ConnectingChemistry

BRENNTAG

SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006

EDTA 4NA 40% (NTA 0.1%) - CAN 25KG

Version 1.1 Print Date 29.01.2021

Revision date / valid from 28.01.2021

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

1.1. Product identifier

Trade name	:	EDTA 4NA 40% (NTA 0.1%) - CAN 25KG

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

Use of the Substance/Mixture	:	Chelating agent, industrial cleaning agent, Bleaching agents, Pulp and paper
Uses advised against	:	At this moment we have not identified any uses advised against

1.3. Details of the supplier of the safety data sheet

Company	:	Brenntag N.V. Nijverheidslaan 38 BE 8540 Deerlijk
Telephone	:	+32 (0)56 77 6944
Telefax	:	+32 (0)56 77 5711
E-mail address	:	info@brenntag.be
Responsible/issuing person	:	Master Data Administration
Company	:	Brenntag Nederland B.V. Donker Duyvisweg 44 NL 3316 BM Dordrecht
Telephone	:	+31(0)78 65 44 944
Telefax	:	+31(0)78 65 44 919
E-mail address	:	info@brenntag.nl
Responsible/issuing person	:	Master Data Administration

1.4. Emergency telephone number

Emergency telephone number	:	Belgium: Antipoison Center - Brussels TEL: +32(0)70 245 245 Netherland: National Poisoning Information Center - Bilthoven TEL: +31(0)30 274 8888 (Only for the purpose of informing medical personnel in cases of acute intoxications)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

REGULATION (EC) No 1272/2008			
Hazard class	**Hazard category**	**Target Organs**	**Hazard statements**
Skin corrosion	Category 1	---	H314
Serious eye damage	Category 1	---	H318
Corrosive to metals	Category 1	---	H290
Acute toxicity (Oral)	Category 4	---	H302
Acute toxicity (Inhalation)	Category 4	---	H332
Specific target organ toxicity - repeated exposure	Category 2	---	H373

For the full text of the H-Statements mentioned in this Section, see Section 16.

Most important adverse effects

Human Health	:	No further information available.
Physical and chemical hazards	:	No further information available.
Potential environmental effects	:	Material does not meet the criteria for PBT or vPvB in accordance with REACH Annex XIII.

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard symbols :

Signal word : Danger

Hazard statements	:	H290	May be corrosive to metals.
		H302	Harmful if swallowed.
		H314	Causes severe skin burns and eye damage.
		H332	Harmful if inhaled.
		H373	May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

Prevention	:	P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

		P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response	:	P301 + P310 + P331	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Do NOT induce vomiting.
		P303 + P361 + P353 + P310	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower. Immediately call a POISON CENTER/doctor.
		P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
		P314	Get medical advice/ attention if you feel unwell.
Disposal	:	P501	Dispose of contents/ container in accordance with the local regulations.

Hazardous components which must be listed on the label:

• tetrasodium ethylene diamine tetraacetate

2.3. Other hazards

For Results of PBT and vPvB assessment see section 12.5.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hazardous components	Amount [%]	Classification (REGULATION (EC) No 1272/2008)	
		Hazard class / Hazard category	Hazard statements
tetrasodium ethylene diamine tetraacetate			
Index-No. : 607-428-00-2 CAS-No. : 64-02-8 EC-No. : 200-573-9 EU REACH-Reg. No. : 01-2119486762-27-xxxx	>= 39 - <= 41	Acute Tox.4 Acute Tox.4 Eye Dam.1 STOT RE2	H302 H332 H318 H373
trisodium nitrilotriacetate			

Index-No.	: 607-620-00-6	<= 0,1	Acute Tox.4	H302
CAS-No.	: 5064-31-3		Eye Irrit.2	H319
EC-No.	: 225-768-6		Carc.2	H351
EU REACH-Reg. No.	: 01-2119519239-36-xxxx			

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice : Take off all contaminated clothing immediately.

If inhaled : In case of accident by inhalation: remove casualty to fresh air and keep at rest. If breathing is irregular or stopped, administer artificial respiration. If unconscious place in recovery position. Call a physician immediately.

In case of skin contact : Wash off immediately with soap and plenty of water. Call a physician immediately.

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Consult an eye specialist immediately. Go to an ophthalmic hospital if possible.

If swallowed : Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. If a person vomits when lying on his back, place him in the recovery position. Call a physician immediately.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms : See Section 11 for more detailed information on health effects and symptoms.

Effects : Extremely corrosive and destructive to tissue. If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach. See Section 11 for more detailed information on health effects and symptoms. Watch victim for several hours because of possible delayed signs of poisoning.

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	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	:	High volume water jet

5.2. Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	Incomplete combustion may form toxic pyrolysis products.
Hazardous combustion products	:	Carbon monoxide, Carbon dioxide (CO2)

5.3. Advice for firefighters

Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus.Wear appropriate body protection (full protective suit)
Specific extinguishing methods	:	Control smoke with water spray.
Further advice	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Keep away unprotected persons. Use personal protective equipment. Ensure adequate ventilation. Avoid contact with the skin and the eyes. Do not breathe vapours or spray mist.

6.2. Environmental precautions

Environmental precautions	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration.

6.3. Methods and materials for containment and cleaning up

Methods and materials for containment and cleaning up	:	Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders). Keep in suitable, closed containers for disposal.
	:	Use mechanical handling equipment. Keep in suitable, closed containers for disposal.
Further information	:	Treat recovered material as described in the section "Disposal considerations".

6.4. Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on personal protective equipment.
See Section 13 for waste treatment information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling	:	Keep container tightly closed. Ensure adequate ventilation. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Do not breathe vapours or spray mist. Use respirator with appropriate filter if vapours or aerosol are released. Emergency eye wash fountains and emergency showers should be available in the immediate vicinity.
Hygiene measures	:	Keep away from food, drink and animal feedingstuffs. Smoking, eating and drinking should be prohibited in the application area. Wash hands before breaks and at the end of workday. Take off all contaminated clothing immediately.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Store in original container.
Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Further information on storage conditions	:	Keep tightly closed in a dry and cool place. Keep in a well-ventilated place.
Advice on common storage	:	Keep away from food, drink and animal feedingstuffs.

7.3. Specific end use(s)

Specific use(s)	:	No information available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Other Occupational Exposure Limit Values

(Additional) Information	:	Contains no substances with occupational exposure limit values. Contains no substances with occupational exposure limit values.

Component:	**tetrasodium ethylene diamine tetraacetate**	**CAS-No. 64-02-8**

Derived No Effect Level (DNEL)/Derived Minimal Effect Level (DMEL)

DNEL

Workers, Long-term - local effects, Inhalation : 1,5 mg/m3

DNEL

Workers, Acute - local effects, Inhalation	:	3 mg/m3
DNEL Consumers, Long-term - local effects, Inhalation	:	0,6 mg/m3
DNEL Consumers, Acute - local effects, Inhalation	:	1,2 mg/m3
DNEL Consumers, Ingestion	:	20 mg/kg bw/day

Predicted No Effect Concentration (PNEC)

Fresh water	:	2,2 mg/l
Marine water	:	0,22 mg/l
Sewage treatment plant (STP)	:	43 mg/l
Soil	:	0,72 mg/kg d.w.

