mg/m³	0.021
Dermal, Systemic effects, Long Term	3.29 mg/kg bw/day	0.279
Combined routes, Systemic effects, Long Term		0.489
Contributing scenario controlling wor (PROC19)	ker 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	0.84 mg/m ³	0.101
Inhalation, Systemic effects, Acute	0.84 mg/m ³	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 wor	ker exposure: Manual maintenand	ce (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/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 wor dedicated facilities (Solid) (PROC8a)	ker exposure: Transfer of substan	ce or mixture (charging and discharging) at non-
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long	3 mg/m³	0.361
		•



Melamine

Term			
Inhalation, Systemic effect	ets, Acute	12 mg/m³	0.146
Dermal, Systemic effects,	Long Term	1.645 mg/kg bw/day	0.139
Combined routes, System Long Term	ic effects,		0.500
Contributing scenario co dedicated facilities (Solid)		ker exposure: Transfer of substan	nce or mixture (charging and discharging) at
Route of exposure and ty	ype of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effect Term	ets, Long	0.6 mg/m ³	0.072
Inhalation, Systemic effect	ets, Acute	2.4 mg/m³	0.029
Dermal, Systemic effects,	Long Term	8.226 mg/kg bw/day	0.697
Combined routes, System Long Term	ic effects,		0.769
Contributing scenario co	ontrolling wor	ker exposure: Calendering operat	ions (PROC6)
Route of exposure and ty	ype of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term		0.315 mg/m ³	0.038
Inhalation, Systemic effect	ets, Acute	0.315 mg/m ³	<0.01
Dermal, Systemic effects,	Long Term	3.291 mg/kg bw/day	0.279
Combined routes, System Long Term	ic effects,		0.317
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 Manage managed to at least equiva		s/Operational Conditions are adop	ted, 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,

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

additional RMMs or a site-specific chemical safety assessment is required.

SECTION	ON 1:	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)		of other substances e.g.	
Contributing scenario controlling environmental exposure			
CS1 Use as intermediate for the production of other substances e.g. melamine salt (reacted melamine)			
Contributing scenario controlling worker exposure			

Page: 41 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

CS2		refinery in closed process without likelihood of exposure or nt 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 posure or processes with equivalent containment conditions	PROC3
CS5	Chemical production wl	nere opportunity for exposure arises	PROC4
CS6	Mixing or blending in b	atch processes	PROC5
CS7	Transfer of substance or facilities	mixture (charging and discharging) at non-dedicated	PROC8a
CS8	Transfer of substance or	mixture (charging and discharging) at dedicated facilities	PROC8b
CS9	Transfer of substance or weighing)	mixture into small containers (dedicated filling line, including	PROC9
CS10	Use as laboratory reager	nt	PROC15
CS11	Manual maintenance (cl	eaning and repair) of machinery	PROC28
SECTI	ON 2:	2.0 Conditions of use	
2.1		Contributing scenario controlling environmental exposure 2.1 Use as intermediate for the production of other substances (reacted melamine) (ERC6a)	
Amoun	t used, frequency and du	rration of use (or from service life)	
Daily u	se amount at site: Not rele	vant for this material.	
	use amount at site: Not re		
		d to biological sewage treatment plant	
Biologi	cal STP: Standard [Effect	iveness water: 2.77%]	
Dischar	rge rate of STP: >= 2E3 m	3/day	
Applica	ation of the STP sludge on	agricultural soil: Yes	
Other g		ons affecting environmental exposure r flow: >= 1.8E4 m3/day	
2.2		Contributing scenario controlling worker exposure exposu	
	2.2 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)		
Produc	t (article) characteristic		
Percent	age (w/w) of substance in	mixture/article: <= 100 %	
Physica	l form of the used product	: Solid (medium dusty form)	
		uration of use (or from service life)	
	n of activity: <=8.0 h/day		
		res to control dispersion from source towards the worker	
		l ventilation (1-3 air changes per hour) (Effectiveness inhalation	1: 0 %)
	<u>-</u>	Management System: Advanced	
Local e	xhaust ventilation: No [Ef	fectiveness inhalation: 0%, Dermal: 0%]	
Conditi	ions and measures relate	d to personal protection, hygiene and health evaluation	
Respira	tory protection: No. (Effe	ctiveness inhalation: 0 %)	

Page: 42 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

Dermal protection: No. (Effectiveness dermal: 0 %) Other given operational conditions affecting workers exposure Place of use: Indoor 2.3 Contributing scenario controlling worker exposure exposure: 2.3 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2) Product (article) characteristic Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form) Amount used, frequency and duration of use (or from service life) Duration of activity: <=8.0 h/day Technical conditions and measures to control dispersion from source towards the worker General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %) Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%] Conditions and measures related to personal protection, hygiene and health evaluation Respiratory protection: No. (Effectiveness inhalation: 0 %) Dermal protection: No. (Effectiveness dermal: 0 %) Other given operational conditions affecting workers exposure Place of use: Indoor 2.4 Contributing scenario controlling worker exposure exposure: 2.4 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC3) Product (article) characteristic Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form) Amount used, frequency and duration of use (or from service life) Duration of activity: <=8.0 h/day Technical conditions and measures to control dispersion from source towards the worker General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %) Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%] Conditions and measures related to personal protection, hygiene and health evaluation Respiratory protection: No. (Effectiveness inhalation: 0 %) Dermal protection: No. (Effectiveness dermal: 0 %) Other given operational conditions affecting workers exposure Place of use: Indoor 2.5 Contributing scenario controlling worker exposure exposure:

Page: 43 - 88 Revision: 9 - Replaces: 8



Melamine

2.5 Chemical production where opportunity for exposure arises (PROC4) Product (article) characteristic Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form) Amount used, frequency and duration of use (or from service life) Duration of activity: <=8.0 h/day Technical conditions and measures to control dispersion from source towards the worker General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %) Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%] Conditions and measures related to personal protection, hygiene and health evaluation Respiratory protection: No. (Effectiveness inhalation: 0 %) Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%] Other given operational conditions affecting workers exposure Place of use: Indoor 2.6 Contributing scenario controlling worker exposure exposure: 2.6 Mixing or blending in batch processes (PROC5) Product (article) characteristic Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form) Amount used, frequency and duration of use (or from service life) Duration of activity: <=8.0 h/day Technical conditions and measures to control dispersion from source towards the worker General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %) Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%] Conditions and measures related to personal protection, hygiene and health evaluation Respiratory protection: No. (Effectiveness inhalation: 0 %) Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%] Other given operational conditions affecting workers exposure Place of use: Indoor 2.7 Contributing scenario controlling worker exposure exposure: 2.7 Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a) Product (article) characteristic Percentage (w/w) of substance in mixture/article: <= 100 %

