

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

1.1 Product identifier

Trade name : Niacinamide PC
REACH Registration Number : 01-2119968268-22
Substance name : 3-Pyridinecarboxamide
CAS-No. : 98-92-0

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

Use of the Sub-stance/Mixture : Ingredient for personal care products

1.3 Details of the supplier of the safety data sheet

Company : DSM Nutritional Products Ltd.
PO Box 2676
CH-4002 Basel
Telephone : +41618158888
E-mail address of person responsible for the SDS : sds.nutritionalproducts@dsm.com

1.4 Emergency telephone number

+41 848 00 11 77 (Carechem 24 International)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Eye irritation, Category 2 H319: Causes serious eye irritation.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Warning

Hazard statements : H319 Causes serious eye irritation.

Precautionary statements : **Prevention:**
P264 Wash skin thoroughly after handling.
P280 Wear eye protection/ face protection.
Response:
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 If eye irritation persists: Get medical advice/ attention.

2.3 Other hazards

Risk of dust explosion.

SECTION 3: Composition/information on ingredients

Synonyms : nicotinic acid amide
Vitamin PP

Brief description of the product : Substance
Molecular formula : C₆ H₆ N₂ O

3.1 Substances

Hazardous components

Chemical name	CAS-No. EC-No.	Concentration (% w/w)
nicotinamide	98-92-0 202-713-4	>= 90 - <= 100

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.

If inhaled : Move to fresh air.
Consult a physician after significant exposure.

In case of skin contact : Take off contaminated clothing and shoes immediately.
Wash off with soap and plenty of water.
If symptoms persist, call a physician.

In case of eye contact : Immediately flush eye(s) with plenty of water.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Clean mouth with water and drink afterwards plenty of water.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
Obtain medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : No specific symptoms known.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Water
Foam

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire- : None known.

fighting

5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

Further information : Consider dust explosion hazard.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment.
Ensure adequate ventilation.
Avoid dust formation.
Avoid breathing dust.

6.2 Environmental precautions

Try to prevent the material from entering drains or water courses.

6.3 Methods and material for containment and cleaning up

Pick up and arrange disposal without creating dust.

6.4 Reference to other sections

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

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.

Advice on protection against fire and explosion : Avoid dust formation. Provide appropriate exhaust ventilation at places where dust is formed. Take precautionary measures against static discharges.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of work-day.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : No special storage conditions required.
Keep container tightly closed and dry.

7.3 Specific end use(s)

Specific use(s) : Not applicable

SECTION 8: Exposure controls/personal protection

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Revision Date 06.06.2018

Print Date 19.06.2019

8.1 Control parameters

Contains no substances with occupational exposure limit values.

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
Niacinamide PC	Industrial use	Inhalation	Long-term systemic effects	43.75 mg/m ³
	Professional use	Inhalation	Long-term systemic effects	21.88 mg/m ³
	Workers	Skin contact	Long-term systemic effects	12.5 mg/kg bw/d
	Professional use	Ingestion	Long-term systemic effects	12.5 mg/kg bw/d

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
Niacinamide PC	Fresh water	1 mg/l
	Marine water	0.1 mg/l
	Fresh water sediment	1.1 mg/l
	Marine sediment	0.11 mg/l
	Sewage treatment plant	423.5 mg/l
	Soil	0.33 mg/l

8.2 Exposure controls**Personal protective equipment**

Eye protection : Safety glasses with side-shields

Hand protection : Consider the hazard characteristics of this product and any special workplace conditions when selecting the appropriate type of protective gloves.
Glove material: for example nitrile rubber

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection : In the case of dust or aerosol formation use respirator with an approved filter.