Component: trisodium nitrilotriacetate CAS-No. 5064-31-3

Derived No Effect Level (DNEL)/Derived Minimal Effect Level (DMEL)

DNEL Workers, Long-term - systemic effects, Inhalation	:	3,5 mg/m3
DNEL Workers, Acute - systemic effects, Inhalation	:	5,25 mg/m3
DNEL Consumers, Acute - systemic effects, Inhalation	:	1,75 mg/m3
DNEL Consumers, Long-term - systemic effects, Ingestion	:	0,5 mg/kg bw/day

Predicted No Effect Concentration (PNEC)

Fresh water	:	0,93 mg/l
Marine water	:	0,093 mg/l
Intermittent releases	:	0,915 mg/l
Sewage treatment plant (STP)	:	540 mg/l
Fresh water sediment	:	3,64 mg/kg
Marine sediment	:	0,364 mg/kg

Soil	:	0,182 mg/kg

8.2. Exposure controls

Appropriate engineering controls

Refer to protective measures listed in sections 7 and 8.

Personal protective equipment

Respiratory protection

Advice	:	In case of brief exposure or low pollution use breathing filter apparatus. Respiratory protection complying with EN 141. In case of intensive or longer exposure use self-contained breathing apparatus.

Hand protection

Advice	:	Protective gloves complying with EN 374. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Protective gloves should be replaced at first signs of wear.

Eye protection

Advice	:	Safety goggles Face-shield

Skin and body protection

Advice	:	Impervious clothing Chemical resistant apron

Environmental exposure controls

General advice	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Form	:	liquid
Colour	:	light yellow

Odour	:	no data available
Odour Threshold	:	no data available
pH	:	11 - 12
Melting point/freezing point	:	< -18 °C
Boiling point/boiling range	:	107 °C
Flash point	:	Not applicable
Evaporation rate	:	no data available
Flammability (solid, gas)	:	no data available
Upper explosion limit	:	no data available
Lower explosion limit	:	no data available
Vapour pressure	:	no data available
Relative vapour density	:	no data available
Relative density	:	no data available
Solubility/qualitative	:	no data available
Partition coefficient: n-octanol/water	:	log Kow < 0
Auto-ignition temperature	:	no data available
Thermal decomposition	:	no data available
Viscosity, dynamic	:	20 mPa.s
Explosivity	:	no data available
Oxidizing properties	:	no data available

9.2. Other information

No further information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

Advice : Reaction with strong oxidizing agents.
Reacts with copper, aluminum, zinc and their alloys.

10.2. Chemical stability

Advice : Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions : In contact with metals generates hydrogen gas, which together with air can form explosive mixtures.

10.4. Conditions to avoid

Conditions to avoid : No information available.

10.5. Incompatible materials

Materials to avoid : Strong oxidizing agents, Copper, Zinc, Nickel, Aluminium, Copper alloys

10.6. Hazardous decomposition products

Hazardous decomposition products : ammonia, Carbon oxides, Nitrogen oxides (NOx)

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Data for the product		
Acute toxicity		
Oral		
Acute toxicity estimate	:	> 2000 mg/kg) (Calculation method)Harmful if swallowed.
Inhalation		
Acute toxicity estimate	:	Harmful if inhaled.
Dermal		
		Based on available data, the classification criteria are not met.
Irritation		
Skin		
Result	:	Causes severe skin burns and eye damage.
Eyes		
Result	:	Causes serious eye damage.
Sensitisation		
Result	:	Based on available data, the classification criteria are not met.
CMR effects		

CMR Properties		
Carcinogenicity	:	Based on available data, the classification criteria are not met.
Mutagenicity	:	Based on available data, the classification criteria are not met.
Reproductive toxicity	:	Based on available data, the classification criteria are not met.

Specific Target Organ Toxicity

Single exposure

Remarks	:	Based on available data, the classification criteria are not met.

Repeated exposure

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

Other toxic properties

Repeated dose toxicity

no data available

Aspiration hazard

Based on available data, the classification criteria are not met.,

Component:	tetrasodium ethylene diamine tetraacetate	CAS-No. 64-02-8

Acute toxicity

Oral

LD50	:	1780 mg/kg (Rat, female) (OECD Test Guideline 401)Read-across (Analogy)
LD50	:	1913 mg/kg (Rat, male) (OECD Test Guideline 401)Read-across (Analogy)

Inhalation

LOAEC	:	ca. 0,030 mg/l (Rat, male; 6 h; dust/mist) (OECD Test Guideline 412)Read-across (Analogy)

Dermal

no data available

Irritation

Skin

Result	:	No skin irritation (Rabbit; 4 h) (OECD Test Guideline 404)

Eyes

Result : Causes serious eye damage. (Rabbit) (OECD Test Guideline 405)

Sensitisation

Result : not sensitizing (Maximisation Test; Dermal; Guinea pig) (OECD Test Guideline 406)

CMR effects

CMR Properties

Carcinogenicity : Animal testing did not show any carcinogenic effects. Read-across (Analogy)
Mutagenicity : In vitro tests did not show mutagenic effects
Teratogenicity : Did not show teratogenic effects in animal experiments.
Reproductive toxicity : Animal testing did not show any effects on fertility. Read-across (Analogy)

Specific Target Organ Toxicity

Single exposure

Remarks : The substance or mixture is not classified as specific target organ toxicant, single exposure.

Repeated exposure

Inhalation : May cause damage to organs through prolonged or repeated exposure if inhaled.

Other toxic properties

Aspiration hazard

Not applicable,

Component: trisodium nitrilotriacetate CAS-No. 5064-31-3

Acute toxicity

Oral

LD50 : 1740 mg/kg (Rat, male and female) (OECD Test Guideline 401)

Inhalation

LC50 : > 5 mg/l (Rat; 4 h; dust/mist) No mortality observed at this dose.

Dermal

LD50	:	> 10000 mg/kg (Rabbit)

Irritation

Skin

Result	:	No skin irritation (Rabbit)

Eyes

Result	:	Irritating to eyes. (Rabbit)

Sensitisation

Result	:	not sensitizing (Buehler Test; Guinea pig) (OECD Test Guideline 406)

CMR effects

CMR Properties

Carcinogenicity	:	Animal testing showed carcinogenic effects. Suspected of causing cancer.
Mutagenicity	:	No evidence of mutagenic effects.
Teratogenicity	:	Did not show teratogenic effects in animal experiments.
Reproductive toxicity	:	Animal testing did not show any effects on fertility. Not expected to impair fertility.

Specific Target Organ Toxicity

Single exposure

Remarks	:	no data available

Repeated exposure

Ingestion	:	In animals tests effects have been reported on the following organs: Kidney

Other toxic properties

Aspiration hazard

Not applicable,

Further information		
Other relevant toxicity information	:	If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.

SECTION 12: Ecological information

12.1. Toxicity

Data for the product		
Acute toxicity		
Short-term (acute) aquatic hazard		
Result	:	Based on available data, the classification criteria are not met.
Chronic toxicity		
Long-term (chronic) aquatic hazard		
Result	:	Based on available data, the classification criteria are not met.

