SAFETY DATA SHEET

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

1.1. Product identifier

Name of the substance	Rosin, fumarated, reaction products with glycerol and pentaerythritol
Trade name of the substance	SYLVATAC™ RAZ 100S
Identification number	296-047-1 (EC number)
Registration number	01-2119486686-19-0000
Synonyms	None.
SDS number	8434
Product code	200000000460
Issue date	25-November-2013
Version number	9,0
Revision date	04-August-2022
Supersedes date	13-May-2022

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

Identified uses	Distribution of substance. Formulation of preparations. Manufacture of substance. Manufacture of paper and paper products. Coating. Adhesive.
Uses advised against	None known.

1.3. Details of the supplier of the safety data sheet

Company name	Kraton Chemical B.V.
Address	Transistorstraat 16, 1322 CE Almere, The Netherlands
Phone	+31 36 546 2800
Email address	regulatory.eu@kraton.com

1.4. Emergency telephone number

EU NCEC +44 1865 407 333

General in EU	112 (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)
Austria National Poisons Information Centre	+431 406 4343 (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)
Belgium National Poisons Control Center	070 245 245 (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)
Bulgaria National Toxicological Information Centre	+359 2 9154233 (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)
Czech Republic National Poisons Information Centre	+420 224 919 293, or +420 224 915 402 (Hours of operation not provided. SDS/Product information may not be available for the Emergency Service.)
Denmark National Poisons Control Center	+45 82 12 12 12 (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)
Estonia National Poisons Information Centre	16662 or abroad: (+372) 626 9390 (Monday 9:00AM to Saturday 9:00AM (closed on Sundays and on national holidays). SDS/Product information may not be available for the Emergency Service.)
Finland National Poison Information Center	(09) 471 977 (direct) or (09) 4711 (exchange) (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)
France National Poisons Control Center	ORFILA number (INRS): + 33 (0) 1 45 42 59 59 (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)
Hungary National Emergency Phone Number	36 80 20 11 99 (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)
Lithuania Neatidėliotina informacija apsinuodijus	+370 5 236 20 52 or +37068753378 (Hours of operation not provided. SDS/Product information may not be available for the Emergency Service.)
Malta Accident and Emergency Department	2545 4030 (Hours of operation not provided. SDS/Product information may not be available for the Emergency Service.)

Netherlands National Poisons Information Center (NVIC)	030-274 88 88 (Only for the purpose of informing medical personnel in cases of acute intoxications)
Norway Norwegian Poison Information Center	22 59 13 00 (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)
Romania Biroul RSI si Informare Toxicologica	021.318.36.06 (Available 8:00AM-3:00PM. SDS/Product information may not be available for the Emergency Service.)
Slovakia National Toxicological Information Centre	+421 2 5477 4166 (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)
Sweden National Poison Information Center	112 - and ask for Poison Information (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The substance has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Regulation (EC) No 1272/2008 as amended

Health hazards

Serious eye damage/eye irritation	Category 2	H319 - Causes serious eye irritation.
Skin sensitisation	Category 1	H317 - May cause an allergic skin reaction.

Environmental hazards

Hazardous to the aquatic environment, long-term aquatic hazard	Category 4	H413 - May cause long lasting harmful effects to aquatic life.

Hazard summary May form explosible dust-air mixture if dispersed. Causes serious eye irritation. May cause an allergic skin reaction. Dangerous for the environment if discharged into watercourses.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Contains: Rosin, fumarated, reaction products with glycerol and pentaerythritol

Hazard pictograms

Signal word Warning

Hazard statements

H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H413	May cause long lasting harmful effects to aquatic life.

Precautionary statements

Prevention

P261	Avoid breathing dust/fume.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Response

P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage Not available.

Disposal Not available.

Supplemental label information None.

2.3. Other hazards This mixture does not contain substances assessed to be vPvB / PBT according to Regulation (EC) No 1907/2006, Annex XIII. The product does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher. May form explosible dust-air mixture if dispersed.

SECTION 3: Composition/information on ingredients

3.1. Substances

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Rosin, fumarated, reaction products with glycerol and pentaerythritol	100	92202-14-7 296-047-1	01-2119486686-19-0001 01-2119486686-19-0000	-	

Classification: Eye Irrit. 2;H319, Skin Sens. 1B;H317, Aquatic Chronic 4;H413

List of abbreviations and symbols that may be used above

#: This substance has been assigned Union workplace exposure limit(s).
M: M-factor
PBT: persistent, bioaccumulative and toxic substance.
vPvB: very persistent and very bioaccumulative substance.

Composition comments The full text for all H-statements is displayed in section 16.

SECTION 4: First aid measures

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

4.1. Description of first aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions.

Eye contact Do not rub eyes. Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth. Get medical attention if symptoms occur.

4.2. Most important symptoms and effects, both acute and delayed Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Dusts may irritate the respiratory tract, skin and eyes. May cause an allergic skin reaction. Dermatitis. Rash.

4.3. Indication of any immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

SECTION 5: Firefighting measures

General fire hazards May form combustible dust concentrations in air.

5.1. Extinguishing media

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2). Apply extinguishing media carefully to avoid creating airborne dust.

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture High concentration of airborne dust may form explosive mixture with air. Static charges generated by emptying package in or near flammable vapour may cause flash fire. During fire, gases hazardous to health may be formed. Upon decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.

5.3. Advice for firefighters

Special protective equipment for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Special fire fighting procedures In case of fire and/or explosion do not breathe fumes. Wear suitable protective equipment. Move containers from fire area if you can do so without risk.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Wear appropriate personal protective equipment.

For emergency responders Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

6.2. Environmental precautions Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Prevent product from entering drains. Stop the flow of material, if this is without risk.

Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Following product recovery, flush area with water.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use.

6.4. Reference to other sections

For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Minimise dust generation and accumulation. Avoid significant deposits of material, especially on horizontal surfaces, which may become airborne and form combustible dust clouds and may contribute to secondary explosions. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Explosion-proof general and local exhaust ventilation. Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid contact with eyes, skin, and clothing. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices. Follow all SDS/label precautions even after container is emptied because they may retain product residues.

7.2. Conditions for safe storage, including any incompatibilities

Keep away from heat, sparks and open flame. Keep containers tightly closed in a dry, cool and well-ventilated place. Store at ambient temperature and atmospheric pressure. Store away from incompatible materials (see Section 10 of the SDS).

7.3. Specific end use(s)

Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

Additional components	Type	Value	Form
Dust	MAK	5 mg/m3	Respirable fraction.
		10 mg/m3	Inhalable fraction.
	STEL	20 mg/m3	Inhalable fraction.
		10 mg/m3	Respirable fraction.