SECTION 9: Physical and chemical properties**9.1 Information on basic physical and chemical properties**

Appearance : Crystalline powder
Colour : white
Odour : odourless
Odour Threshold : No information available.
pH : 6.0 - 7.5
(as aqueous solution)

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Melting point/range	: 128 - 131 °C
Boiling point/boiling range	: 224 °C (20 hPa)
Flash point	: 182 °C
Flammability (solid, gas)	: not highly flammable (Method: Flammability (solids)) May form combustible dust concentrations in air.
Vapour pressure	: 0.00045 hPa (25 °C; OECD Test Guideline 104)
Relative vapour density	: Not applicable
Density	: 1.4 g/cm ³ (25 °C)
Water solubility	: 500 g/l (25 °C)
Solubility in other solvents	: Ethanol: 660 g/l Diethylether: ca.10 g/l Glycerol: soluble
Partition coefficient: n-octanol/water	: log Pow -0.38 (20 °C; OECD Test Guideline 107)
Auto-ignition temperature	: No self ignition observed in the Grewer oven at temperatures below melting point.
Thermal decomposition	: Not relevant
Explosive properties	: Not explosive
Oxidizing properties	: No data available

9.2 Other information

Combustibility index for deposited dust	: 2 (23 °C) : 2 (100 °C)
Dust explosion class	: St(H)2 (Milled sample, Median value of the tested sample 0.041 mm, Loss on drying 0.5 %; The value was determined in the modified Hartmann tube.)
Minimum ignition energy	: 3 - 10 mJ (Milled sample, Median value of the tested sample 0.041 mm, Loss on drying 0.5 %, EN 13821) The Minimum ignition energy (MIE) of a dust/air mix depends on the particle size the water content and the temperature of the dust. The finer and the dryer the dust the lower the MIE. : General remark: The indicated dust explosion characteristics are only valid for this product and are sensitive to the sample's parameters.
Powder volume resistivity	: ca. 5E+09 Ohmm (Product sample, Median value of the tested sample 0.170 mm, Loss on drying 0.2 %)
Minimum ignition temperature of a dust/air mix	: 480 °C (Median value of the tested sample 0.170 mm) determined in the BAM oven
Molecular weight	: 122.13 g/mol
Particle size	: <= 10 % < 0.050 mm
Dissociation constant	: pKa 3.35

Impact sensitivity : Not impact sensitive.

SECTION 10: Stability and reactivity

10.1 Reactivity

No hazards to be specially mentioned.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Dust may form explosive mixture in air.

10.4 Conditions to avoid

Heat

10.5 Incompatible materials

Acids and bases
Strong oxidizing agents

10.6 Hazardous decomposition products

Nitrogen oxides (NO_x)
Carbon oxides

SECTION 11: Toxicological information

11.1 Information on toxicological effects

- Acute oral toxicity : LD50 (Rat, male and female): > 2,500 mg/kg
(OECD Test Guideline 423)
: LD50 (Mouse): 2,500 mg/kg
- Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg
(OECD Test Guideline 402)
- Skin irritation : No skin irritation (Rabbit, OECD Test Guideline 404)
: May cause skin irritation in susceptible persons.
- Eye irritation : Moderate eye irritation (Rabbit, OECD Test Guideline 405)
: Irritating to eyes.
- Sensitisation : Did not cause sensitization. (Guinea pig, Buehler Test, OECD Test Guideline 406)
- Genotoxicity in vitro : not mutagenic (Ames test, OECD Test Guideline 471)
: not genotoxic (Chromosome aberration test in vitro, OECD Test Guideline 473)

Genotoxicity in vivo	: not genotoxic (In vivo micronucleus test, Mouse, OECD Test Guideline 474)
Carcinogenicity	: (Mouse) Did not show carcinogenic effects in animal experiments.
Reproductive toxicity	: No indication for adverse effects on fertility known.
Teratogenicity	: not teratogenic (Rabbit, Oral, OECD Test Guideline 414)
STOT - single exposure (Acute exposure)	: The substance or mixture is not classified as specific target organ toxicant, single exposure.
STOT - repeated exposure	: NOAEL (Oral, Rat, 28 d) : 215 mg/kg bw/d Subacute toxicity study (28 days) (OECD Test Guideline 407)
Experience with human exposure	: RDA (Recommended Daily Allowance) 15 - 18 mg
Further information	: May cause irritation of respiratory tract.
Aspiration toxicity	: No aspiration toxicity classification