Component:	tetrasodium ethylene diamine tetraacetate	CAS-No. 64-02-8
Acute toxicity		
Fish		
LC50	:	121 mg/l (Lepomis macrochirus (Bluegill sunfish); 96 h) (static test; US-EPA)
Toxicity to daphnia and other aquatic invertebrates		
EC50	:	625 mg/l (Daphnia magna (Water flea); 24 h) (static test; DIN 38412)
algae		
EC50	:	> 100 mg/l (Scenedesmus subspicatus; 72 h) (static test; End point: Growth rate; Directive 67/548/EEC, Annex V, C.3.)

Component:	trisodium nitrilotriacetate	CAS-No. 5064-31-3
Acute toxicity		
Fish		
LC50	:	> 100 mg/l (Pimephales promelas; 96 h) (flow-through test; APHA 1971)

Toxicity to daphnia and other aquatic invertebrates		
EC50	:	> 98 mg/l (Gammarus salinus (seawater shrimp); 96 h)

algae		
EC50	:	> 91,5 mg/l (Scenedesmus subspicatus; 72 h) (static test; End point: Growth rate; Directive 67/548/EEC, Annex V, C.3.)

Bacteria		
EC50	:	3200 - 5600 mg/l (Pseudomonas fluorescens; 8 h) (static test)The details of the toxic effect relate to the nominal concentration

12.2. Persistence and degradability

Data for the product		
Persistence and degradability		
Biodegradability		
Result	:	Not readily biodegradable.

Component:	tetrasodium ethylene diamine tetraacetate	CAS-No. 64-02-8
Persistence and degradability		
Persistence		
Result	:	The product is water soluble.
Biodegradability		
Result	:	10 % (aerobic; activated sludge; Related to: CO2 formation (% of the theoretical value).; Exposure Time: 28 d)(OECD Test Guideline 301B)Not readily biodegradable.Read-across (Analogy)
Result	:	0 - 10 % (aerobic; activated sludge; 400 mg/l; Related to: Dissolved organic carbon (DOC); Exposure Time: 28 d)(OECD Test Guideline 302B)Not readily biodegradable.Read-across (Analogy)

Component:	trisodium nitrilotriacetate	CAS-No. 5064-31-3
Persistence and degradability		
Persistence		
Result	:	no data available

Biodegradability		
Result	:	90 - 100 % (Related to: Biochemical oxygen demand; Exposure Time: 28 d)(OECD Test Guideline 301B)Readily biodegradable.

12.3. Bioaccumulative potential

Data for the product		
Bioaccumulation		
Result	:	Does not bioaccumulate.

Component:	tetrasodium ethylene diamine tetraacetate	CAS-No. 64-02-8
Bioaccumulation		
Result	:	BCF: ca. 1,8; (Lepomis macrochirus (Bluegill sunfish); 28 d; 21 °C; 0,08 mg/l) Bioaccumulation is not expected.

Component:	trisodium nitrilotriacetate	CAS-No. 5064-31-3
Bioaccumulation		
Result	:	log Kow -13,2 (20 °C) ((calculated))
	:	BCF: < 6; (Brachydanio rerio; 96 d) Bioaccumulation is not expected.

12.4. Mobility in soil

Component:	tetrasodium ethylene diamine tetraacetate	CAS-No. 64-02-8
Mobility		
Water	:	The product is water soluble.
Air	:	not volatile
Soil	:	Will not adsorb on soil.

Component:	trisodium nitrilotriacetate	CAS-No. 5064-31-3
Mobility		
Water	:	The product is water soluble.
Air	:	Substance does not evaporate from water surface into the atmosphere.
Soil	:	Not expected to adsorb on soil.

12.5. Results of PBT and vPvB assessment

Data for the product

Results of PBT and vPvB assessment		
Result	:	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Component:	tetrasodium ethylene diamine tetraacetate	CAS-No. 64-02-8
Results of PBT and vPvB assessment		
Result	:	This substance is not considered to be persistent, bioaccumulating nor toxic (PBT)., This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Component:	trisodium nitrilotriacetate	CAS-No. 5064-31-3
Results of PBT and vPvB assessment		
Result	:	This substance is not considered to be persistent, bioaccumulating nor toxic (PBT)., This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6. Other adverse effects

Data for the product		
Additional ecological information		
Result	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration. Harmful effects to aquatic organisms due to pH-shift.

Component:	tetrasodium ethylene diamine tetraacetate	CAS-No. 64-02-8
Additional ecological information		
Result	:	no data available

Component:	trisodium nitrilotriacetate	CAS-No. 5064-31-3
Additional ecological information		
Result	:	Do not flush into surface water or sanitary sewer system.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product	:	Disposal together with normal waste is not allowed. Special disposal required according to local regulations. Do not let product enter drains. Contact waste disposal services.
Contaminated packaging	:	Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning. If recycling is not

practicable, dispose of in compliance with local regulations.

European Waste Catalogue Number	:	No waste code according to the European Waste Catalogue can be assigned for this product, as the intended use dictates the assignment. The waste code is established in consultation with the regional waste disposer.

SECTION 14: Transport information

14.1. UN number

3267

14.2. UN proper shipping name

ADR	:	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (tetrasodium ethylene diamine tetraacetate, trisodium nitrilotriacetate)
RID	:	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (tetrasodium ethylene diamine tetraacetate, trisodium nitrilotriacetate)
IMDG	:	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (tetrasodium ethylene diamine tetraacetate, trisodium nitrilotriacetate,)

14.3. Transport hazard class(es)

ADR-Class (Labels; Classification Code; Hazard Identification Number; Tunnel restriction code)	:	8 8; C7; 80; (E)
RID-Class (Labels; Classification Code; Hazard Identification Number)	:	8 8; C7; 80
IMDG-Class (Labels; EmS)	:	8 8; F-A, S-B

14.4. Packaging group

ADR	:	III
RID	:	III
IMDG	:	III

14.5. Environmental hazards

Environmentally hazardous according to ADR	:	no
Environmentally hazardous according to RID	:	no
Marine Pollutant according to IMDG-Code	:	no

14.6. Special precautions for user

Not applicable.

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

IMDG : Not applicable.

SECTION 15: Regulatory information

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

Netherlands : ABM: B (4)

Component:	tetrasodium ethylene diamine tetraacetate	CAS-No. 64-02-8

EU. Regulation EU No. 649/2012 concerning the export and import of dangerous chemicals : ; The substance/mixture does not fall under this legislation.

EU. REACH, Annex XVII, Marketing and Use Restrictions (Regulation 1907/2006/EC) : ; The substance/mixture does not fall under this legislation.

EU. Directive 2012/18/EU (SEVESO III) Annex I : ; The substance/mixture does not fall under this legislation.

Component:	trisodium nitrilotriacetate	CAS-No. 5064-31-3

EU. Regulation EU No. 649/2012 concerning the export and import of dangerous chemicals : ; The substance/mixture does not fall under this legislation.

EU. REACH, Annex XVII, Marketing and Use Restrictions (Regulation 1907/2006/EC) : ; The substance/mixture does not fall under this legislation.

EU. Directive 2012/18/EU (SEVESO III) Annex I : ; The substance/mixture does not fall under this legislation.