Belgium. Exposure Limit Values

Additional components	Type	Value	Form
Dust	TWA	3 mg/m3	Respirable fraction.
		10 mg/m3	Inhalable fraction.

Finland

Additional components	Type	Value
Dust	TWA	5 mg/m3
		10 mg/m3

France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984

Additional components	Type	Value	Form
Dust	VME	5 mg/m3	Respirable fraction.
Regulatory status: Regulatory binding (VRC)			
		10 mg/m3	Inhalable fraction.
Regulatory status: Regulatory binding (VRC)			

Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)

Additional components	Type	Value	Form
Dust	TWA	4 mg/m3	Inhalable dust.

Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace

Additional components	Type	Value	Form
Dust	AGW	10 mg/m3	Inhalable fraction.

Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace

Additional components	Type	Value	Form
		1,25 mg/m3	Respirable fraction.

Iceland. OELs. Regulation 154/1999 on occupational exposure limits

Additional components	Type	Value	Form
Dust	TWA	5 mg/m3	Respirable dust.
		10 mg/m3	Total dust.

Ireland. Occupational Exposure Limits

Additional components	Type	Value	Form
Dust	TWA	4 mg/m3	Respirable dust.
		10 mg/m3	Total inhalable dust.

Latvia. OELs. Occupational exposure limit values of chemical substances in work environment

Additional components	Type	Value	Form
Dust	TWA	5 mg/m3	Dust.

Lithuania. OELs. Limit Values for Chemical Substances, General Requirements

Additional components	Type	Value	Form
Dust	TWA	5 mg/m3	Respirable fraction.
		10 mg/m3	Inhalable fraction.

Netherlands

Additional components	Type	Value	Form
Dust	TWA (MAC)	5 mg/m3	Respirable dust.
		10 mg/m3	Total dust.

Slovakia. OELs. Regulation No. 300/2007 concerning protection of health in work with chemical agents

Additional components	Type	Value	Form
Dust	TWA	10 mg/m3	Dust.

Slovenia. OELs. Regulations concerning protection of workers against risks due to exposure to chemicals while working (Official Gazette of the Republic of Slovenia)

Additional components	Type	Value	Form
Dust	TWA	10 mg/m3	Inhalable fraction.
		1,25 mg/m3	Respirable fraction.

Spain. Occupational Exposure Limits

Additional components	Type	Value	Form
Dust	TWA	3 mg/m3	Respirable fraction.
		10 mg/m3	Inhalable fraction.

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Additional components	Type	Value	Form
Dust	TWA	3 mg/m3	Respirable dust.
		10 mg/m3	Inhalable dust.

UK. EH40 Workplace Exposure Limits (WELs)

Additional components	Type	Value	Form
Dust	TWA	4 mg/m3	Respirable dust.
		10 mg/m3	Inhalable dust.

Biological limit values No biological exposure limits noted for the ingredient(s).

Recommended monitoring procedures Follow standard monitoring procedures.

Derived no effect levels (DNELs)

General Population

Components	Value	Assessment factor	Notes
Rosin, fumarated, reaction products with glycerol and pentaerythritol (CAS 92202-14-7)			
Long-term, Systemic, Dermal	1,046 mg/kg bw/day	200	Repeated dose toxicity
Long-term, Systemic, Oral	1,046 mg/kg bw/day	200	Repeated dose toxicity

Workers

Components	Value	Assessment factor	Notes
Rosin, fumarated, reaction products with glycerol and pentaerythritol (CAS 92202-14-7)			
Long-term, Local, Inhalation	10 mg/m3		
Long-term, Systemic, Dermal	2,09 mg/kg bw/day	100	Repeated dose toxicity

Predicted no effect concentrations (PNECs)

Components	Value	Assessment factor	Notes
Rosin, fumarated, reaction products with glycerol and pentaerythritol (CAS 92202-14-7)			
Freshwater	0,1 mg/l	1000	
Marine water	0,01 mg/l	10000	
Sediment (freshwater)	2317,75 mg/kg		
Sediment (marine water)	231,775 mg/kg		
Soil	462,06 mg/kg		
STP	1,26 mg/l	10	

8.2. Exposure controls

Appropriate engineering controls Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station.

Individual protection measures, such as personal protective equipment

General information Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Eye/face protection Face shield is recommended. Wear safety glasses with side shields (or goggles).

Skin protection

- Hand protection Wear appropriate chemical resistant gloves. When handling hot material, use heat resistant gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. The most suitable glove must be chosen in consultation with the gloves supplier, who can inform about the breakthrough time of the glove material. Wear suitable gloves tested to EN374. Recommended gloves include rubber, neoprene, nitrile or viton. For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes. For short-term/splash protection we recommend the same, but recognize that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time maybe acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness should be typically greater than 0.35 mm. This recommendation is advisory only. It may not be appropriate for all workplaces. It should not be construed as offering an approval for any specific use scenario. A hazard assessment should be conducted prior to use to ensure suitability of gloves for specific work environments and processes.

- Other Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

Hygiene measures When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace. Eye wash fountain and emergency showers are recommended.

Environmental exposure controls Inform appropriate managerial or supervisory personnel of all environmental releases. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. Fume scrubbers, filters or engineering modifications to the process equipment may be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Solid.
Form	Pastilles or Pellets. or Flakes.
Colour	Light yellow
Odour	Mild.
Melting point/freezing point	Not available.
Boiling point or initial boiling point and boiling range	Not available.
Flammability (solid, gas)	Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Flash point	249,0 °C (480,2 °F) Setaflash Setaflash Closed Cup
Auto-ignition temperature	> 200 °C (> 392 °F)
Decomposition temperature	Not available.
pH	Not available.
Solubility(ies)	
Solubility (water)	< 0,1 % at 25°C
Partition coefficient (n-octanol/water)	4,58
Vapour pressure	< 0,001 mm Hg at 20°C
Vapour density	Not available.
Relative density	1,07 at 25ºC/25ºC; (water=1)
Particle characteristics	Not available.
Other safety characteristics	
Chemical family	Modified Rosin Ester
Density	1070,00 kg/m3 at 20°C
Evaporation rate	0 (n-BuAc=1) estimated
Percent volatile	0 % estimated
Softening point	100 - 106 °C (212 - 222,8 °F) Ring & Ball
Weighted solids	100 %

SECTION 10: Stability and reactivity

10.1. Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
10.2. Chemical stability	Material is stable under normal conditions.
10.3. Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
10.4. Conditions to avoid	Strong oxidising agents. Keep away from heat, sparks and open flame. Contact with incompatible materials. Minimise dust generation and accumulation.
10.5. Incompatible materials	Strong oxidising agents.
10.6. Hazardous decomposition products	Upon decomposition this product emits acrid dense smoke with carbon dioxide, carbon monoxide, water and other products of combustion.