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

Page: 44 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

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

Duration of activity: <=8.0 h/day

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

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

Occupational Health and Safety Management System: Advanced

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

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

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

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

[Effectiveness dermal: 80%]

Other given operational conditions affecting workers exposure

Place of use: Indoor

2.8 Contributing scenario controlling worker exposure exposure:
2.8 Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC8b)

Product (article) characteristic

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

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

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

Duration of activity: <=8.0 h/day

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

 $General\ ventilation:\ Basic\ general\ ventilation\ (1\text{--}3\ air\ changes\ per\ hour)\ (Effectiveness\ inhalation:\ 0\ \%)$

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 %)

Page: 45 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

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

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%]

Page: 46 - 88 Revision: 9 - Replaces: 8



Melamine

Other given operational conditions at	fecting workers exposure	
Place of use: Indoor		
SECTION 3: 3	0 Exposure estimation	
3.1. Environment		
Contributing scenario controlling env e.g. melamine salt (reacted melamine) (rironmental exposure: Use as intermediate ERC6a)	e for the production of other substances
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		
	rker exposure: Chemical production or renequivalent containment conditions (PROC	
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.01 mg/m³	<0.01
Inhalation, Systemic effects, Acute	0.04 mg/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
	rker exposure: Chemical production or ref sses with equivalent containment condition	
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/m^3	0.024
Dermal, Systemic effects, Long Term	1.37 mg/kg bw/day	0.116
Combined routes, Systemic effects, Long Term		0.176



Melamine

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 wor (PROC4)	ker exposure: Chemical production	on 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 wor	ker 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 wor non-dedicated facilities (PROC8a)	ker exposure: Transfer of substa	nce 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/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 wor dedicated facilities (PROC8b)	ker exposure: Transfer of substance	ce 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



Melamine

Contributing scenario controlling wor filling line, including weighing) (PROC9		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/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 wor	ker exposure: Use as laboratory reagent	(PROC15)
Route of exposure and type of effects Exposure concentration Risk quantification (RCR)		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 wor	ker exposure: Manual maintenance (cle	eaning 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/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.

Page: 49 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

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

Use at industrial sites - Use as additive in foams	Exposure Scenario 5: Use at industrial sites - Use as additive in foams				
Contributing scenario controlling environmental exposure CS2 Use as additive in foams ERC5 Contributing scenario controlling worker exposure CS2 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions CS3 Chemical production or refinery in closed process with occasional controlled exposure or processes with equivalent containment conditions 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 facilities CS8 Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC8b CS9 Transfer of substance or mixture (charging and discharging) at dedicated falling line, including PROC9 Weighing) William PROC9 CS11 Hand-mixing with intimate contact and only PPE available PROC15 CS12 Manual maintenance (cleaning and repair) of machinery PROC28 SECTION 2: 2.0 Conditions of use Contributing scenario controlling environmental exposure: 2.1 Contributing scenario controlling environmental exposure: 2.1 Les as additive in foams (FRC5) Annual use amount at site: Not relevant for this material. Conditions and measures related to biological swage 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 Contributing scenario	SECTI	The Title of Exposure Section 10.			
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Percentage (w/w) of substance in mixture/article: <= 100 %	2.2	2.2 Chemical production or refinery in closed process without likelihood of exposure of			
	Produc	et (article) characteristic			
N : 16 - 64 - 1 - 1 - 6 - 1 - 1 - 6 - 1	Percent	age (w/w) of substance in	mixture/article: <= 100 %		
Physical form of the used product: Solid (medium dusty form)	Physica	al form of the used produc	t: Solid (medium dusty form)		

Page: 50 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

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

Duration of activity: <=8.0 h/day

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

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

Occupational Health and Safety Management System: Advanced

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

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

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

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

Other given operational conditions affecting workers exposure

Place of use: Indoor

2.3 Contributing scenario controlling worker exposure exposure:
 2.3 Chemical production or refinery in closed continuous process with occasional

controlled exposure or processes with equivalent containment conditions (PROC2)

Product (article) characteristic

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

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

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

Duration of activity: <=8.0 h/day

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

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

Occupational Health and Safety Management System: Advanced

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

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

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

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

Other given operational conditions affecting workers exposure

Place of use: Indoor

2.4 Contributing scenario controlling worker exposure exposure:

2.4 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC3)

Product (article) characteristic

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

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

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

Duration of activity: <=8.0 h/day

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

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

Page: 51 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

Occupational Health and Safety Management System: Advanced

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

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

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

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

Other given operational conditions affecting workers exposure

Place of use: Indoor

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

Product (article) characteristic

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

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

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

Duration of activity: <=8.0 h/day

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

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

Occupational Health and Safety Management System: Advanced

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

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

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

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

[Effectiveness dermal: 80%]

Other given operational conditions affecting workers exposure

Place of use: Indoor

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

Product (article) characteristic

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

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

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

Duration of activity: <=8.0 h/day

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

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

Occupational Health and Safety Management System: Advanced

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

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

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

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

[Effectiveness dermal: 80%]

Page: 52 - 88 Revision: 9 - Replaces: 8



Melamine

D1	
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	t: Solid (medium dusty form)
Amount used, frequency and du	uration of use (or from service life)
Duration of activity: <=8.0 h/day	
Technical conditions and measu	res to control dispersion from source towards the worker
General ventilation: Basic genera	l ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)
Occupational Health and Safety M	Management System: Advanced
Local exhaust ventilation: No [Ef	fectiveness inhalation: 0%, Dermal: 0%]
Conditions and measures relate	d to personal protection, hygiene and health evaluation
Respiratory protection: No. (Effe	ctiveness inhalation: 0 %)
Dermal protection: Yes (Chemica [Effectiveness dermal: 80%]	ally resistant gloves conforming to EN374) and (other) appropriate dermal protection
Other given operational conditi	ons 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	t: Solid (medium dusty form)
Amount used, frequency and du	uration of use (or from service life)
Duration of activity: <=8.0 h/day	
Technical conditions and measu	res to control dispersion from source towards the worker
General ventilation: Basic genera	l ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)
Occupational Health and Safety N	Management System: Advanced
Local exhaust ventilation: No [Ef	fectiveness inhalation: 0%, Dermal: 0%]
Conditions and measures relate	d to personal protection, hygiene and health evaluation
Respiratory protection: No. (Effe	ctiveness inhalation: 0 %)
Dermal protection: Yes (Chemica [Effectiveness dermal: 80%]	ally resistant gloves conforming to EN374) and (other) appropriate dermal protection
Other given operational conditi	ons 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,