15.2. Chemical safety assessment

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

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure if inhaled.

Abbreviations and Acronyms

BCF	bioconcentration factor
BOD	biochemical oxygen demand
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging
CMR	carcinogenic, mutagenic or toxic to reproduction
COD	chemical oxygen demand
DNEL	derived no-effect level
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
LC50	median lethal concentration
LOAEC	lowest observed adverse effect concentration
LOAEL	lowest observed adverse effect level
LOEL	lowest observed effect level
NLP	no-longer polymer
NOAEC	no observed adverse effect concentration
NOAEL	no observed adverse effect level
NOEC	no observed effect concentration
NOEL	no observed effect level
OECD	Organisation for Economic Cooperation and Development
OEL	occupational exposure limit
PBT	persistent, bioaccumulative and toxic
REACH Auth. No.:	REACH Authorisation Number
REACH AuthAppC. No.	REACH Authorisation Application Consultation Number

PNEC	predicted no-effect concentration
STOT	specific target organ toxicity
SVHC	substance of very high concern
UVCB	substance of unknown or variable composition, complex reaction products or biological materials
vPvB	very persistent and very bioaccumulative

Further information

Key literature references and sources for data	:	Supplier information and data from the "Database of registered substances" of the European Chemicals Agency (ECHA) were used to create this safety data sheet.
Methods used for product classification	:	The classification for human health, physical and chemical hazards and environmental hazards were derived from a combination of calculation methods and if available test data.
Hints for trainings	:	The workers have to be trained regularly on the safe handling of the products based on the information provided in the Safety Data Sheet and the local conditions of the workplace. National regulations for the training of workers in the handling of hazardous materials must be adhered to.
Other information	:	The information provided in this Safety Data Sheet is correct to our knowledge at the date of its revision. The information given only describes the products with regard to safety arrangements and is not to be considered as a warranty or quality specification and does not constitute a legal relationship. The information contained in this Safety Data Sheet relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

|| Indicates updated section.

No.	Short title	Main User Group (SU)	Sector of Use (SU)	Product Category (PC)	Process Category (PROC)	Environmental Release Category (ERC)	Article Category (AC)	Specified
1	Use as an intermediate	3	NA	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 15	6a	NA	ES944
2	Use in industrial processes in which the substance is consumed	3	NA	NA	1, 2, 3, 4, 5, 6, 8a, 8b, 9, 13, 17, 18, 21	4, 5, 6a, 6b, 6c, 6d, 7	NA	ES1145
3	Formulation & (re)packing of substances and mixtures	3	NA	NA	1, 2, 3, 4, 5, 6, 8a, 8b, 9, 10, 14, 15, 19	2, 3	NA	ES908
4	Use in spraying formulations	3	NA	NA	7, 8a, 8b	4, 5, 6a, 6b, 6c, 6d, 7	NA	ES1147
5	Use in non-spraying formulations	3	NA	NA	1, 2, 3, 4, 5, 6, 8a, 8b, 9, 10, 13, 14, 15, 17, 18, 19, 21	4, 5, 6a, 6b, 6c, 6d, 7	NA	ES1149
6	Use in spraying formulations	22	NA	NA	8a, 8b, 11	8a, 8b, 8c, 8d, 8e, 8f, 9a, 9b	NA	ES1412
7	Use in non-spraying formulations	22	NA	NA	1, 2, 3, 4, 5, 6, 8a, 8b, 9, 10, 13, 14, 15, 17, 18, 19, 21	8a, 8b, 8c, 8d, 8e, 8f, 9a, 9b	NA	ES1414
8	Industrial use	3	NA	NA	1, 2, 3, 4, 5, 6, 7, 8a, 8b, 9, 10, 12, 13, 14, 15, 17, 18, 19, 21, 22, 23, 24	4, 5, 6b, 7	NA	ES948
9	Professional use	22	NA	NA	1, 2, 3, 4, 5, 6, 8a, 8b, 9, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20, 21, 23, 24	8a, 8c, 8d, 8f, 9a, 9b	NA	ES1020

10	Use in adhesives and sealants	21	NA	1	NA	8a, 8c, 8d, 8f, 9a, 9b	NA	ES1040
11	Uses in coatings	21	NA	9a, 9b	NA	8a, 8c, 8d, 8f, 9a, 9b	NA	ES1048
12	Use in Cleaning Agents	21	NA	35	NA	8a, 8c, 8d, 8f, 9a, 9b	NA	ES1114
13	Use in road and construction applications	3	13, 19	NA	5, 24	3, 5, 6a, 6b, 6c, 6d, 7, 12a, 12b	NA	ES1152
14	Use in road and construction applications	22	13, 19	NA	5, 24	8a, 8b, 8c, 8d, 8e, 8f, 10a, 11a	NA	ES1417
15	Use in metal surface treatment.	21	NA	14	NA	8a, 8c, 8d, 8f, 9a, 9b	NA	ES1051
16	Use in surface treatment products	21	NA	15, 31	NA	8a, 8c, 8d, 8f, 9a, 9b	NA	ES1053
17	Use in/as air care products (spray products)	21	NA	3	NA	8a, 8c, 8d, 8f, 9a, 9b	NA	ES1043
18	Use in textile industry	21	NA	34	NA	8a, 8c, 8d, 8f, 9a, 9b	NA	ES1111
19	Use in/as photochemicals	21	NA	30	NA	8a, 8c, 8d, 8f, 9a, 9b	NA	ES1056
20	Use in biocidal products	21	NA	8	NA	8a, 8c, 8d, 8f, 9a, 9b	NA	ES1045
21	Other consumer uses	21	NA	12, 18, 20, 23, 24, 26, 28, 29, 32, 36, 37, 39	NA	8a, 8b, 8c, 8d, 8e, 8f, 9a, 9b	NA	ES1579

1. Short title of Exposure Scenario 1: Use as an intermediate	
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) PROC15: Use as laboratory reagent
Environmental Release Categories	ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

2.1 Contributing scenario controlling environmental exposure for: ERC6a
As no environmental hazard was identified no environmental related exposure assessment and risk characterization was performed.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 100%
	Physical Form (at time of use)	Solid, medium dustiness
Frequency and duration of use	Frequency of use	220 days/year
	Exposure duration per day	480 min
Other operational conditions affecting workers exposure	Indoor use.	
Technical conditions and measures to control dispersion from source towards the worker	Provide extraction ventilation at points where emissions occur. (Efficiency: 90 %)(PROC4, PROC5, PROC8a, PROC8b, PROC9)	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures Regular inspection and maintenance of equipment and machines.	
Conditions and measures related to personal protection, hygiene	Use suitable eye protection. Wear suitable protective clothing.	

and health evaluation	If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn.	