SECTION 11: Toxicological information

General information Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

Inhalation	Dust may irritate respiratory system.
Skin contact	May cause an allergic skin reaction.
Eye contact	Causes serious eye irritation.

Rosin, fumarated, reaction products with glycerol and pentaerythritol	Irritation Corrosion - Eye, May cause eye irritation.; Data is for similar product. Result: Positive Species: New Zealand white rabbit Organ: Eye Test Duration: 4 hr Observation Period: 72 hr Notes: OECD 405

Ingestion May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.

Symptoms Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Dusts may irritate the respiratory tract, skin and eyes. May cause an allergic skin reaction. Dermatitis. Rash.

11.1. Information on toxicological effects

Acute toxicity May cause an allergic skin reaction.

Components	Species	Test Results
Rosin, fumarated, reaction products with glycerol and pentaerythritol (CAS 92202-14-7)		
Acute		
Dermal		
LD50	Rat	> 2000 mg/kg, 24 Hours
Oral		
LC0	Sprague-Dawley rat	> 2000 mg/kg At this dose no death occurred.; OECD 423
LD50	Rat	> 2000 mg/kg
	Sprague-Dawley rat	> 2000 mg/kg, 15 days At this dose no death occurred.
Chronic		
Oral		
NOAEL	Wistar rat	300 mg/kg/day, 8 weeks Developmental toxicity; Data is for similar product.
NOEL	Wistar rat	1000 mg/kg/day, 8 weeks Reproductive; Data is for similar product.

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Based on available data, the classification criteria are not met.

Corrosivity

Rosin, fumarated, reaction products with glycerol and pentaerythritol	Irritation Corrosion - Skin, No skin irritation.; Data is for similar product. Result: Negative Species: New Zealand white rabbit Organ: Skin Test Duration: 4 hr Observation Period: 72 hr Notes: OECD 404

Serious eye damage/eye irritation Causes serious eye irritation.

Eye contact

Rosin, fumarated, reaction products with glycerol and pentaerythritol	Irritation Corrosion - Eye, May cause eye irritation.; Data is for similar product. Result: Positive Species: New Zealand white rabbit Organ: Eye Test Duration: 4 hr Observation Period: 72 hr Notes: OECD 405

Respiratory sensitisation Not a respiratory sensitizer.

Skin sensitisation May cause an allergic skin reaction.

Skin Sensitisation

Rosin, fumarated, reaction products with glycerol and pentaerythritol	10 % w/v Local Lymph Node Assay - Lowest Concentration Producing Reaction, SI=4,37; May cause sensitization by skin contact. Result: Positive Species: Mouse Notes: OECD 429

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are carcinogenic.

Mutagenicity

Rosin, fumarated, reaction products with glycerol and pentaerythritol	Germ Cell Mutagenicity: Ames, Data is for similar product. Result: Negative Species: Salmonella typhimurium Notes: OECD 471 Germ Cell Mutagenicity: Chromosome Abberation, Data is for similar product. Result: Negative Species: Human Notes: OECD 473 In Vitro Mammalian Cell Gene Mutation Test, No data available to indicate product or any components present at greater than 0,1% are mutagenic or genotoxic.; Data is for similar product. Result: Negative Species: Mouse Notes: OECD 476

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

Hungary. 26/2000 EüM Ordinance on protection against and preventing risk relating to exposure to carcinogens at work (as amended)

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not an aspiration hazard.

Mixture versus substance information No information available.

11.2. Information on other hazards

Endocrine disrupting properties The product does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Other information Not available.

SECTION 12: Ecological information

12.1. Toxicity May cause long lasting harmful effects to aquatic life.

Components		Species	Test Results
Rosin, fumarated, reaction products with glycerol and pentaerythritol (CAS 92202-14-7)			
Aquatic			
Algae	EC0	Algae	1000 mg/l, 72 hr Data is for similar product.; OECD 201
Crustacea	EL50	Daphnia	> 100 mg/l, 48 hr OECD 202
	NOEL	Daphnia	100 mg/l, 48 hr OECD 202
Fish	LC0	Danio (Danio)	> 400 mg/l, 96 hr Data is for similar product.; OECD 203

* Estimates for product may be based on additional component data not shown.

12.2. Persistence and degradability The product is not readily biodegradable.

Biodegradability

Percent Degradation (Aerobic Biodegradation)

Rosin, fumarated, reaction products with glycerol and pentaerythritol	5 % Result: Not readily biodegradable. Species: Activated sewage sludge Test Duration: 28 d

12.3. Bioaccumulative potential

Partition coefficient n-octanol/water (log Kow)

SYLVATAC™ RAZ 100S	4,58
Rosin, fumarated, reaction products with glycerol and pentaerythritol	4,58, at 20°C

12.4. Mobility in soil No data available.

12.5. Results of PBT and vPvB assessment This mixture does not contain substances assessed to be vPvB / PBT according to Regulation (EC) No 1907/2006, Annex XIII.

12.6. Endocrine disrupting properties The product does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7. Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

EU waste code	The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Disposal methods/information	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Special precautions	Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

14.1. UN number	Not available.
14.2. UN proper shipping name	Not available.
14.3. Transport hazard class(es)	
Class	Not available.
Subsidiary risk	-
Hazard No. (ADR)	Not available.
Tunnel restriction code	Not available.
14.4. Packing group	Not available.
14.5. Environmental hazards	No.
14.6. Special precautions for user	Not available.

RID

14.1. UN number	Not available.
14.2. UN proper shipping name	Not available.
14.3. Transport hazard class(es)	
Class	Not available.
Subsidiary risk	-
14.4. Packing group	Not available.
14.5. Environmental hazards	No.
14.6. Special precautions for user	Not available.

ADN

14.1. UN number	Not available.
14.2. UN proper shipping name	Not available.
14.3. Transport hazard class(es)	
Class	Not available.
Subsidiary risk	-
14.4. Packing group	Not available.
14.5. Environmental hazards	No.
14.6. Special precautions for user	Not available.

IATA

14.1. UN number	Not available.
14.2. UN proper shipping name	Not available.
14.3. Transport hazard class(es)	
Class	Not available.
Subsidiary risk	-
14.4. Packing group	Not available.
14.5. Environmental hazards	No.
14.6. Special precautions for user	Not available.