Page: 53 - 88 Revision: 9 - Replaces: 8



Melamine

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 Respiratory protection: No. (Effectiveness inhalation: 0 %) Dermal protection: No. (Effectiveness dermal: 0 %) Other given operational conditions affecting workers exposure Place of use: Indoor 2.11 Contributing scenario controlling worker exposure exposure: 2.11 Hand-mixing with intimate contact and only PPE available (PROC19) Product (article) characteristic Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form) Amount used, frequency and duration of use (or from service life)

Page: 54 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

Duration of activity: <=4.0 h/day

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

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

Occupational Health and Safety Management System: Advanced

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

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

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

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

[Effectiveness dermal: 95%]

Other given operational conditions affecting workers exposure

Place of use: Indoor

2.12 Contributing scenario controlling worker exposure exposure:
2.12 Manual maintenance (cleaning and repair) of machinery (PROC28)

Product (article) characteristic

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

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

Page: 55 - 88 Revision: 9 - Replaces: 8



Long Term

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

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		
	ker exposure: Chemical production or re equivalent containment conditions (PROC	
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
	ker exposure: Chemical production or relates with equivalent containment condition	
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
	ker exposure: Manufacture or formulation osure or processes with equivalent contains	
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,		0.179

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

Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	0.243
Dermal, Systemic effects, Long Term	1.372 mg/kg bw/day	0.116

Page: 56 - 88 Revision: 9 - Replaces: 8



Melamine

Combined routes, Systemic effects, Long Term		0.719
Contributing scenario controlling wor	ker 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 wor non-dedicated facilities (PROC8a)	ker 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	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 wor dedicated facilities (PROC8b)	ker exposure: Transfer of substand	ce 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/m ³	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 wor filling line, including weighing) (PROC9		ce 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/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 wor	ker exposure: Use as laboratory rea	agent (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,		0.089

Page: 57 - 88 Revision: 9 - Replaces: 8



Melamine

Long Term			
Contributing scenar (PROC19)	rio controlling wor	ker exposure: Hand-mixing with	intimate contact and only PPE available
Route of exposure a	and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic Term	effects, Long	3 mg/m³	0.361
Inhalation, Systemic	effects, Acute	20 mg/m³	0.243
Dermal, Systemic eff	fects, Long Term	7.072 mg/kg bw/day	0.599
Combined routes, Sy Long Term	stemic effects,		0.961
Contributing scenar	rio controlling wor	ker exposure: Manual maintenan	nce (cleaning and repair) of machinery (PROC28)
Route of exposure a	and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic Term	effects, Long	5 mg/m³	0.602
Inhalation, Systemic	effects, Acute	20 mg/m³	0.243
Dermal, Systemic eff	fects, Long Term	2.742 mg/kg bw/day	0.232
Combined routes, Sy Long Term	stemic effects,		0.835
SECTION 4:	4.0 Guidance to	DU to evaluate whether he work	ks inside the boundaries set by the ES
4.1. Health	1		
Where other Risk Ma managed to at least e		s/Operational Conditions are adop	ted, then users should ensure that risks are
4.2. Environment			
necessary to define a	ppropriate site-spec		licable to all sites; thus, scaling could be scaling reveals a condition of unsafe use,

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

SECTI	ION 1:	1.0 Title of Exposure Scenario:	
	Use at industrial sites - Use as additive in intumescent coatings		gs
Contri	Contributing scenario controlling environmental exposure		
CS1	Use as additive in intum	nescent coatings	ERC5
Contri	Contributing scenario controlling worker exposure		
CS2		tion in the chemical industry in closed batch processes with sposure or processes with equivalent containment conditions	PROC3
CS3	Chemical production where opportunity for exposure arises		PROC4
CS4	Mixing or blending in batch processes		PROC5
CS5	Industrial spraying with Local Exhaust Ventilation (LEV)		PROC7
CS6	Industrial spraying with	out Local Exhaust Ventilation (LEV)	PROC7
CS7	Transfer of substance or facilities (Solid)	mixture (charging and discharging) at non-dedicated	PROC8a
CS8	Transfer of substance or	mixture (charging and discharging) at dedicated facilities	PROC8b

Page: 58 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

	1		T	
	(Solid)			
CS9	Transfer of substance or mixture into small containers (dedicated filling line, including weighing)		PROC9	
CS10	Roller application or brushing		PROC10	
CS11	Treatment of articles by dipping and pouring		PROC13	
CS12	Use as laboratory reager	nt	PROC15	
CS13	Hand-mixing with intim	ate contact and only PPE available	PROC19	
CS14	Manual maintenance (cl	eaning and repair) of machinery (Solid)	PROC28	
CS15	Transfer of substance or (Liquid)	mixture (charging and discharging) at dedicated facilities	PROC8b	
CS16	Manual maintenance (cl	eaning and repair) of machinery (Liquid)	PROC28	
CS17	Transfer of substance or (Liquid)	mixture (charging and discharging) at non-dedicated facilities	PROC8a	
SECTI	ON 2:	2.0 Conditions of use		
2.1		Contributing scenario controlling environmental exposure 2.1 Use as additive in intumescent coatings (ERC5)	: :	
Amoun	t used, frequency and du	uration of use (or from service life)		
Daily u	se amount at site: Not rele	vant for this material.		
Annual	use amount at site: Not re	levant for this material.		
Conditi	ions and measures relate	d to biological sewage treatment plant		
Biologi	cal STP: Standard [Effect	iveness water: 2.77%]		
Discharge rate of STP: >= 2E3 m3/day				
Applica	Application of the STP sludge on agricultural soil: Yes			
Other g		ons affecting environmental exposure r flow: >= 1.8E4 m3/day		
2.2	2.2 Contributing scenario controlling worker exposure exposure:			
	2.2 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC3)			
Product (article) characteristic				
Percent	age (w/w) of substance in	mixture/article: <= 100 %		
Physica	l form of the used product	t: Solid (medium dusty form)		
Amoun	t used, frequency and du	uration of use (or from service life)		
Duratio	n of activity: <=8.0 h/day			
Technic	Technical conditions and measures to control dispersion from source towards the worker			
General	General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)			
Occupa	upational Health and Safety Management System: Advanced			
Local e	Local exhaust ventilation: No. [Effectiveness inhalation: 0%, Dermal: 0%]			
Conditi	Conditions and measures related to personal protection, hygiene and health evaluation			
Respira	Respiratory protection: No. (Effectiveness inhalation: 0 %)			
Dermal	protection: No. (Effective	eness dermal: 0 %)		