2.3 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 0% - 55%
	Physical Form (at time of use)	Liquid, low fugacity
	Vapour pressure	< 0,0001 hPa
Frequency and duration of use	Frequency of use	220 days/year
	Exposure duration per day	480 min
Other operational conditions affecting workers exposure	Indoor use.	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures Regular inspection and maintenance of equipment and machines.	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear suitable protective clothing.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	See section 2.2	Worker - inhalative, long-term - local	0,01mg/m³	0,004
PROC2, PROC15	See section 2.2	Worker - inhalative, long-term - local	0,5mg/m³	0,2
PROC3	See section 2.2	Worker - inhalative, long-term - local	1mg/m³	0,4
PROC4, PROC5, PROC8a, PROC8b, PROC9	See section 2.2	Worker - inhalative, long-term - local	0,5mg/m³	0,2

Dermal exposure is not considered to be relevant.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by 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.
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For scaling see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

1. Short title of Exposure Scenario 2: Use in industrial processes in which the substance is consumed	
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) PROC6: Calendering operations 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 PROC17: Lubrication at high energy conditions and in partly open process PROC18: Greasing at high energy conditions PROC21: Low energy manipulation of substances bound in materials and/or articles
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles 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

2.1 Contributing scenario controlling environmental exposure for: ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7		
Amount used	Annual site tonnage (tons/year):	8,6 ton(s)/year
Frequency and duration of use	Continuous exposure	200 days/year (ERC4)
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d

	Degradation efficiency	70 %

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC13, PROC17, PROC18, PROC21		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	solid, liquid
	Vapour pressure	< 0,01 hPa
Frequency and duration of use	Frequency of use	365 days/year
	Exposure duration	480 min
	Under the condition(s):, no aerosols are formed	
Technical conditions and measures to control dispersion from source towards the worker	Provide local exhaust ventilation (LEV). (Efficiency: 90 %)(PROC8a, PROC8b, PROC9)	

3. Exposure estimation and reference to its source

Environment

EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7	---	Water	PEC	2,20mg/L	---

Workers

Stoffenmanager V4.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC8a, PROC8b, PROC9	with local exhaust ventilation	Inhalation worker exposure	1,80mg/m³	---
PROC8a, PROC8b, PROC9	with local exhaust ventilation, With respiratory protection	Inhalation worker exposure	0,87mg/m³	---

Dermal exposure is not considered to be relevant.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by 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.
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For scaling see: https://www.stoffenmanager.nl/default.aspx
The environmental emission has been evaluated using EUSES 2.1 (http://ecb.jrc.ec.europa.eu/euses), in which default values have been used, unless otherwise indicated.
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

1. Short title of Exposure Scenario 3: Formulation & (re)packing of substances and mixtures	
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) PROC6: Calendering operations 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) PROC10: Roller application or brushing PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation PROC15: Use as laboratory reagent PROC19: Hand-mixing with intimate contact and only PPE available
Environmental Release Categories	ERC2: Formulation of preparations ERC3: Formulation in materials

2.1 Contributing scenario controlling environmental exposure for: ERC2, ERC3
As no environmental hazard was identified no environmental related exposure assessment and risk characterization was performed.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC14, PROC15, PROC19		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	Solid, medium dustiness
Frequency and duration of use	Frequency of use	220 days/year
	Exposure duration per day	480 min
Other operational conditions affecting workers exposure	Indoor use.	
Technical conditions and measures to control dispersion from source towards the worker	Provide extraction ventilation at points where emissions occur. (Efficiency: 90 %)(PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC19)	

Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures Regular inspection and maintenance of equipment and machines.	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear suitable protective clothing. If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn.	
2.3 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC14, PROC15, PROC19		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	Solid, medium dustiness
Frequency and duration of use	Frequency of use	220 days/year
	Exposure duration per day	< 15 min
Other operational conditions affecting workers exposure	Indoor use.	
Technical conditions and measures to control dispersion from source towards the worker	Provide extraction ventilation at points where emissions occur. (Efficiency: 90 %)(PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC19)	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures Regular inspection and maintenance of equipment and machines.	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear suitable protective clothing. If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn.	
2.4 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15, PROC19		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 2,5%
	Physical Form (at time of use)	Solid, high dustiness
Frequency and duration of use	Frequency of use	220 days/year
	Exposure duration per day	480 min
Other operational conditions affecting workers exposure	Indoor use.	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures Regular inspection and maintenance of equipment and machines.	

Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear suitable protective clothing.

2.5 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC14, PROC15, PROC19

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 0% - 55%
	Physical Form (at time of use)	Liquid, low fugacity
	Vapour pressure	< 0,0001 hPa
Frequency and duration of use	Frequency of use	220 days/year
	Exposure duration per day	480 min
Other operational conditions affecting workers exposure	Indoor use.	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures Regular inspection and maintenance of equipment and machines.	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear suitable protective clothing.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	See section 2.2	Worker - inhalative, long-term - local	0,01mg/m³	0,004
PROC2	See section 2.2	Worker - inhalative, long-term - local	0,5mg/m³	0,2
PROC3	See section 2.2	Worker - inhalative, long-term - local	1mg/m³	0,4
PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9	See section 2.2	Worker - inhalative, long-term - local	0,5mg/m³	0,2

PROC14	See section 2.2	Worker - inhalative, long-term - local	1mg/m³	0,4
PROC15, PROC19	See section 2.2	Worker - inhalative, long-term - local	0,5mg/m³	0,2
PROC1	See section 2.3	Worker - inhalative, long-term - local	0,001mg/m³	0,0004
PROC2, PROC15	See section 2.3	Worker - inhalative, long-term - local	0,05mg/m³	0,02
PROC3, PROC14	See section 2.3	Worker - inhalative, long-term - local	0,1mg/m³	0,04
PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC19	See section 2.3	Worker - inhalative, long-term - local	0,05mg/m³	0,02
PROC1	See section 2.4	Worker - inhalative, long-term - local	0,0003mg/m³	0,0001
PROC2, PROC3, PROC14	See section 2.4	Worker - inhalative, long-term - local	0,025mg/m³	0,01
PROC4, PROC5, PROC8b, PROC19	See section 2.4	Worker - inhalative, long-term - local	0,625mg/m³	0,25
PROC8a	See section 2.4	Worker - inhalative, long-term - local	1,25mg/m³	0,5
PROC9	See section 2.4	Worker - inhalative, long-term - local	0,5mg/m³	0,2

Dermal exposure is not considered to be relevant.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by 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.
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For scaling see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

1. Short title of Exposure Scenario 4: Use in spraying formulations		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Process categories	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	
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles 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	
2.1 Contributing scenario controlling environmental exposure for: ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7		
Amount used	Annual site tonnage (tons/year):	8,6 ton(s)/year
Frequency and duration of use	Continuous exposure	200 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	70 %
2.2 Contributing scenario controlling worker exposure for: PROC7, PROC8a, PROC8b		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 10%
	Physical Form (at time of use)	liquid
	Vapour pressure	< 0,01 hPa
Frequency and duration of use	Frequency of use	365 days/year
	Exposure duration	480 min
Conditions and measures related to personal protection, hygiene	Wear respiratory protection. Particle filter:P2(PROC7)	

and health evaluation

3. Exposure estimation and reference to its source

Environment

EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7	---	Water	PEC	2,2mg/L	---

Workers

Stoffenmanager V4.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC7, PROC11	With respiratory protection	Inhalation worker exposure	1,53mg/m³	---