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	: <i>Poecilia reticulata</i> (guppy) LC50 (96 h) > 1,000 mg/l (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	: <i>Daphnia magna</i> (Water flea) EC50 (24 h) > 1,000 mg/l (OECD Test Guideline 202)
Toxicity to algae	: <i>Desmodesmus subspicatus</i> (green algae) IC50 (72 h) > 1,000 mg/l (OECD Test Guideline 201)
Toxicity to bacteria	: <i>Pseudomonas putida</i> EC10 (18 h) 4,235 mg/l

12.2 Persistence and degradability

Biodegradability	: Readily biodegradable. 95 % (28 d) (OECD Test Guideline 301E)
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12.3 Bioaccumulative potential

Bioaccumulation : No data available

Partition coefficient: n-octanol/water : log Pow -0.38 (20 °C ; OECD Test Guideline 107)

12.4 Mobility in soil

Distribution among environmental compartments : No data available

12.5 Results of PBT and vPvB assessment

Assessment : The substance does not fulfill the PBT criteria.
: The substance does not fulfill the vPvB criteria.

12.6 Other adverse effects

Additional ecological information : There is no data available for this product.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Do not contaminate ponds, waterways or ditches with chemical or used container.
Do not dispose of waste into sewer.
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging : Dispose of as unused product.
Do not re-use empty containers.

SECTION 14: Transport information

14.1 UN number

Not regulated as a dangerous good

14.2 UN proper shipping name

Not regulated as a dangerous good

14.3 Transport hazard class(es)

Not regulated as a dangerous good

14.4 Packing group

Not regulated as a dangerous good

14.5 Environmental hazards

Not regulated as a dangerous good

14.6 Special precautions for user

Remarks : Not classified as dangerous in the meaning of transport regulations.

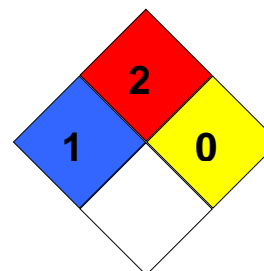
14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

NFPA Classification : Health hazard: 1
Fire Hazard: 2
Reactivity Hazard: 0



15.2 Chemical safety assessment

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

SECTION 16: Other information

Full text of other abbreviations

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

Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

GB / EN

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



Niacinamide PC

5016013

Version 2.0

Revision Date 06.06.2018

Print Date 19.06.2019

Annex

	Title of Exposure Scenario
ES 1:	Formulation
ES 2:	Used in personal care products / Professional use
ES 3:	Private use of cosmetics and personal care products

Abbreviations

ART = Advanced REACH Tool

ECETOC TRA = European Centre for Ecotoxicology and Toxicology Of Chemicals - Targeted Risk Assessment

ES = Exposure scenario

EUSES = European Union System for the Evaluation of Substances

PEC = Predicted exposure concentration

RCR = Risk characterisation ratio: "Level of Exposure/DNEL" or "PEC/PNEC"

ES 1: Formulation

1. Scenario description

Main User Groups	:	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	:	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) PROC8a: Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation PROC15: Use as laboratory reagent
Environmental Release Categories	:	ERC2: Formulation of preparations

2.1 Contributing scenario controlling environmental exposure for: ERC2

Amount used

Daily amount per site	:	<= 0.5 t
Annual amount per site	:	<= 100 t

Environment factors not influenced by risk management

Flow rate of receiving surface water	:	18,000 m ³ /d
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Other given operational conditions affecting environmental exposure

Emission or Release Factor: Air	:	2.5 %
Emission or Release Factor: Water	:	2 %
Emission or Release Factor: Soil	:	0.01 %

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	:	Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent	:	2,000 m ³ /d
Effectiveness (of a measure)	:	87.4 %

Conditions and measures related to external treatment of waste for disposal

Disposal methods	:	Dispose of contents/container in accordance with local regulation.
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2.2 Contributing scenario controlling worker exposure for: PROC1

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use) : Solid substance

Frequency and duration of use

Frequency of use : <= 8 hours/day

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor use

Technical conditions and measures

Handle substance within a closed system. Provide adequate ventilation.

Organisational measures to prevent /limit releases, dispersion and exposure

Ensure operatives are trained to minimise exposures.

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

Wear suitable gloves tested to EN374.

2.3 Contributing scenario controlling worker exposure for: PROC2, PROC3, PROC13, PROC15

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use) : Solid substance

Frequency and duration of use

Frequency of use : <= 8 hours/day

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor use

Technical conditions and measures

Provide adequate ventilation.