Page: 59 - 88 Revision: 9 - Replaces: 8



Melamine

Place of use: Indoor	
2.3	Contributing scenario controlling worker exposure exposure:
2.3	2.3 Chemical production where opportunity for exposure arises (PROC4)
Product (article) charac	
Percentage (w/w) of subs	stance in mixture/article: <= 100 %
Physical form of the used	d product: Solid (medium dusty form)
Amount used, frequency	ey and duration of use (or from service life)
Duration of activity: <=8.	3.0 h/day
Technical conditions an	nd measures to control dispersion from source towards the worker
General ventilation: Basic	ic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)
Occupational Health and	Safety Management System: Advanced
Local exhaust ventilation	n: No [Effectiveness inhalation: 0%, Dermal: 0%]
Conditions and measure	es related to personal protection, hygiene and health evaluation
Respiratory protection: N	No. (Effectiveness inhalation: 0 %)
Dermal protection: Yes (6 [Effectiveness dermal: 80	Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection 0%]
Other given operational	l conditions affecting workers exposure
Place of use: Indoor	
Contributing scenario controlling worker exposure exposure: 2.4 Mixing or blending in batch processes (PROC5)	
Product (article) charac	cteristic
Percentage (w/w) of subs	stance in mixture/article: <= 100 %
	d product: Solid (medium dusty form)
Physical form of the used	
Physical form of the used Amount used, frequency	d product: Solid (medium dusty form) ey and duration of use (or from service life)
Physical form of the used Amount used, frequency Duration of activity: <=8.	d product: Solid (medium dusty form) ey and duration of use (or from service life)
Physical form of the used Amount used, frequency Duration of activity: <=8. Technical conditions an	d product: Solid (medium dusty form) ey and duration of use (or from service life) 3.0 h/day
Physical form of the used Amount used, frequency Duration of activity: <=8. Technical conditions an General ventilation: Basic	d product: Solid (medium dusty form) ey and duration of use (or from service life) 8.0 h/day nd measures to control dispersion from source towards the worker
Physical form of the used Amount used, frequency Duration of activity: <=8. Technical conditions an General ventilation: Basic Occupational Health and	d product: Solid (medium dusty form) Ly and duration of use (or from service life) 3.0 h/day Ind measures to control dispersion from source towards the worker Ice general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)
Physical form of the used Amount used, frequency Duration of activity: <=8. Technical conditions an General ventilation: Basic Occupational Health and Local exhaust ventilation	d product: Solid (medium dusty form) ey and duration of use (or from service life) 8.0 h/day nd measures to control dispersion from source towards the worker ic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %) I Safety Management System: Advanced
Physical form of the used Amount used, frequency Duration of activity: <=8. Technical conditions an General ventilation: Basic Occupational Health and Local exhaust ventilation Conditions and measure	d product: Solid (medium dusty form) ey and duration of use (or from service life) 8.0 h/day nd measures to control dispersion from source towards the worker ic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %) I Safety Management System: Advanced n: No [Effectiveness inhalation: 0%, Dermal: 0%]
Physical form of the used Amount used, frequency Duration of activity: <=8. Technical conditions an General ventilation: Basic Occupational Health and Local exhaust ventilation Conditions and measure Respiratory protection: N Dermal protection: Yes (6)	d product: Solid (medium dusty form) Ey and duration of use (or from service life) 8.0 h/day Ind measures to control dispersion from source towards the worker Ici general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %) I Safety Management System: Advanced II: No [Effectiveness inhalation: 0%, Dermal: 0%] The related to personal protection, hygiene and health evaluation No. (Effectiveness inhalation: 0 %) Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection
Physical form of the used Amount used, frequency Duration of activity: <=8. Technical conditions an General ventilation: Basic Occupational Health and Local exhaust ventilation Conditions and measure Respiratory protection: N Dermal protection: Yes (6) [Effectiveness dermal: 80]	d product: Solid (medium dusty form) Ey and duration of use (or from service life) 8.0 h/day Ind measures to control dispersion from source towards the worker Ici general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %) I Safety Management System: Advanced II: No [Effectiveness inhalation: 0%, Dermal: 0%] The related to personal protection, hygiene and health evaluation No. (Effectiveness inhalation: 0 %) Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection
Physical form of the used Amount used, frequency Duration of activity: <=8. Technical conditions an General ventilation: Basic Occupational Health and Local exhaust ventilation Conditions and measure Respiratory protection: N Dermal protection: Yes (6) [Effectiveness dermal: 80]	d product: Solid (medium dusty form) Ey and duration of use (or from service life) 3.0 h/day Ind measures to control dispersion from source towards the worker Ice general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %) I Safety Management System: Advanced In: No [Effectiveness inhalation: 0%, Dermal: 0%] The restriction of the restriction of the properties o

Page: 60 - 88 Revision: 9 - Replaces: 8



Melamine

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

Physical form of the used product: Liquid

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

Duration of activity: <=8.0 h/day

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

Ventilation working room: General ventilation (mechanical)

Occupational Health and Safety Management System: Advanced

Local exhaust ventilation: Yes (TRA effectiveness)[Effectiveness inhalation: 95%, Dermal: 0%]

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

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

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

[Effectiveness dermal: 80%]

Other given operational conditions affecting workers exposure

Place of use: Indoor

2.6

Operating temperature: >115 °C

-1----8----1----

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)

Page: 61 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

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

Duration of activity: <=8.0 h/day

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

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

Occupational Health and Safety Management System: Advanced

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

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

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

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

[Effectiveness dermal: 80%]

Other given operational conditions affecting workers exposure

Place of use: Indoor

2.8 Contributing scenario controlling worker exposure exposure:
2.8 Transfer of substance or mixture (charging and discharging) at dedicated facilities (Solid) (PROC8b)

Product (article) characteristic

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

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

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

Duration of activity: <=8.0 h/day

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

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

Occupational Health and Safety Management System: Advanced

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

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

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

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

[Effectiveness dermal: 80%]

Other given operational conditions affecting workers exposure

Place of use: Indoor

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 %)

Page: 62 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

Occupational Health and Safety Management System: Advanced

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

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

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

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

[Effectiveness dermal: 80%]

Other given operational conditions affecting workers exposure

Place of use: Indoor

2.10 Contributing scenario controlling worker exposure exposure:

2.10 Roller application or brushing (PROC10)

Product (article) characteristic

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

Physical form of the used product: Liquid

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

Duration of activity: <=8.0 h/day

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

Ventilation working room: General ventilation (mechanical)

Occupational Health and Safety Management System: Advanced

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

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

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

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

[Effectiveness dermal: 80%]

Other given operational conditions affecting workers exposure

Place of use: Indoor

Operating temperature: >115 °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 %)

Page: 63 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

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

[Effectiveness dermal: 80%]