Dermal exposure is not considered to be relevant.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by 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.
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
The environmental emission has been evaluated using EUSES 2.1 (http://ecb.jrc.ec.europa.eu/euses), in which default values have been used, unless otherwise indicated.
The worker exposure has been evaluated using Stoffenmanager 4.0 (www.stoffenmanager.nl)
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

1. Short title of Exposure Scenario 5: Use in non-spraying formulations	
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) PROC6: Calendering operations 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) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation PROC15: Use as laboratory reagent PROC17: Lubrication at high energy conditions and in partly open process PROC18: Greasing at high energy conditions PROC19: Hand-mixing with intimate contact and only PPE available PROC21: Low energy manipulation of substances bound in materials and/or articles
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles 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

2.1 Contributing scenario controlling environmental exposure for: ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7		
Amount used	Annual site tonnage (tons/year):	8,6 ton(s)/year
Frequency and duration of use	Continuous exposure	200 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100

Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	70 %
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC10, PROC13, PROC14, PROC15, PROC17, PROC18, PROC21		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	< 0,01 hPa
Frequency and duration of use	Frequency of use	365 days/year
	Exposure duration	480 min
Technical conditions and measures to control dispersion from source towards the worker	Provide local exhaust ventilation (LEV). (Efficiency: 70 %)(PROC14)	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves during the activities where skin contact is possible.	
2.3 Contributing scenario controlling worker exposure for: PROC8a, PROC8b, PROC9, PROC19		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	solid
Frequency and duration of use	Frequency of use	365 days/year
	Exposure duration	480 min
Conditions and measures related to personal protection, hygiene and health evaluation	Wear respiratory protection. Particle filter:P2 Wear suitable gloves during the activities where skin contact is possible.(PROC8a, PROC8b, PROC9)	
	Wear respiratory protection. Particle filter:P3 Wear suitable gloves during the activities where skin contact is possible.(PROC19)	

3. Exposure estimation and reference to its source

Environment

EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7	---	Water	PEC	2,20mg/L	---

Workers

Stoffenmanager V4.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC14	with local exhaust ventilation	Inhalation worker exposure	1,80mg/m³	---
PROC14	with local exhaust ventilation, With respiratory protection	Inhalation worker exposure	1,64mg/m³	---
PROC8a, PROC8b, PROC9	With respiratory protection	Inhalation worker exposure	1,75mg/m³	---
PROC19	With respiratory protection	Inhalation worker exposure	1,998mg/m³	---

Dermal exposure is not considered to be relevant.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by 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.
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
The environmental emission has been evaluated using EUSES 2.1 (http://ecb.jrc.ec.europa.eu/euses), in which default values have been used, unless otherwise indicated.
The worker exposure has been evaluated using Stoffenmanager 4.0 (www.stoffenmanager.nl)
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

1. Short title of Exposure Scenario 6: Use in spraying formulations		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	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 PROC11: Non industrial spraying	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8e: Wide dispersive outdoor use of reactive substances in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems	
2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8c, ERC8d, ERC8e, ERC8f, ERC9a, ERC9b		
Amount used	Annual site tonnage (tons/year):	8,6 ton(s)/year
Frequency and duration of use	Continuous exposure	200 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	70 %
2.2 Contributing scenario controlling worker exposure for: PROC8a, PROC8b, PROC11		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 10%
	Physical Form (at time of use)	liquid
	Vapour pressure	< 0,01 hPa
Frequency and duration of use	Frequency of use	365 days/year
	Exposure duration	480 min
Conditions and measures related to personal protection, hygiene and health evaluation	Wear respiratory protection. Particle filter:P2(PROC7, PROC11)	

3. Exposure estimation and reference to its source

Environment

EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC8a, ERC8b, ERC8c, ERC8d, ERC8e, ERC8f, ERC9a, ERC9b	---	Water	PEC	2,2mg/L	---

Workers

Stoffenmanager V4.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC7, PROC11	With respiratory protection	Inhalation worker exposure	1,53mg/m³	---

Dermal exposure is not considered to be relevant.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by 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.
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
The environmental emission has been evaluated using EUSES 2.1 (http://ecb.jrc.ec.europa.eu/euses), in which default values have been used, unless otherwise indicated.
The worker exposure has been evaluated using Stoffenmanager 4.0 (www.stoffenmanager.nl)
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

1. Short title of Exposure Scenario 7: Use in non-spraying formulations	
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
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) PROC6: Calendering operations 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) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation PROC15: Use as laboratory reagent PROC17: Lubrication at high energy conditions and in partly open process PROC18: Greasing at high energy conditions PROC19: Hand-mixing with intimate contact and only PPE available PROC21: Low energy manipulation of substances bound in materials and/or articles
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8e: Wide dispersive outdoor use of reactive substances in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8c, ERC8d, ERC8e, ERC8f, ERC9a, ERC9b		
Amount used	Annual site tonnage (tons/year):	8,6 ton(s)/year
Frequency and duration of use	Continuous exposure	200 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant

	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	70 %
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC10, PROC13, PROC14, PROC15, PROC17, PROC18, PROC21		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	< 0,01 hPa
Frequency and duration of use	Frequency of use	365 days/year
	Exposure duration	480 min
Technical conditions and measures to control dispersion from source towards the worker	Provide local exhaust ventilation (LEV). (Efficiency: 70 %)(PROC14)	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves during the activities where skin contact is possible.	
2.3 Contributing scenario controlling worker exposure for: PROC8a, PROC8b, PROC9, PROC19		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	solid
Frequency and duration of use	Frequency of use	365 days/year
	Exposure duration	480 min
Conditions and measures related to personal protection, hygiene and health evaluation	Wear respiratory protection. Particle filter:P2 Wear suitable gloves during the activities where skin contact is possible.(PROC8a, PROC8b, PROC9)	
	Wear respiratory protection. Particle filter:P3 Wear suitable gloves during the activities where skin contact is possible.(PROC19)	

3. Exposure estimation and reference to its source

Environment

EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC8a, ERC8b,	---	Water	PEC	2,20mg/L	---

ERC8c, ERC8d, ERC8e, ERC8f, ERC9a, ERC9b					

Workers

Stoffenmanager V4.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC14	with local exhaust ventilation	Inhalation worker exposure	1,80mg/m³	---
PROC14	with local exhaust ventilation, With respiratory protection	Inhalation worker exposure	1,64mg/m³	---
PROC8a, PROC8b, PROC9	With respiratory protection	Inhalation worker exposure	1,75mg/m³	---
PROC19	With respiratory protection	Inhalation worker exposure	1,998mg/m³	---

Dermal exposure is not considered to be relevant.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by 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.
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
The environmental emission has been evaluated using EUSES 2.1 (http://ecb.jrc.ec.europa.eu/euses), in which default values have been used, unless otherwise indicated.
The worker exposure has been evaluated using Stoffenmanager 4.0 (www.stoffenmanager.nl)
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

1. Short title of Exposure Scenario 8: Industrial use	
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) 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) PROC10: Roller application or brushing PROC12: use of blowing agents in manufacture of foam PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation PROC15: Use as laboratory reagent PROC17: Lubrication at high energy conditions and in partly open process PROC18: Greasing at high energy conditions PROC19: Hand-mixing with intimate contact and only PPE available PROC21: Low energy manipulation of substances bound in materials and/or articles PROC22: Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting PROC23: Open processing and transfer operations with minerals/metals at elevated temperature PROC24: High (mechanical) energy work-up of substances bound in materials and/or articles
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC5: Industrial use resulting in inclusion into or onto a matrix ERC6b: Industrial use of reactive processing aids ERC7: Industrial use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure for: ERC4, ERC5, ERC6b, ERC7

As no environmental hazard was identified no environmental related exposure assessment and risk characterization was performed.