Organisational measures to prevent /limit releases, dispersion and exposure

Ensure operatives are trained to minimise exposures.

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

Wear suitable gloves tested to EN374.

2.4 Contributing scenario controlling worker exposure for: PROC4

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use) : Solid substance

Frequency and duration of use

Frequency of use : <= 8 hours/day

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor use

Technical conditions and measures

Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. (Effectiveness (of a measure): 30 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Ensure operatives are trained to minimise exposures.

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

Wear suitable gloves tested to EN374.

2.5 Contributing scenario controlling worker exposure for: PROC5

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use) : Solid substance

Frequency and duration of use

Frequency of use : <= 8 hours/day

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor use

Technical conditions and measures

Ensure adequate ventilation.

Organisational measures to prevent /limit releases, dispersion and exposure

Ensure operatives are trained to minimise exposures.

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

Wear suitable gloves tested to EN374.

2.6 Contributing scenario controlling worker exposure for: PROC8a

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use) : Solid substance

Frequency and duration of use

Frequency of use : <= 8 hours/day

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor use

Technical conditions and measures

Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour). (Effectiveness (of a measure): 70 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Ensure operatives are trained to minimise exposures.

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

Wear suitable gloves tested to EN374.

2.7 Contributing scenario controlling worker exposure for: PROC8b, PROC9

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use) : Solid substance

Frequency and duration of use

Frequency of use : <= 8 hours/day

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor use

Technical conditions and measures

Ensure adequate ventilation.

Organisational measures to prevent /limit releases, dispersion and exposure

Ensure operatives are trained to minimise exposures.

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

Wear suitable gloves tested to EN374.

2.8 Contributing scenario controlling worker exposure for: PROC14

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use) : Solid substance

Frequency and duration of use

Frequency of use : <= 8 hours/day

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor use

Technical conditions and measures

Ensure adequate ventilation.

Organisational measures to prevent /limit releases, dispersion and exposure

Ensure operatives are trained to minimise exposures.

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

Wear suitable gloves tested to EN374.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	Level of Exposure (PEC)	RCR
ERC2	EUSES		Fresh water		0.065 mg/l	0.065
			Fresh water sediment		0.332 mg/kg dry weight	0.3
			Marine water		0.007 mg/l	0.065
			Marine sediment		0.033 mg/kg dry weight	0.3
			Sewage treatment plant		0.632 mg/l	< 0.01
			Soil		0.027 mg/kg dry weight	0.081

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC1	ECETOC	Worker (Indus-	Inhalation: long-term,	0.01 mg/m ³	< 0.01

PROC1	TRA	trial)	systemic		
			Dermal: long-term, systemic	0.007 mg/kg bw/d	< 0.01
PROC2, PROC3, PROC13, PROC15	ECETOC TRA	Worker (Industrial)	Inhalation: long-term, systemic	5 mg/m ³	0.114
PROC2, PROC3, PROC13, PROC15			Dermal: long-term, systemic	<= 2.7 mg/kg bw/d	<= 0.22
PROC4	ECETOC TRA	Worker (Industrial)	Inhalation: long-term, systemic	35 mg/m ³	0.8
PROC4			Dermal: long-term, systemic	1.4 mg/kg bw/d	0.11
PROC5	ECETOC TRA	Worker (Industrial)	Inhalation: long-term, systemic	25 mg/m ³	0.57
PROC5			Dermal: long-term, systemic	2.7 mg/kg bw/d	0.22
PROC8a	ECETOC TRA	Worker (Industrial)	Inhalation: long-term, systemic	15 mg/m ³	0.34
PROC8a			Dermal: long-term, systemic	2.7 mg/kg bw/d	0.22
PROC8b, PROC9	ECETOC TRA	Worker (Industrial)	Inhalation: long-term, systemic	<= 25 mg/m ³	<= 0.57
PROC8b, PROC9			Dermal: long-term, systemic	<= 2.7 mg/kg bw/d	<= 0.22
PROC14	ECETOC TRA	Worker (Industrial)	Inhalation: long-term, systemic	10 mg/m ³	0.23
PROC14			Dermal: long-term, systemic	0.7 mg/kg bw/d	0.06