Other given operational conditions affecting workers exposure

Place of use: Indoor

2.12 Contributing scenario controlling worker exposure exposure:

2.12 Use as laboratory reagent (PROC15)

Product (article) characteristic

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

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

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

Duration of activity: <=8.0 h/day

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

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

Occupational Health and Safety Management System: Advanced

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

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

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

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

Other given operational conditions affecting workers exposure

Place of use: Indoor

2.13 Contributing scenario controlling worker exposure exposure:

2.13 Hand-mixing with intimate contact and only PPE available (PROC19)

Product (article) characteristic

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

Physical form of the used product: Liquid

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

Duration of activity: <=8.0 h/day

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

Ventilation working room: General ventilation (mechanical)

Occupational Health and Safety Management System: Advanced

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

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

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

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

[Effectiveness dermal: 95%]

Other given operational conditions affecting workers exposure

Place of use: Indoor

Operating temperature: >115 °C

2.14 Contributing scenario controlling worker exposure exposure:

Page: 64 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

2.14 Manual maintenance (cleaning and repair) of machinery (Solid) (PROC28)

Product (article) characteristic

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

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

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

Duration of activity: <=8.0 h/day

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

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

Occupational Health and Safety Management System: Advanced

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

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

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

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

[Effectiveness dermal: 80%]

Other given operational conditions affecting workers exposure

Place of use: Indoor

2.15 Contributing scenario controlling worker exposure exposure:
2.15 Transfer of substance or mixture (charging and discharging) at dedicated facilities (Liquid) (PROC8b)

Product (article) characteristic

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

Physical form of the used product: Liquid

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

Duration of activity: <=8.0 h/day

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

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

Occupational Health and Safety Management System: Advanced

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

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

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

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

[Effectiveness dermal: 80%]

Other given operational conditions affecting workers exposure

Place of use: Indoor

Operating temperature: >115 °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 %

Page: 65 - 88 Revision: 9 - Replaces: 8

SAFETY DATA SHEET

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

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

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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

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

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

Page: 66 - 88 Revision: 9 - Replaces: 8



Melamine

	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		
	ker exposure: Manufacture or formulation ded exposure or processes with equivalent continuous continuous description.	
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
<u> </u>		
Contributing scenario controlling work	ker exposure: Chemical production where	e opportunity for exposure arises
Contributing scenario controlling work (PROC4)	ker exposure: Chemical production where Exposure concentration	Risk quantification (RCR)
Contributing scenario controlling work (PROC4) Route of exposure and type of effects Inhalation, Systemic effects, Long		· · ·
Contributing scenario controlling work (PROC4) Route of exposure and type of effects Inhalation, Systemic effects, Long Term	Exposure concentration	Risk quantification (RCR)
Contributing scenario controlling work (PROC4) Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute	Exposure concentration 5 mg/m ³	Risk quantification (RCR) 0.602
-	Exposure concentration 5 mg/m³ 20 mg/m³	Risk quantification (RCR) 0.602 0.243
Contributing scenario controlling work (PROC4) Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute Dermal, Systemic effects, Long Term Combined routes, Systemic effects, Long Term	Exposure concentration 5 mg/m³ 20 mg/m³	Risk quantification (RCR) 0.602 0.243 0.116 0.719
Contributing scenario controlling work (PROC4) Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute Dermal, Systemic effects, Long Term Combined routes, Systemic effects, Long Term	Exposure concentration 5 mg/m³ 20 mg/m³ 1.372 mg/kg bw/day	Risk quantification (RCR) 0.602 0.243 0.116 0.719
Contributing scenario controlling work (PROC4) Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute Dermal, Systemic effects, Long Term Combined routes, Systemic effects, Long Term Contributing scenario controlling wor	Exposure concentration 5 mg/m³ 20 mg/m³ 1.372 mg/kg bw/day ker exposure: Mixing or blending in batch	Risk quantification (RCR) 0.602 0.243 0.116 0.719 h processes (PROC5)
Contributing scenario controlling work (PROC4) Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute Dermal, Systemic effects, Long Term Combined routes, Systemic effects, Long Term Contributing scenario controlling work Route of exposure and type of effects Inhalation, Systemic effects, Long	Exposure concentration 5 mg/m³ 20 mg/m³ 1.372 mg/kg bw/day ker exposure: Mixing or blending in batc Exposure concentration	Risk quantification (RCR) 0.602 0.243 0.116 0.719 h processes (PROC5) Risk quantification (RCR)
Contributing scenario controlling work (PROC4) Route of exposure and type of effects Inhalation, Systemic effects, Long Term Inhalation, Systemic effects, Acute Dermal, Systemic effects, Long Term Combined routes, Systemic effects, Long Term Contributing scenario controlling work Route of exposure and type of effects Inhalation, Systemic effects, Long Term	Exposure concentration 5 mg/m³ 20 mg/m³ 1.372 mg/kg bw/day ker exposure: Mixing or blending in bate: Exposure concentration 5 mg/m³	Risk quantification (RCR) 0.602 0.243 0.116 0.719 h processes (PROC5) Risk quantification (RCR) 0.602



Melamine

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/m ³	<0.01
Dermal, Systemic effects, Long Term	8.572 mg/kg bw/day	0.726
Combined routes, Systemic effects, Long Term		0.775
Contributing scenario controlling wor (PROC7)	ker exposure: Industrial spraying v	without Local Exhaust Ventilation (LEV)
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/m ³	<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 wor dedicated facilities (Solid) (PROC8a)	ker exposure: Transfer of substance	ee or mixture (charging and discharging) at non
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 wor dedicated facilities (Solid) (PROC8b)	ker 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	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 wor filling line, including weighing) (PROC9		e 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/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
Long Term Contributing scenario controlling wor	ker exposure: Roller application or	r brushing (PROC10)

Page: 68 - 88 Revision: 9 - Replaces: 8



Melamine

Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	3.59 mg/m ³	0.433
Inhalation, Systemic effects, Acute	3.59 mg/m ³	0.044
Dermal, Systemic effects, Long Term	5.486 mg/kg bw/day	0.465
Combined routes, Systemic effects, Long Term		0.897
Contributing scenario controlling wor	ker exposure: Treatment of articles	s 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 wor	ker exposure: Use as laboratory re	eagent (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 wor (PROC19)	ker exposure: Hand-mixing with i	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 wor (PROC28)	ker exposure: Manual maintenanc	te (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/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 wor dedicated facilities (Liquid) (PROC8b)	ker exposure: Transfer of substance	ce or mixture (charging and discharging) at
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)



Melamine

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 worker exposure: Manual maintenance (cleaning and repair) of machinery (Liquid) (PROC28)

Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.525 mg/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

Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (Liquid) (PROC8a)

Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.525 mg/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

SECTION 4:	4.0 Guidance to DU to evaluate whether he works inside 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 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 coati		