IMDG

14.1. UN number	Not available.
14.2. UN proper shipping name	Not available.
14.3. Transport hazard class(es)	
Class	Not available.
Subsidiary risk	-
14.4. Packing group	Not available.
14.5. Environmental hazards	
Marine pollutant	No.
EmS	Not available.
14.6. Special precautions for user	Not available.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed.

Regulation (EU) 2019/1021 On persistent organic pollutants (recast), as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

None known.

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Not listed.

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Not listed.

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

Not listed.

Other regulations	The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.
National regulations	Follow national regulation for work with chemical agents. Young people under 18 years old are not allowed to work with this product according to EU Directive 94/33/EC on the protection of young people at work, as amended.
15.2. Chemical safety assessment	A Chemical Safety Assessment has been carried out for this substance.

Water hazard class

AwSV	WGK1

SECTION 16: Other information

List of abbreviations	Not available.
References	Not available.
Information on evaluation method leading to the classification of mixture	Not applicable.
Full text of any H-statements not written out in full under Sections 2 to 15	H317 May cause an allergic skin reaction. H319 Causes serious eye irritation. H413 May cause long lasting harmful effects to aquatic life.
Revision information	None.
Training information	Follow training instructions when handling this material.

Disclaimer

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Annex to the extended Safety Data Sheet (eSDS)

Table of contents

1 - Exposure Scenario Worker

1. Manufacture of substance

List of use descriptors

Sector(s) of Use	SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites. SU8: Manufacture of bulk, large scale chemicals (including petroleum products). SU9: Manufacture of fine chemicals
Name of contributing environmental scenario and corresponding ERC	Manufacture of substance ERC1: Manufacture of substances
List of names of contributing worker scenarios and corresponding PROCs	Manufacture of substance 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. 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. PROC15: Use as laboratory reagent

2.1.1. Contributing scenario controlling environmental exposure for Manufacture of substance

Product characteristics

Physical state	solid

Amounts used

Annual amount used in the EU	25000 tons/year
Regional use tonnage (tons/year):	2500 tons/year
Fraction of Regional tonnage used locally:	1
Emission days (days/year):	300

Environment factors not influenced by risk management

Local freshwater dilution factor:	10
Local marine water dilution factor:	100

Other given operational conditions affecting environmental exposure

	Emission days	Emission factors			
Type	**(days/year)**	**Air**	**Soil**	**Water**	**Remarks**
Emission days (days/year):	300	0,00001	0,0001	0,00003	

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	Not available.
Soil	Not available.
Water	Not available.
Sediment	Not available.
Organisational measures to prevent/limit release from site	Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater.

Conditions and measures related to municipal sewage treatment plant

Size of municipal sewage system/treatment plant (m3/d)

Type	Not available.
Discharge rate	2000
Sludge treatment technique	Not available.

Conditions and measures related to external treatment of waste for disposal

Fraction of used amount transferred to external waste treatment

Suitable waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.

Treatment effectiveness Not available.

Conditions and measures related to external recovery of waste

Fraction of used amount transferred to external waste treatment

Suitable recover operations External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2.1. Contributing scenario controlling worker exposure for Manufacture of substance

Product characteristics

Physical form of the product solid

vapour pressure Not available.

Process temperature Assumes activities are at ambient temperature (unless stated differently).

Amounts used

Not available.

Frequency and duration of use

Not available.

Human factors not influenced by risk management

Exposed skin areas Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. wash off any skin contamination immediately. provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Not available.

Other relevant operational conditions

Not available.

Risk management measures (RMM)

Technical conditions and measures to control dispersion from source towards the worker Provide extract ventilation to points where emissions occur.

Organizational measures to prevent/limit releases, dispersion and exposure Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluations Avoid direct eye contact with product, also via contamination on hands. Avoid contact with skin. Wear suitable gloves (tested to EN374) and eye protection. Clear up spills immediately and dispose of waste safely. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. If on skin: Wash with plenty of water. Flush contaminated area with plenty of water. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying. When handling hot material, use heat resistant gloves.

3. Exposure Estimation

Environment

Compartment	PEC	RCR (PEC/PNEC)	Method	Remarks
Air.	1,38E-03 mg/m³	The use is assessed to be safe.	Used EUSES model.	
freshwater	1,20E-03 mg/l	0,012	Used EUSES model.	
marine water	1,25E-04 mg/l	0,0125	Used EUSES model.	
freshwater sediment	1,46E-01 mg/kg wet weight	0,433	Used EUSES model.	
marine sediment	1,52E-02 mg/kg wet weight	0,452	Used EUSES model.	
soil	1,63E-03 mg/kg wet weight	0,00737	Used EUSES model.	
STP	1,12E-02 mg/l	0,00889	Used EUSES model.	

Health

Not available.

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

The immediate downstream user is required to evaluate whether the risk management measures and operational conditions described in the ES fits to his use. Where other RMM / OC are adopted, user should then ensure that risks are managed to at least equivalent levels. This may be based on a set of determinants (and a suitable algorithm) which together ensure control of risk. Where relevant DU can use other methods, such as scaling, he needs to check whether he acts within the boundaries set by the information provided in the exposure scenario. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.

2 - Exposure Scenario Worker

1. Distribution of substance

List of use descriptors

Sector(s) of Use	SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites. SU8: Manufacture of bulk, large scale chemicals (including petroleum products). SU9: Manufacture of fine chemicals. SU0: Other
Name of contributing environmental scenario and corresponding ERC	Distribution of substance ERC1: Manufacture of substances . ERC2: Formulation of preparations . ERC3: Formulation in materials . ERC4: Industrial use of processing aids in processes and products, not becoming part of article s . ERC5: Industrial use resulting in inclusion into or onto a matrix . ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates) . ERC6b: Industrial use of reactive processing aids . ERC6c: Industrial use of monomers for manufacture of thermoplastics . ERC6d: Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers . ERC7: Industrial use of substances in closed systems .
List of names of contributing worker scenarios and corresponding PROCs	Distribution of substance 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. 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). PROC15: Use as laboratory reagent

2.1.1. Contributing scenario controlling environmental exposure for Distribution of substance

Product characteristics

Physical state	solid

Amounts used

Annual amount used in the EU	24000 tons/year
Regional use tonnage (tons/year):	2400 tons/year
Fraction of Regional tonnage used locally:	0,002
Emission days (days/year):	300

Environment factors not influenced by risk management

Local freshwater dilution factor:	10
Local marine water dilution factor:	100

Other given operational conditions affecting environmental exposure

	Emission days	Emission factors			
Type	**(days/year)**	**Air**	**Soil**	**Water**	**Remarks**
Emission days (days/year):	300	0,00001	0,00001	0,000001	

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	Not available.