For complete exposure estimation, the values for different routes of exposure and activities may have to be summed up.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

EUSES = EUSES version 2.1.2

ES 2: Used in personal care products / Professional use

1. Scenario description

Main User Groups	: SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process categories	: PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation PROC15: Use as laboratory reagent
Environmental Release Categories	: ERC8a: Wide dispersive indoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a

Product characteristics

Annual amount per site (Msafe)	: 999,000 kg
Remarks	: Msafe is the maximum amount of substance or product which may be used safely under the conditions defined in the environmental part of the exposure scenario.

Frequency and duration of use

Continuous exposure	: 365 days/year
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Environment factors not influenced by risk management

Flow rate of receiving surface water	: 18,000 m ³ /d
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Other given operational conditions affecting environmental exposure

Emission or Release Factor: Air	: 0 %
Emission or Release Factor: Water	: 100 %
Emission or Release Factor: Soil	: 0 %

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	: Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent	: 2,000 m ³ /d
Effectiveness (of a measure)	: 87.4 %

Conditions and measures related to external treatment of waste for disposal

Disposal methods	: Dispose of contents/container in accordance with local regulation.
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2.2 Contributing scenario controlling worker exposure for: PROC5, PROC8a, PROC8b, PROC9, PROC13, PROC14, PROC15

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 5%.
 Physical Form (at time of use) : Solid mixture, Dustiness: Low

Frequency and duration of use

Frequency of use : <= 8 hours/day

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor use

Technical conditions and measures

No specific risk management measures required.

3. Exposure estimation and reference to its source**Environment**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	Level of Exposure (PEC)	RCR
ERC8a	EUSES		Fresh water		0.005 mg/l	< 0.01
			Fresh water sediment		0.028 mg/kg dry weight	0.025
			Marine water		0.0005 mg/l	< 0.01
			Marine sediment		0.003 mg/kg dry weight	0.025
			Sewage treatment plant		0.035 mg/l	< 0.01
			Soil		0.007 mg/kg dry weight	0.02

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC5, PROC8a, PROC8b, PROC9, PROC13, PROC14, PROC15	ART	Worker (Professional)	Inhalation: long-term, systemic	<= 5 mg/m ³	<= 0.23
see above	ECETOC TRA		Dermal: long-term, systemic	<= 2.7 mg/kg bw/d	<= 0.22

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

EUSES = EUSES version 2.1.2

ES 3: Private use of cosmetics and personal care products

1. Scenario description

Main User Groups : **SU 21:** Consumer uses: Private households (= general public = consumers)
 Chemical product category : **PC39:** Cosmetics, personal care products
 Environmental Release Categories : **ERC8a:** Wide dispersive indoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a

Annual amount supplied into the consumer use(s) (Msafe) : 999,000 kg
 Remarks : Msafe is the maximum amount of substance or product which may be used safely under the conditions defined in the environmental part of the exposure scenario.

Frequency and duration of use

Continuous exposure : 365 days/year

Environment factors not influenced by risk management

Flow rate : 18,000 m3/d

Other given operational conditions affecting environmental exposure

Emission or Release Factor: Air : 0 %
 Emission or Release Factor: Water : 100 %
 Emission or Release Factor: Soil : 0 %

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant : Municipal sewage treatment plant
 Flow rate of sewage treatment plant effluent : 2,000 m3/d
 Effectiveness (of a measure) : 87.4 %

Conditions and measures related to external treatment of waste for disposal

Disposal methods : Dispose of contents/container in accordance with local regulation.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	Level of Exposure (PEC)	RCR
ERC8a	EUSES		Fresh water		0.005 mg/l	< 0.01
			Fresh water sediment		0.028 mg/kg dry weight	0.025
			Marine water		0.0005 mg/l	< 0.01
			Marine sediment		0.003 mg/kg dry weight	0.025
			Sewage treatment plant		0.035 mg/l	< 0.01
			Soil		0.007 mg/kg dry weight	0.02

Risk to consumers' health does not need to be assessed as this is already covered by the Cosmetic Directive 76/768/EEC.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

EUSES = EUSES version 2.1.2