Page: 70 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

Contri	buting scenario controlli	ng environmental exposure			
CS1	Use as additive in intum	escent coatings	ERC8c, ERC8f		
Contri	buting scenario controlli	ng worker exposure			
CS2	Mixing or blending in batch processes PROC5		PROC5		
CS3	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities		PROC8a		
CS4	Transfer of substance or mixture (charging and discharging) at dedicated facilities		PROC8b		
CS5	Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC9				
CS6	Roller application or brushing PROC10				
CS7	Non industrial spraying		PROC11		
CS8	Treatment of articles by	dipping and pouring	PROC13		
CS9	Manual maintenance (cl	eaning and repair) of machinery	PROC28		
SECTI	ON 2:	2.0 Conditions of use			
2.1			:		
Amour	nt used, frequency and du	rration of use (or from service life)			
Daily lo	ocal widespread use amour	nt: Not relevant for this material.			
Condit	ions and measures relate	d to biological sewage treatment plant			
Biologi	cal STP: Standard [Effecti	veness water: 2.77%]			
Dischar	rge rate of STP: >= 2E3 m	3/day			
Applica	ation of the STP sludge on	agricultural soil: Yes			
Other s		ons affecting environmental exposure r flow: >= 1.8E4 m3/day			
2.2		Contributing scenario controlling worker exposure exposure 2.2 Mixing or blending in batch processes (PROC5)	ire:		
Produc	et (article) characteristic				
Percentage (w/w) of substance in mixture/article: <= 30 %					
Physica	al form of the used product	: Liquid			
Amour	nt used, frequency and du	rration 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					
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Page: 71 - 88 Revision: 9 - Replaces: 8

Place of use: Indoor

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

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

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

[Effectiveness definal, 6070]

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: \leq 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

Page: 72 - 88 Revision: 9 - Replaces: 8



Melamine

2.5	Contributing scenario controlling worker exposure exposure:	
	2.5 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: <= 30 %	
Physical form of the used product	: Liquid	
Amount used, frequency and du	rration of use (or from service life)	
Duration of activity: <=8.0 h/day		
Technical conditions and measu	res to control dispersion from source towards the worker	
General ventilation: Basic general	l ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %)	
Occupational Health and Safety N	Management System: Basic	
Local exhaust ventilation: No [Ef	fectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures relate	d to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Effective	ctiveness inhalation: 0 %)	
Dermal protection: No. (Effective	ness dermal: 0 %)	
Other given operational conditi	ons 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 du	rration of use (or from service life)	
Duration of activity: <=8.0 h/day		
Technical conditions and measu	res to control dispersion from source towards the worker	
Ventilation working room: Gener	al ventilation (mechanical)	
Occupational Health and Safety N	Management System: Basic	
Local exhaust ventilation: No [Ef	fectiveness inhalation: 0%, Dermal: 0%]	
Conditions and measures relate	d to personal protection, hygiene and health evaluation	
Respiratory protection: No. (Effective	ctiveness inhalation: 0 %)	
Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness dermal: 80%]		
Other given operational conditi	ons 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		

Page: 73 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

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: 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)

Page: 74 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

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

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,		0.296

Page: 75 - 88 Revision: 9 - Replaces: 8



Melamine

Long Term		
Contributing scenario controlling wor dedicated facilities (PROC8a)	ker exposure: Transfer of substance	ce or mixture (charging and discharging) at nor
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 wor dedicated facilities (PROC8b)	ker 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	0.525 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
Contributing scenario controlling wor filling line, including weighing) (PROC9		e or 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/m ³	0.063
Inhalation, Systemic effects, Acute	0.525 mg/m ³	<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 wor	ker exposure: Roller application or	r brushing (PROC10)
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	3.61 mg/m ³	0.435
Inhalation, Systemic effects, Acute	3.61 mg/m ³	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 wor	ker exposure: Non industrial spray	ving (PROC11)
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.398 mg/m³	0.048
Inhalation, Systemic effects, Acute	0.398 mg/m³	<0.01
Dermal, Systemic effects, Long Term	10.71 mg/kg bw/day	0.908
Combined routes, Systemic effects,		0.956



Melamine

Contributing scenario controlling worker exposure: Treatment of articles by dipping and pouring (PROC13)			
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)	
Inhalation, Systemic effects, Long Term	0.525 mg/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 worker exposure: Manual maintenance (cleaning and repair) of machinery (PROC28)			
Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)	
Inhalation, Systemic effects, Long Term	0.525 mg/m ³	0.063	
Inhalation, Systemic effects, Acute	0.525 mg/m³	<0.01	

Long Term	
SECTION 4:	

Dermal, Systemic effects, Long Term

Combined routes, Systemic effects,

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

0.232

0.296

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.

2.743 mg/kg bw/day

4.2. Environment

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

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

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

Page: 77 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

Application of the STP sludge on agricultural soil: Yes

Other given operational conditions affecting environmental exposure

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

2.2 Contributing scenario controlling worker exposure exposure:

2.2 Low energy manipulation of substances bound in materials and/or articles (PROC21)

Product (article) characteristic

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

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

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

Duration of activity: <=8.0 h/day

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

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

Occupational Health and Safety Management System: Advanced

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

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

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

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

Other given operational conditions affecting workers exposure

Place of use: Indoor

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

Product (article) characteristic

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

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

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

Duration of activity: <=8.0 h/day

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

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

Occupational Health and Safety Management System: Advanced

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

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

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

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

Other given operational conditions affecting workers exposure

Place of use: Indoor

SECTION 3: 3.0 Exposure estimation

3.1. Environment

Page: 78 - 88 Revision: 9 - Replaces: 8



Melamine

Contributing scenario controlling environmental exposure: PU foams - Workers (industrial) (ERC12a)			
Release	Release estimation method	Explanations	
Water	Estimated release rate	Local release rate: 0 kg/day	
Air	Estimated release rate	Local release rate: 0 kg/day	
Non-Agricultural Soil	Estimated release factor	Release factor after on site RMM: 0%	
Protection target	Exposure concentration	Risk quantification (RCR)	
Fresh water	Local PEC: 5.0E-3 mg/l	0.01	
Sedimentation (Fresh water)	Local PEC: 0.128 mg/kg dw	0.01	
Marine water	Local PEC: 3.87E-4 mg/l	0.01	
Sedimentation (Marine water)	Local PEC: 9.9E-3 mg/kg dw	0.01	
Sewage Treatment Plant	Local PEC: 0 mg/l	<0.01	
Agricultural soil	Local PEC: 2.26E-11 mg/kg dw	<0.01	
Man via Environment - Inhalation (Systemic effects)	Concentration in air: 1.3E-21 mg/m³	<0.01	
Man via Environment - Oral	Exposure via food consumption: 1.74E-4 mg/kg bw/day	<0.01	
Man via Environment - Combined routes		<0.01	
3.2. Workers			

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

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

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

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

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

4.1. Health

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

4.2. Environment

Page: 79 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

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.