Soil	Not available.
Water	Not available.
Sediment	Not available.
Organisational measures to prevent/limit release from site	Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater.

Conditions and measures related to municipal sewage treatment plant

Size of municipal sewage system/treatment plant (m3/d)

Type	Not available.
Discharge rate	2000
Sludge treatment technique	Not available.

Conditions and measures related to external treatment of waste for disposal

Fraction of used amount transferred to external waste treatment

Suitable waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Treatment effectiveness	Not available.

Conditions and measures related to external recovery of waste

Fraction of used amount transferred to external waste treatment

Suitable recover operations	External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2.1. Contributing scenario controlling worker exposure for Distribution of substance

Product characteristics

Physical form of the product	solid
vapour pressure	Not available.
Process temperature	Assumes activities are at ambient temperature (unless stated differently).

Amounts used

Not available.

Frequency and duration of use

Not available.

Human factors not influenced by risk management

Exposed skin areas	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. wash off any skin contamination immediately. provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Not available.

Other relevant operational conditions

Not available.

Risk management measures (RMM)

Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur.
Organizational measures to prevent/limit releases, dispersion and exposure	Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
Conditions and measures related to personal protection, hygiene and health evaluations	Avoid direct eye contact with product, also via contamination on hands. Avoid contact with skin. Wear suitable gloves (tested to EN374) and eye protection. Clear up spills immediately and dispose of waste safely. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. If on skin: Wash with plenty of water. Flush contaminated area with plenty of water. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying. When handling hot material, use heat resistant gloves.

3. Exposure Estimation

Environment

Compartment	PEC	RCR (PEC/PNEC)	Method	Remarks
Air.	1,35E-03 mg/m³	The use is assessed to be safe.	Used EUSES model.	
freshwater	8,89E-05 mg/l	0,000889	Used EUSES model.	
marine water	1,41E-05 mg/l	0,00141	Used EUSES model.	
freshwater sediment	1,08E-02 mg/kg wet weight	0,0321	Used EUSES model.	
marine sediment	1,72E-03 mg/kg wet weight	0,0509	Used EUSES model.	
soil	1,13E-03 mg/kg wet weight	0,00515	Used EUSES model.	
STP	7,17E-07 mg/l	0,000000569	Used EUSES model.	

Health

Not available.

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

The immediate downstream user is required to evaluate whether the risk management measures and operational conditions described in the ES fits to his use. Where other RMM / OC are adopted, user should then ensure that risks are managed to at least equivalent levels. This may be based on a set of determinants (and a suitable algorithm) which together ensure control of risk. Where relevant DU can use other methods, such as scaling, he needs to check whether he acts within the boundaries set by the information provided in the exposure scenario. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.

1. Formulation of preparations

List of use descriptors

Sector(s) of Use	SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites. SU10: Formulation [mixing] of preparations and/or re-packaging
Name of contributing environmental scenario and corresponding ERC	Formulation of preparations ERC2: Formulation of preparations .
List of names of contributing worker scenarios and corresponding PROCs	Formulation of preparations 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). PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation. PROC15: Use as laboratory reagent

2.1.1. Contributing scenario controlling environmental exposure for Formulation of preparations

Product characteristics

Physical state	solid

Amounts used

Annual amount used in the EU	25000 tons/year
Regional use tonnage (tons/year):	2500 tons/year
Fraction of Regional tonnage used locally:	1
Emission days (days/year):	300

Environment factors not influenced by risk management

Local freshwater dilution factor:	10
Local marine water dilution factor:	100

Other given operational conditions affecting environmental exposure

	Emission days	Emission factors			
Type	**(days/year)**	**Air**	**Soil**	**Water**	**Remarks**
Emission days (days/year):	300	0,0025	0,0001	0,00002	

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	Not available.
Soil	Not available.
Water	Not available.
Sediment	Not available.
Organisational measures to prevent/limit release from site	Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater.

Conditions and measures related to municipal sewage treatment plant

Size of municipal sewage system/treatment plant (m3/d)

Type	Not available.
Discharge rate	2000
Sludge treatment technique	Not available.

Conditions and measures related to external treatment of waste for disposal

Fraction of used amount transferred to external waste treatment

Suitable waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Treatment effectiveness	Not available.

Conditions and measures related to external recovery of waste

Fraction of used amount transferred to external waste treatment

Suitable recover operations	External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2.1. Contributing scenario controlling worker exposure for Formulation of preparations

Product characteristics

Physical form of the product	solid
vapour pressure	Not available.
Process temperature	Assumes activities are at ambient temperature (unless stated differently).

Amounts used

Not available.

Frequency and duration of use

Not available.

Human factors not influenced by risk management

Exposed skin areas	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. wash off any skin contamination immediately. provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Not available.

Other relevant operational conditions

Not available.

Risk management measures (RMM)

Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur.
Organizational measures to prevent/limit releases, dispersion and exposure	Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
Conditions and measures related to personal protection, hygiene and health evaluations	Avoid direct eye contact with product, also via contamination on hands. Avoid contact with skin. Wear suitable gloves (tested to EN374) and eye protection. Clear up spills immediately and dispose of waste safely. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. If on skin: Wash with plenty of water. Flush contaminated area with plenty of water. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying. When handling hot material, use heat resistant gloves.

3. Exposure Estimation

Environment

Compartment	PEC	RCR (PEC/PNEC)	Method	Remarks
Air.	6,11E-03 mg/m³	The use is assessed to be safe.	Used EUSES model.	
freshwater	8,29E-04 mg/l	0,00829	Used EUSES model.	
marine water	8,81E-05 mg/l	0,00881	Used EUSES model.	
freshwater sediment	1,01E-01 mg/kg wet weight	0,3	Used EUSES model.	
marine sediment	1,07E-02 mg/kg wet weight	0,318	Used EUSES model.	
soil	5,28E-02 mg/kg wet weight	0,236	Used EUSES model.	
STP	7,47E-03 mg/l	0,00593	Used EUSES model.	

Health

Not available.

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

The immediate downstream user is required to evaluate whether the risk management measures and operational conditions described in the ES fits to his use. Where other RMM / OC are adopted, user should then ensure that risks are managed to at least equivalent levels. This may be based on a set of determinants (and a suitable algorithm) which together ensure control of risk. Where relevant DU can use other methods, such as scaling, he needs to check whether he acts within the boundaries set by the information provided in the exposure scenario. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.