2.2 Contributing scenario controlling worker exposure for: PROC14, PROC15, PROC19

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	Solid, medium dustiness
Frequency and duration of use	Frequency of use	220 days/year
	Exposure duration per day	480 min
Other operational conditions affecting workers exposure	Indoor use.	
Technical conditions and measures to control dispersion from source towards the worker	Provide extraction ventilation at points where emissions occur. (Efficiency: 90 %)	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures Regular inspection and maintenance of equipment and machines.	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear suitable protective clothing. If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn.	

2.3 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC19, PROC21, PROC22, PROC23, PROC24

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 5%
	Physical Form (at time of use)	Solid, medium dustiness
Frequency and duration of use	Frequency of use	220 days/year
	Exposure duration per day	480 min
Other operational conditions affecting workers exposure	Indoor use.	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures Regular inspection and maintenance of equipment and machines.	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear suitable protective clothing.	

2.4 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15, PROC19

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 20%
	Physical Form (at time of	Solid, low dustiness

	use)	
Frequency and duration of use	Frequency of use	220 days/year
	Exposure duration per day	480 min
Other operational conditions affecting workers exposure	Indoor use.	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures Regular inspection and maintenance of equipment and machines.	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear suitable protective clothing.	
2.5 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC12, PROC13, PROC14, PROC15, PROC19		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 0% - 55%
	Physical Form (at time of use)	Liquid, low fugacity
	Vapour pressure	< 0,0001 hPa
Frequency and duration of use	Frequency of use	220 days/year
	Exposure duration per day	480 min
Other operational conditions affecting workers exposure	Indoor use.	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures Regular inspection and maintenance of equipment and machines.	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear suitable protective clothing.	
2.6 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 10%
	Physical Form (at time of use)	liquid
Frequency and duration of use	Frequency of use	220 days/year
	Exposure duration per day	480 min
Other operational conditions	Indoor/Outdoor use.	

affecting workers exposure		
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures Regular inspection and maintenance of equipment and machines.	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear suitable protective clothing.	
2.7 Contributing scenario controlling worker exposure for: PROC7		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 0% - 3%
	Physical Form (at time of use)	liquid, (non viscous)
	Process Temperature	50 - 150 °C
Amount used	Amount per Use	3 L/min
Frequency and duration of use	Frequency of use	220 days/year
	Exposure duration per day	360 min
Other operational conditions affecting workers exposure	Indoor use.	
Technical conditions and measures to control dispersion from source towards the worker	Ensure doors and windows are opened.	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures Ensure that the task is carried out only downward Regular inspection and maintenance of equipment and machines.	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear suitable protective clothing.	
2.8 Contributing scenario controlling worker exposure for: PROC17, PROC18		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 1% - 5%
	Physical Form (at time of use)	viscous liquid
	Process Temperature	50 - 150 °C
Frequency and duration of use	Frequency of use	220 days/year
	Exposure duration per day	360 min
Other operational conditions affecting workers exposure	Indoor use.	
Organisational measures to prevent /limit releases, dispersion	Provide basic employee training to prevent/minimize exposures Regular inspection and maintenance of equipment and machines.	

and exposure	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear suitable protective clothing.

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15, PROC19, PROC21, PROC22, PROC23, PROC24

Use of ECETOC TRA Version 2 with modifications.

PROC7, PROC17, PROC18 Advanced REACH Tool (ART model)

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC14	See section 2.2	Worker - inhalative, long-term - local	1mg/m³	0,4
PROC15, PROC19	See section 2.2	Worker - inhalative, long-term - local	0,5mg/m³	0,2
PROC1	See section 2.3	Worker - inhalative, long-term - local	0,0005mg/m³	0,0002
PROC2	See section 2.3	Worker - inhalative, long-term - local	0,025mg/m³	0,01
PROC3, PROC14	See section 2.3	Worker - inhalative, long-term - local	0,05mg/m³	0,02
PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC19	See section 2.3	Worker - inhalative, long-term - local	0,25mg/m³	0,1
PROC21, PROC22, PROC23, PROC24	See section 2.3	Worker - inhalative, long-term - local	0,15mg/m³	0,06
PROC1, PROC2	See section 2.4	Worker - inhalative, long-term - local	0,002mg/m³	0,0008
PROC3, PROC9, PROC13, PROC14, PROC15	See section 2.4	Worker - inhalative, long-term - local	0,02mg/m³	0,008
PROC4, PROC5, PROC8a,	See section 2.4	Worker - inhalative, long-term - local	0,1mg/m³	0,04

PROC8b, PROC10, PROC19				
PROC1	See section 2.6	Worker - inhalative, long-term - local	0,012mg/m³	0,005
PROC2, PROC3, PROC4, PROC8a, PROC8b	See section 2.6	Worker - inhalative, long-term - local	0,122mg/m³	0,05
PROC7	See section 2.7	Worker - inhalative, long-term - local	1,3mg/m³	0,52
PROC17, PROC18	See section 2.8	Worker - inhalative, long-term - local	1,2mg/m³	0,48

Dermal exposure is not considered to be relevant.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by 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.
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For scaling see: http://www.ecetoc.org/tra
For scaling see: http://www.advancedreachtool.com
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

1. Short title of Exposure Scenario 9: Professional use	
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
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) PROC6: Calendering operations 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) PROC10: Roller application or brushing PROC11: Non industrial spraying PROC12: use of blowing agents in manufacture of foam PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation PROC15: Use as laboratory reagent PROC17: Lubrication at high energy conditions and in partly open process PROC18: Greasing at high energy conditions PROC19: Hand-mixing with intimate contact and only PPE available PROC20: Heat and pressure transfer fluids in dispersive, professional use but closed systems PROC21: Low energy manipulation of substances bound in materials and/or articles PROC23: Open processing and transfer operations with minerals/metals at elevated temperature PROC24: High (mechanical) energy work-up of substances bound in materials and/or articles
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8c, ERC8d, ERC8f, ERC9a, ERC9b

As no environmental hazard was identified no environmental related exposure assessment and risk characterization was performed.

2.2 Contributing scenario controlling worker exposure for: PROC14, PROC15, PROC19		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	Solid, medium dustiness
Frequency and duration of use	Frequency of use	220 days/year
	Exposure duration per day	480 min
Other operational conditions affecting workers exposure	Indoor use.	
Technical conditions and measures to control dispersion from source towards the worker	Provide extraction ventilation at points where emissions occur. (Efficiency: 90 %)	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures Regular inspection and maintenance of equipment and machines.	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear suitable protective clothing. If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn.	