Exposu	ire Scenario 9: Service lit	fe (worker at industrial site) - Intumescent coatings - Work	ers (industrial)
SECTI	N 1: 1.0 Title of Exposure Scenario:		
	Service life (worker at industrial site) - Intumescent coatings - Workers (industrial)		
Contri	buting scenario controlli	ng environmental exposure	
CS1	Intumescent coatings - V	Workers (industrial)	ERC12a
Contri	buting scenario controlli	ng worker exposure	-
CS2	Low energy manipulation	on of substances bound in materials and/or articles	PROC21
CS3	High (mechanical) energ	gy 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)	re:
Amour	nt used, frequency and du	rration of use (or from service life)	
Daily u	se amount at site: Not rele	vant for this material.	
Annual	use amount at site: Not re	levant for this material.	
Condit	ions and measures relate	d to biological sewage treatment plant	
Biologi	cal STP: Standard [Effect	iveness water: 2.77%	
Dischar	rge rate of STP: >= 2E3 m	3/day	
Applica	ation of the STP sludge on	agricultural soil: Yes	
Other		ons affecting environmental exposure r flow: >= 1.8E4 m3/day	
2.2			
Produc	et (article) characteristic		<u> </u>
Percent	rage (w/w) of substance in	mixture/article: <= 100 %	
Physica	al form of the used product	t: Solid (medium dusty form)	
Amour	nt used, frequency and du	uration of use (or from service life)	
Duratio	on of activity: <=8.0 h/day		
Technical conditions and measures to control dispersion from source towards the worker			
Genera	l ventilation: Basic genera	l ventilation (1-3 air changes per hour) (Effectiveness inhalation	on: 0 %)
Occupa	tional Health and Safety N	Management System: Advanced	

Page: 80 - 88 Revision: 9 - Replaces: 8



Man via Environment - Inhalation

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%] Conditions and measures related to personal protection, hygiene and health evaluation Respiratory protection: No. (Effectiveness inhalation: 0 %) Dermal protection: No. (Effectiveness dermal: 0 %) Other given operational conditions affecting workers exposure Place of use: Indoor 2.3 Contributing scenario controlling worker exposure exposure: 2.3 High (mechanical) energy work-up of substances bound in materials and/or articles (PROC24) Product (article) characteristic Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form) Amount used, frequency and duration of use (or from service life) Duration of activity: <=8.0 h/day Technical conditions and measures to control dispersion from source towards the worker General ventilation: Basic general ventilation (1-3 air changes per hour) (Effectiveness inhalation: 0 %) Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness inhalation: 0%, Dermal: 0%] Conditions and measures related to personal protection, hygiene and health evaluation Respiratory protection: No. (Effectiveness inhalation: 0 %) Dermal protection: No. (Effectiveness dermal: 0 %) Other given operational conditions affecting workers exposure Place of use: Indoor **SECTION 3:** 3.0 Exposure estimation 3.1. Environment Contributing scenario controlling environmental exposure: Intumescent coatings - Workers (industrial) (ERC12a) Release Release estimation method **Explanations** Water Estimated release rate Local release rate: 0 kg/day Estimated release rate Local release rate: 0 kg/day Air 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 0.01 Local PEC: 0.012 mg/kg dw Sedimentation (Marine water) Sewage Treatment Plant Local PEC: 0 mg/l < 0.01 Agricultural soil Local PEC: 2.82E-11 mg/kg dw < 0.01

Concentration in air: 1.3E-21 mg/m3

Page: 81 - 88 Revision: 9 - Replaces: 8

< 0.01



Melamine

(Systemic effects)		
Man via Environment - Oral	Exposure via food consumption: 1.74E-4 mg/kg bw/day	<0.01
Man via Environment - Combined routes		<0.01

3.2. Workers

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

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

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

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

SECTION 4:	4.0 Guidance to DU to evaluate whether he works inside the boundaries set by the ES
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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 10: Service life (professional worker) - Intumescent coatings - Professional Workers

SECTION 1:	1.0 Title of Exposure Scenario:
	Service life (professional worker) - Intumescent coatings - Professional Workers
Contributing scenario controlling environmental exposure	

Page: 82 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

CS1	Intumescent coatings - Pr	Professional Workers ERC10a, ERC11a		
Contrib	outing scenario controllin	g worker exposure		
CS2 Low energy manipulation of substances bound in materials and/or articles PROC21				
SECTION 2: 2.0 Conditions of use				
2.1 Contributing scenario controlling environmental exposure:			ntal exposure:	
		2.1 Intumescent coatings - Professional Workers	s (ERC10a, ERC11a)	
		ration of use (or from service life)		
		: Not relevant for this material.		
Conditi	ions and measures related	to biological sewage treatment plant		
Biologi	cal STP: Standard [Effective	eness water: 2.77%]		
Dischar	ge rate of STP: >= 2E3 m3	/day		
Applica	tion of the STP sludge on a	gricultural soil: Yes		
Other g		ns affecting environmental exposure		
•	Receiving surface water	<u> </u>		
2.2		Contributing scenario controlling worker exp 2.2 Low energy manipulation of substances bou	•	
Produc	t (article) characteristic	2.2 Do westerly manipulation of substances oca		
		1000		
Percenta	age (w/w) of substance in r	nixture/article: <= 100 %		
Physica	l form of the used product:	Solid (medium dusty form)		
Amoun	t used, frequency and du	ration of use (or from service life)		
	n of activity: <=8.0 h/day			
		es to control dispersion from source towards		
General	ventilation: Basic general	ventilation (1-3 air changes per hour) (Effective	ness inhalation: 0 %)	
Occupa	tional Health and Safety M	anagement System: Basic		
Local ex	xhaust ventilation: No [Effe	ectiveness inhalation: 0%, Dermal: 0%]		
Conditi	ions and measures related	to personal protection, hygiene and health ev	valuation	
Respira	tory protection: No. (Effect	iveness inhalation: 0 %)		
Dermal	protection: No. (Effectiver	ess dermal: 0 %)		
Other g	given operational conditio	ns affecting workers exposure		
Place of	f use: Indoor			
SECTION	ON 3:	3.0 Exposure estimation		
	vironment	3.0 Exposure estimation		
	outing scenario controllin	g environmental exposure: Intumescent coating	gs - Professional Workers (ERC10a,	
		Explanations		
Water		Estimated release rate	Local release rate: 0 kg/day	
Air		Estimated release rate	Local release rate: 0 kg/day	
	gricultural Soil	Estimated release factor	Release factor after on site RMM: 0%	
1 i otect	ion target	Exposure concentration	Risk quantification (RCR)	