1. Adhesives, sealants

List of use descriptors

Sector(s) of Use	SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites. SU0: Other
Name of contributing environmental scenario and corresponding ERC	Adhesives, sealants ERC5: Industrial use resulting in inclusion into or onto a matrix .
List of names of contributing worker scenarios and corresponding PROCs	Adhesives, sealants 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). PROC7: Industrial spraying. 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. PROC10: Roller application or brushing of adhesive and other coating. PROC13: Treatment of articles by dipping and pouring. PROC15: Use as laboratory reagent

2.1.1. Contributing scenario controlling environmental exposure for Adhesives, sealants

Product characteristics

Physical state	solid

Amounts used

Annual amount used in the EU	12500 tons/year
Regional use tonnage (tons/year):	1250 tons/year
Fraction of Regional tonnage used locally:	1
Emission days (days/year):	220

Environment factors not influenced by risk management

Local freshwater dilution factor:	10
Local marine water dilution factor:	100

Other given operational conditions affecting environmental exposure

	Emission days	Emission factors			
Type	**(days/year)**	**Air**	**Soil**	**Water**	**Remarks**
Emission days (days/year):	220	0,017	0	0	

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	Not available.
Soil	Not available.
Water	Not available.
Sediment	Not available.
Organisational measures to prevent/limit release from site	Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater.

Conditions and measures related to municipal sewage treatment plant

Size of municipal sewage system/treatment plant (m3/d)

Type	Not available.
Discharge rate	2000
Sludge treatment technique	Not available.

Conditions and measures related to external treatment of waste for disposal

Fraction of used amount transferred to external waste treatment

Suitable waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Treatment effectiveness	Not available.

Conditions and measures related to external recovery of waste

Fraction of used amount transferred to external waste treatment

Suitable recover operations	External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2.1. Contributing scenario controlling worker exposure for Adhesives, sealants

Product characteristics

Physical form of the product	solid
vapour pressure	Not available.
Process temperature	Assumes activities are at ambient temperature (unless stated differently).

Amounts used

Not available.

Frequency and duration of use

Not available.

Human factors not influenced by risk management

Exposed skin areas	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. wash off any skin contamination immediately. provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Not available.

Other relevant operational conditions

Not available.

Risk management measures (RMM)

Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur.
Organizational measures to prevent/limit releases, dispersion and exposure	Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
Conditions and measures related to personal protection, hygiene and health evaluations	Avoid direct eye contact with product, also via contamination on hands. Avoid contact with skin. Wear suitable gloves (tested to EN374) and eye protection. Clear up spills immediately and dispose of waste safely. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. If on skin: Wash with plenty of water. Flush contaminated area with plenty of water. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying. When handling hot material, use heat resistant gloves.

3. Exposure Estimation

Environment

Compartment	PEC	RCR (PEC/PNEC)	Method	Remarks
Air.	1,75E-02 mg/m³	The use is assessed to be safe.	Used EUSES model.	
freshwater	8,88E-05 mg/l	0,000888	Used EUSES model.	
marine water	1,40E-05 mg/l	0,0014	Used EUSES model.	
freshwater sediment	1,08E-02 mg/kg wet weight	0,0321	Used EUSES model.	
marine sediment	1,71E-03 mg/kg wet weight	0,0506	Used EUSES model.	
soil	1,76E-01 mg/kg wet weight	0,788	Used EUSES model.	
STP	0 mg/l	0	Used EUSES model.	

Health

Not available.

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

The immediate downstream user is required to evaluate whether the risk management measures and operational conditions described in the ES fits to his use. Where other RMM / OC are adopted, user should then ensure that risks are managed to at least equivalent levels. This may be based on a set of determinants (and a suitable algorithm) which together ensure control of risk. Where relevant DU can use other methods, such as scaling, he needs to check whether he acts within the boundaries set by the information provided in the exposure scenario. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.

1. Adhesives, sealants

List of use descriptors

Sector(s) of Use	SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen). SU0: Other
Product categories [PC]:	PC1: Adhesives, sealants. PC4: Anti-freeze and de-icing products. PC8: Biocidal products. PC9a: Coatings and paints, thinners, paint removers. PC9b: Fillers, putties, plasters, modelling clay. PC9c: Finger paints. PC15: Non-metal-surface treatment products. PC18: Ink and toners. PC23: Leather tanning, dye, finishing, impregnation and care products. PC24: Lubricants, greases, release products. PC31: Polishes and wax blends. PC34: Textile dyes, finishing and impregnating products; including bleaches and other processing aids
Name of contributing environmental scenario and corresponding ERC	Adhesives, sealants ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix .
List of names of contributing worker scenarios and corresponding PROCs	Adhesives, sealants 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. PROC10: Roller application or brushing of adhesive and other coating. PROC11: Non industrial spraying. PROC13: Treatment of articles by dipping and pouring. PROC15: Use as laboratory reagent. PROC19: Hand-mixing with intimate contact and only PPE available

2.1.1. Contributing scenario controlling environmental exposure for Adhesives, sealants

Product characteristics

Physical state	solid

Amounts used

Annual amount used in the EU	5000 tons/year
Regional use tonnage (tons/year):	500 tons/year
Fraction of Regional tonnage used locally:	0,002
Emission days (days/year):	365

Environment factors not influenced by risk management

Local freshwater dilution factor:	10
Local marine water dilution factor:	100

Other given operational conditions affecting environmental exposure

	Emission days		Emission factors		
Type	**(days/year)**	**Air**	**Soil**	**Water**	**Remarks**
Emission days (days/year):	365	0	0	0,015	

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	Not available.
Soil	Not available.
Water	Not available.
Sediment	Not available.
Organisational measures to prevent/limit release from site	Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater.

Conditions and measures related to municipal sewage treatment plant

Size of municipal sewage system/treatment plant (m3/d)

Type	Not available.

Discharge rate	2000
Sludge treatment technique	Not available.

Conditions and measures related to external treatment of waste for disposal

Fraction of used amount transferred to external waste treatment

Suitable waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Treatment effectiveness	Not available.

Conditions and measures related to external recovery of waste

Fraction of used amount transferred to external waste treatment

Suitable recover operations	External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2.1. Contributing scenario controlling worker exposure for Adhesives, sealants

Product characteristics

Physical form of the product	solid
vapour pressure	Not available.
Process temperature	Assumes activities are at ambient temperature (unless stated differently).

Amounts used

Not available.

Frequency and duration of use

Not available.

Human factors not influenced by risk management

Exposed skin areas	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. wash off any skin contamination immediately. provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Not available.

Other relevant operational conditions

Not available.

Risk management measures (RMM)

Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur.
Organizational measures to prevent/limit releases, dispersion and exposure	Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
Conditions and measures related to personal protection, hygiene and health evaluations	Avoid direct eye contact with product, also via contamination on hands. Avoid contact with skin. Wear suitable gloves (tested to EN374) and eye protection. Clear up spills immediately and dispose of waste safely. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. If on skin: Wash with plenty of water. Flush contaminated area with plenty of water. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying. When handling hot material, use heat resistant gloves.