Page: 83 - 88 Revision: 9 - Replaces: 8



Melamine

Local PEC: 5.0E-3 mg/l	0.01
Local PEC: 0.128 mg/kg dw	0.01
Local PEC: 4.82E-4 mg/l	0.01
Local PEC: 0.012 mg/kg dw	0.01
Local PEC: 0 mg/l	<0.01
Local PEC: 2.82E-11 mg/kg dw	<0.01
Concentration in air: 1.3E-21 mg/m³	<0.01
Exposure via food consumption: 1.74E-4 mg/kg bw/day	<0.01
	<0.01
	Local PEC: 0.128 mg/kg dw Local PEC: 4.82E-4 mg/l Local PEC: 0.012 mg/kg dw Local PEC: 0 mg/l Local PEC: 2.82E-11 mg/kg dw Concentration in air: 1.3E-21 mg/m³ Exposure via food consumption:

3.2. Workers

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

Route of exposure and type of effects	Exposure concentration	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/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

SECTI	ION 1:	1.0 Title of Exposure Scenario:	
Service life (consumers) - PU foams – Consumers			
Contri	Contributing scenario controlling environmental exposure		
CS1	PU foams – Consumers ERC10a, ERC11a		
Contributing scenario controlling worker exposure			
CS2	CS2 Use of articles containing foam with the substance embedded in a matrix (encapsulated) AC13		
SECTI	SECTION 2: 2.0 Conditions of use		
2.1	2.1 Contributing scenario controlling environmental exposure:		2:

Page: 84 - 88 Revision: 9 - Replaces: 8



Melamine

2.1 PU foams – Consumers (ERC10a, ERC11a) Amount used, frequency and duration of use (or from service life) Daily local widespread use amount: Not relevant for this material. Conditions and measures related to biological sewage treatment plant Biological STP: Standard [Effectiveness water: 2.77%] Discharge rate of STP: >= 2E3 m3/day Application of the STP sludge on agricultural soil: Yes Other given operational conditions affecting environmental exposure Receiving surface water flow: >= 1.8E4 m3/day 2.2 Contributing scenario controlling worker exposure exposure: 2.2 Use of articles containing foam with the substance embedded in a matrix (encapsulated) (AC13) Product (article) characteristic Percentage (w/w) of substance in mixture/article: <= 30 % (embedded in the foam, contained in the article) Exposure via inhalation route: Inhalation exposure is considered to be not relevant Exposure via oral route: Oral exposure is considered to be not relevant **SECTION 3:** 3.0 Exposure estimation 3.1. Environment Contributing scenario controlling environmental exposure: PU foams – Consumers (ERC10a, ERC11a) Release Release estimation method **Explanations** Water Local release rate: 0 kg/day Estimated release rate 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 0.01 Sedimentation (Fresh water) Local PEC: 0.128 mg/kg dw Local PEC: 4.82E-4 mg/l 0.01 Marine water 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 Concentration in air: 1.3E-21 mg/m³ < 0.01 (Systemic effects) Man via Environment - Oral Exposure via food consumption: < 0.01 1.74E-4 mg/kg bw/day Man via Environment - Combined < 0.01 routes 3.2. Workers Contributing scenario controlling worker exposure: Use of articles containing foam with the substance embedded in a matrix (encapsulated) (AC13) Risk quantification (RCR) Route of exposure and type of effects **Exposure concentration**

Page: 85 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

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)	0.035
	0.06375 mg/kg bw/day for an adult, when using additional sheets for mattress protection and comfort (Migration study)	0.015
	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)	
Oral, Systemic effects, Long Term	Negligible (Migration study)	<0.01
Combined routes, Systemic effects, Long Term		0.035 (for a baby) 0.015 (for an adult)

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

4.1. Health

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

4.2. Environment

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

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

SECTION 1:		1.0 Title of Exposure Scenario:	
		Service life (consumers) - Intumescent coating – Consumers	
Contri	Contributing scenario controlling environmental exposure		
CS1	Intumescent coating – C	Consumers	ERC10a, ERC11a
Contri	buting scenario controlli	ng worker exposure	
CS2 Use of articles with intumescent coating with the substance embedded in a matrix (encapsulated)		AC13	
SECTI	SECTION 2: 2.0 Conditions of use		
2.1		Contributing scenario controlling environmental exposure: 2.1 Intumescent coating – Consumers (ERC10a, ERC11a)	
Amount used, frequency and duration of use (or from service life)			
Daily local widespread use amount: Not relevant for this material.			
Conditions and measures related to biological sewage treatment plant			
Biological STP: Standard [Effectiveness water: 2.77%]			
Discharge rate of STP: >= 2E3 m3/day			
Applica	Application of the STP sludge on agricultural soil: Yes		

Page: 86 - 88 Revision: 9 - Replaces: 8

Date of Issue: 03-01-2024 Date of Revision: 03-01-2024

Melamine

Other given operational condition • Receiving surface wat		fecting environmental exposure >= 1.8E4 m3/day		
2.2	Cont 2.2 U	Contributing scenario controlling worker exposure exposure: 2.2 Use of articles with intumescent coating with the substance embedded in a matrix encapsulated) (AC13)		
Product (article) characteristic	:			
Percentage (w/w) of substance in	n mixtur	re/article: <= 30 % (embedded in a solid n	natrix)	
Exposure via inhalation route: Ir	halation	n exposure is considered to be not relevan	t	
Exposure via dermal route: Derr	nal expo	osure is considered to be not relevant		
Exposure via oral route: Oral ex	posure i	s considered to be not relevant		
SECTION 3:	3.	0 Exposure estimation		
3.1. Environment				
Contributing scenario controll	ing env	ironmental exposure: Intumescent coatin	ng – 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 - Inhalatio (Systemic effects)	on	Concentration in air: 1.3E-21 mg/m ³	<0.01	
Man via Environment - Oral		Exposure via food consumption: 1.74E-4 mg/kg bw/day	<0.01	
Man via Environment - Combineroutes	ed		<0.01	
3.2. Workers				
Contributing scenario controll embedded in a matrix (encapsula		rker exposure: Use of articles with intun C13)	nescent coating with the substance	
Route of exposure and type of	effects	Exposure concentration	Risk quantification (RCR)	
Inhalation, Systemic effects, Long Term		0 mg/m³	<0.01	
Dermal, Systemic effects, Long	Term	0 mg/kg bw/day	<0.01	
Oral, Systemic effects, Long Ter	m	0 mg/kg bw/day	<0.01	
Combined routes, Systemic effections Term	ets,		<0.01	
SECTION 4: 4 0 Guid	ance to	DU to evaluate whether he works insid	e the boundaries set by the ES	

Page: 87 - 88 Revision: 9 - Replaces: 8



Melamine

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.

Page: 88 - 88 Revision: 9 - Replaces: 8