3. Exposure Estimation

Environment

Compartment	PEC	RCR (PEC/PNEC)	Method	Remarks
Air.	1,35E-03 mg/m³	The use is assessed to be safe.	Used EUSES model.	
freshwater	2,71E-04 mg/l	0,00271	Used EUSES model.	
marine water	2,18E-04 mg/l	0,0218	Used EUSES model.	
freshwater sediment	3,30E-02 mg/kg wet weight	0,0981	Used EUSES model.	
marine sediment	2,65E-02 mg/kg wet weight	0,787	Used EUSES model.	

soil	2,13E-01 mg/kg wet weight	0,975	Used EUSES model.
STP	1,84E-03 mg/l	0,00146	Used EUSES model.

Health

Not available.

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

The immediate downstream user is required to evaluate whether the risk management measures and operational conditions described in the ES fits to his use. Where other RMM / OC are adopted, user should then ensure that risks are managed to at least equivalent levels. This may be based on a set of determinants (and a suitable algorithm) which together ensure control of risk. Where relevant DU can use other methods, such as scaling, he needs to check whether he acts within the boundaries set by the information provided in the exposure scenario. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.

1. Coating.

List of use descriptors

Sector(s) of Use	SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites. SU0: Other
Name of contributing environmental scenario and corresponding ERC	Coating. ERC5: Industrial use resulting in inclusion into or onto a matrix .
List of names of contributing worker scenarios and corresponding PROCs	Coating. 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). PROC7: Industrial spraying. 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. PROC10: Roller application or brushing of adhesive and other coating. PROC13: Treatment of articles by dipping and pouring. PROC15: Use as laboratory reagent

2.1.1. Contributing scenario controlling environmental exposure for Coating.

Product characteristics

Physical state	solid

Amounts used

Annual amount used in the EU	12500 tons/year
Regional use tonnage (tons/year):	1250 tons/year
Fraction of Regional tonnage used locally:	1
Emission days (days/year):	220

Environment factors not influenced by risk management

Local freshwater dilution factor:	10
Local marine water dilution factor:	100

Other given operational conditions affecting environmental exposure

	Emission days	Emission factors			
Type	**(days/year)**	**Air**	**Soil**	**Water**	**Remarks**
Emission days (days/year):	220	0,021	0	0	

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	Not available.
Soil	Not available.
Water	Not available.
Sediment	Not available.
Organisational measures to prevent/limit release from site	Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater.

Conditions and measures related to municipal sewage treatment plant

Size of municipal sewage system/treatment plant (m3/d)

Type	Not available.
Discharge rate	2000
Sludge treatment technique	Not available.

Conditions and measures related to external treatment of waste for disposal

Fraction of used amount transferred to external waste treatment

Suitable waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Treatment effectiveness	Not available.

Conditions and measures related to external recovery of waste

Fraction of used amount transferred to external waste treatment

Suitable recover operations	External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2.1. Contributing scenario controlling worker exposure for Coating.

Product characteristics

Physical form of the product	solid
vapour pressure	Not available.
Process temperature	Assumes activities are at ambient temperature (unless stated differently).

Amounts used

Not available.

Frequency and duration of use

Not available.

Human factors not influenced by risk management

Exposed skin areas	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. wash off any skin contamination immediately. provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Not available.

Other relevant operational conditions

Not available.

Risk management measures (RMM)

Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur.
Organizational measures to prevent/limit releases, dispersion and exposure	Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
Conditions and measures related to personal protection, hygiene and health evaluations	Avoid direct eye contact with product, also via contamination on hands. Avoid contact with skin. Wear suitable gloves (tested to EN374) and eye protection. Clear up spills immediately and dispose of waste safely. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. If on skin: Wash with plenty of water. Flush contaminated area with plenty of water. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying. When handling hot material, use heat resistant gloves.

3. Exposure Estimation

Environment

Compartment	PEC	RCR (PEC/PNEC)	Method	Remarks
Air.	2,13E-02 mg/m³	The use is assessed to be safe.	Used EUSES model.	
freshwater	8,88E-05 mg/l	0,000888	Used EUSES model.	
marine water	1,40E-05 mg/l	0,0014	Used EUSES model.	
freshwater sediment	1,08E-02 mg/kg wet weight	0,0321	Used EUSES model.	
marine sediment	1,71E-03 mg/kg wet weight	0,0506	Used EUSES model.	
soil	2,18E-01 mg/kg wet weight	0,972	Used EUSES model.	
STP	0 mg/l	0	Used EUSES model.	

Health

Not available.

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

The immediate downstream user is required to evaluate whether the risk management measures and operational conditions described in the ES fits to his use. Where other RMM / OC are adopted, user should then ensure that risks are managed to at least equivalent levels. This may be based on a set of determinants (and a suitable algorithm) which together ensure control of risk. Where relevant DU can use other methods, such as scaling, he needs to check whether he acts within the boundaries set by the information provided in the exposure scenario. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.

1. Coating.

List of use descriptors

Sector(s) of Use	SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen). SU0: Other
Product categories [PC]:	PC1: Adhesives, sealants. PC4: Anti-freeze and de-icing products. PC8: Biocidal products. PC9a: Coatings and paints, thinners, paint removers. PC9b: Fillers, putties, plasters, modelling clay. PC9c: Finger paints. PC15: Non-metal-surface treatment products. PC18: Ink and toners. PC23: Leather tanning, dye, finishing, impregnation and care products. PC24: Lubricants, greases, release products. PC31: Polishes and wax blends. PC34: Textile dyes, finishing and impregnating products; including bleaches and other processing aids
Name of contributing environmental scenario and corresponding ERC	Coating. ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix . ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix .
List of names of contributing worker scenarios and corresponding PROCs	Coating. 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. PROC10: Roller application or brushing of adhesive and other coating. PROC11: Non industrial spraying. PROC13: Treatment of articles by dipping and pouring. PROC15: Use as laboratory reagent. PROC19: Hand-mixing with intimate contact and only PPE available

2.1.1. Contributing scenario controlling environmental exposure for Coating.

Product characteristics

Physical state	solid

Amounts used

Annual amount used in the EU	7500 tons/year
Regional use tonnage (tons/year):	750 tons/year
Fraction of Regional tonnage used locally:	0,002
Emission days (days/year):	365

Environment factors not influenced by risk management

Local freshwater dilution factor:	10
Local marine water dilution factor:	100

Other given operational conditions affecting environmental exposure

	Emission days		Emission factors		
Type	**(days/year)**	**Air**	**Soil**	**Water**	**Remarks**
Emission days (days/year):	365	0	0,005	0,01	

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	Not available.
Soil	Not available.
Water	Not available.
Sediment	Not available.
Organisational measures to prevent/limit release from site	Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater.

Conditions and measures related to municipal sewage treatment plant

Size of municipal sewage system/treatment plant (m3/d)

Type	Not available.
Discharge rate	2000
Sludge treatment technique	Not available.

Conditions and measures related to external treatment of waste for disposal

Fraction of used amount transferred to external waste treatment

Suitable waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Treatment effectiveness	Not available.

Conditions and measures related to external recovery of waste

Fraction of used amount transferred to external waste treatment

Suitable recover operations	External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2.1. Contributing scenario controlling worker exposure for Coating.

Product characteristics

Physical form of the product	solid
vapour pressure	Not available.
Process temperature	Assumes activities are at ambient temperature (unless stated differently).

Amounts used

Not available.

Frequency and duration of use

Not available.

Human factors not influenced by risk management

Exposed skin areas	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. wash off any skin contamination immediately. provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Not available.

Other relevant operational conditions

Not available.

Risk management measures (RMM)

Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur.
Organizational measures to prevent/limit releases, dispersion and exposure	Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
Conditions and measures related to personal protection, hygiene and health evaluations	Avoid direct eye contact with product, also via contamination on hands. Avoid contact with skin. Wear suitable gloves (tested to EN374) and eye protection. Clear up spills immediately and dispose of waste safely. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. If on skin: Wash with plenty of water. Flush contaminated area with plenty of water. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying. When handling hot material, use heat resistant gloves.

3. Exposure Estimation

Environment

Compartment	PEC	RCR (PEC/PNEC)	Method	Remarks
Air.	1,35E-03 mg/m³	The use is assessed to be safe.	Used EUSES model.	
freshwater	2,71E-04 mg/l	0,00271	Used EUSES model.	
marine water	2,18E-04 mg/l	0,0218	Used EUSES model.	
freshwater sediment	3,30E-02 mg/kg wet weight	0,0981	Used EUSES model.	

marine sediment	2,65E-02 mg/kg wet weight	0,787	Used EUSES model.
soil	2,13E-01 mg/kg wet weight	0,975	Used EUSES model.
STP	1,84E-03 mg/l	0,00146	Used EUSES model.

Health

Not available.

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

The immediate downstream user is required to evaluate whether the risk management measures and operational conditions described in the ES fits to his use. Where other RMM / OC are adopted, user should then ensure that risks are managed to at least equivalent levels. This may be based on a set of determinants (and a suitable algorithm) which together ensure control of risk. Where relevant DU can use other methods, such as scaling, he needs to check whether he acts within the boundaries set by the information provided in the exposure scenario. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.

1. Paper articles

List of use descriptors

Sector(s) of Use	SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites. SU6b: Manufacture of pulp, paper and paper products. SU0: Other
Name of contributing environmental scenario and corresponding ERC	Paper articles ERC5: Industrial use resulting in inclusion into or onto a matrix .
List of names of contributing worker scenarios and corresponding PROCs	Paper articles 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). PROC6: Calendering operations. PROC7: Industrial spraying. 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). PROC15: Use as laboratory reagent

2.1.1. Contributing scenario controlling environmental exposure for Paper articles

Product characteristics

Physical state	solid

Amounts used

Annual amount used in the EU	1000 tons/year
Regional use tonnage (tons/year):	1000 tons/year
Fraction of Regional tonnage used locally:	1
Emission days (days/year):	220

Environment factors not influenced by risk management

Local freshwater dilution factor:	10
Local marine water dilution factor:	100

Other given operational conditions affecting environmental exposure

	Emission days		Emission factors		
Type	**(days/year)**	**Air**	**Soil**	**Water**	**Remarks**
Emission days (days/year):	220	0,009	0	0	

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	Not available.
Soil	Not available.
Water	Not available.
Sediment	Not available.
Organisational measures to prevent/limit release from site	Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from onsite wastewater.

Conditions and measures related to municipal sewage treatment plant

Size of municipal sewage system/treatment plant (m3/d)

Type	Not available.
Discharge rate	2000
Sludge treatment technique	Not available.

Conditions and measures related to external treatment of waste for disposal

Fraction of used amount transferred to external waste treatment

Suitable waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.

Treatment effectiveness Not available.

Conditions and measures related to external recovery of waste

Fraction of used amount transferred to external waste treatment

Suitable recover operations External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2.1. Contributing scenario controlling worker exposure for Paper articles

Product characteristics

Physical form of the product solid

vapour pressure Not available.

Process temperature Assumes activities are at ambient temperature (unless stated differently).

Amounts used

Not available.

Frequency and duration of use

Not available.

Human factors not influenced by risk management

Exposed skin areas Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. wash off any skin contamination immediately. provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Not available.

Other relevant operational conditions

Not available.

Risk management measures (RMM)

Technical conditions and measures to control dispersion from source towards the worker Provide extract ventilation to points where emissions occur.

Organizational measures to prevent/limit releases, dispersion and exposure Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluations Avoid direct eye contact with product, also via contamination on hands. Avoid contact with skin. Wear suitable gloves (tested to EN374) and eye protection. Clear up spills immediately and dispose of waste safely. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. If on skin: Wash with plenty of water. Flush contaminated area with plenty of water. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying. When handling hot material, use heat resistant gloves.

3. Exposure Estimation

Environment

Compartment	PEC	RCR (PEC/PNEC)	Method	Remarks
Air.	8,20E-03 mg/m³	The use is assessed to be safe.	Used EUSES model.	
freshwater	8,88E-05 mg/l	0,000888	Used EUSES model.	
marine water	1,40E-05 mg/l	0,0014	Used EUSES model.	
freshwater sediment	1,08E-02 mg/kg wet weight	0,0321	Used EUSES model.	
marine sediment	1,71E-03 mg/kg wet weight	0,0506	Used EUSES model.	
soil	7,53E-02 mg/kg wet weight	0,336	Used EUSES model.	
STP	0 mg/l	0	Used EUSES model.	

Health

Not available.

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

The immediate downstream user is required to evaluate whether the risk management measures and operational conditions described in the ES fits to his use. Where other RMM / OC are adopted, user should then ensure that risks are managed to at least equivalent levels. This may be based on a set of determinants (and a suitable algorithm) which together ensure control of risk. Where relevant DU can use other methods, such as scaling, he needs to check whether he acts within the boundaries set by the information provided in the exposure scenario. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.