2.3 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15, PROC19, PROC21, PROC23, PROC24		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 5%
	Physical Form (at time of use)	Solid, medium dustiness
Frequency and duration of use	Frequency of use	220 days/year
	Exposure duration per day	480 min
Other operational conditions affecting workers exposure	Indoor use.	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures Regular inspection and maintenance of equipment and machines.	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear suitable protective clothing.	

2.4 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15, PROC19		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 20%

	Physical Form (at time of use)	Solid, low dustiness
Frequency and duration of use	Frequency of use	220 days/year
	Exposure duration per day	480 min
Other operational conditions affecting workers exposure	Indoor use.	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures Regular inspection and maintenance of equipment and machines.	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear suitable protective clothing.	
2.5 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC12, PROC13, PROC14, PROC15, PROC19		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 0% - 55%
	Physical Form (at time of use)	Liquid, low fugacity
	Vapour pressure	< 0,0001 hPa
Frequency and duration of use	Frequency of use	220 days/year
	Exposure duration per day	480 min
Other operational conditions affecting workers exposure	Indoor use.	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures Regular inspection and maintenance of equipment and machines.	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear suitable protective clothing.	
2.6 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC20		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 10%
	Physical Form (at time of use)	liquid
Frequency and duration of use	Frequency of use	220 days/year
	Exposure duration per day	480 min

Other operational conditions affecting workers exposure	Indoor/Outdoor use.	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures Regular inspection and maintenance of equipment and machines.	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear suitable protective clothing.	
2.7 Contributing scenario controlling worker exposure for: PROC11		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 0% - 3%
	Physical Form (at time of use)	liquid
	Process Temperature	50 - 150 °C
Amount used	Amount per Use	3 L/min
Frequency and duration of use	Frequency of use	220 days/year
	Exposure duration per day	360 min
Other operational conditions affecting workers exposure	Indoor use.	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures Regular inspection and maintenance of equipment and machines.	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear suitable protective clothing.	
2.8 Contributing scenario controlling worker exposure for: PROC17, PROC18		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 5% - 10%
	Physical Form (at time of use)	liquid
	Process Temperature	50 - 150 °C
Frequency and duration of use	Frequency of use	220 days/year
	Exposure duration per day	360 min
Other operational conditions affecting workers exposure	Indoor use.	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures Regular inspection and maintenance of equipment and machines.	
Conditions and measures related	Use suitable eye protection.	

to personal protection, hygiene and health evaluation	Wear suitable protective clothing.

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15, PROC16, PROC19, PROC20, PROC21, PROC23, PR

Use of ECETOC TRA Version 2 with modifications. PROC11, PROC17, PROC18 Advanced REACH Tool (ART model)

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC14, PROC15, PROC16	See section 2.2	Worker - inhalative, long-term - local	0,5mg/m³	0,2
PROC1	See section 2.3	Worker - inhalative, long-term - local	0,0005mg/m³	0,0002
PROC2, PROC3	See section 2.3	Worker - inhalative, long-term - local	0,05mg/m³	0,02
PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC19, PROC21, PROC23, PROC24	See section 2.3	Worker - inhalative, long-term - local	0,25mg/m³	0,1
PROC15	See section 2.3	Worker - inhalative, long-term - local	0,025mg/m³	0,01
PROC1, PROC2	See section 2.4	Worker - inhalative, long-term - local	0,002mg/m³	0,0008
PROC3, PROC15	See section 2.4	Worker - inhalative, long-term - local	0,02mg/m³	0,008
PROC4, PROC5, PROC14	See section 2.4	Worker - inhalative, long-term - local	0,2mg/m³	0,08
PROC8a, PROC8b, PROC9, PROC10, PROC13,	See section 2.4	Worker - inhalative, long-term - local	0,1mg/m³	0,04

PROC19				
PROC1	See section 2.6	Worker - inhalative, long-term - local	0,012mg/m³	0,005
PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC20	See section 2.6	Worker - inhalative, long-term - local	0,122mg/m³	0,05
PROC11	See section 2.7	Worker - inhalative, long-term - local	1,3mg/m³	0,52
PROC17, PROC18	See section 2.8	Worker - inhalative, long-term - local	1,2mg/m³	0,48

Dermal exposure is not considered to be relevant.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by 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.
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For scaling see: http://www.ecetoc.org/tra
For scaling see: http://www.advancedreachtool.com
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

1. Short title of Exposure Scenario 10: Use in adhesives and sealants	
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC1: Adhesives, sealants
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8c, ERC8d, ERC8f, ERC9a, ERC9b

As no environmental hazard was identified no environmental related exposure assessment and risk characterization was performed.

2.2 Contributing scenario controlling consumer exposure for: PC1: DIY-use: Glues from tubes, bottled glue

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 5%
	Physical Form (at time of use)	solid, liquid
Frequency and duration of use	Frequency of use	12 days/year
	Exposure duration	240 min
Other given operational conditions affecting consumers exposure	Indoor/Outdoor use.	
	Room size	20 m3

2.3 Contributing scenario controlling consumer exposure for: PC1: DIY-use: Super glue, bottled glue, carpet glue

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 5%
	Physical Form (at time of use)	solid, liquid
Frequency and duration of use	Frequency of use	52 days/year
	Exposure duration	240 min
Other given operational conditions affecting consumers exposure	Indoor/Outdoor use.	
	Room size	58 m3

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Consumers

The calculated exposure value is negligibly low.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by 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.
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

1. Short title of Exposure Scenario 11: Uses in coatings	
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC9a: Coatings and paints, thinners, paint removers PC9b: Fillers, putties, plasters, modelling clay
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8c, ERC8d, ERC8f, ERC9a, ERC9b

As no environmental hazard was identified no environmental related exposure assessment and risk characterization was performed.

2.2 Contributing scenario controlling consumer exposure for: PC9a		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 5%
	Physical Form (at time of use)	liquid
Frequency and duration of use	Frequency of use	5 days/year
	Exposure duration	240 min
Other given operational conditions affecting consumers exposure	Indoor/Outdoor use.	
	Room size	34 m3

2.3 Contributing scenario controlling consumer exposure for: PC9b		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 5%
	Physical Form (at time of use)	liquid
Frequency and duration of use	Frequency of use	3 days/year
	Exposure duration	240 min
Other given operational conditions affecting consumers exposure	Indoor/Outdoor use.	
	Room size	57,5 m3

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Consumers

ConsExpo 4.1

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PC9a	---	Consumer - inhalative, short-term - local and systemic	0,338mg/m³	0,225
PC9b	---	Consumer - inhalative, short-term - local and systemic	0,266mg/m³	0,177

Dermal exposure is not considered to be relevant.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by 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.
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

1. Short title of Exposure Scenario 12: Use in Cleaning Agents	
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC35: Washing and cleaning products (including solvent based products)
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8c, ERC8d, ERC8f, ERC9a, ERC9b

As no environmental hazard was identified no environmental related exposure assessment and risk characterization was performed.

2.2 Contributing scenario controlling consumer exposure for: PC35

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 5%
	Physical Form (at time of use)	solid, liquid, spray aerosol
Amount used	Powder detergent	200 g
	Spray detergent	70 g
Frequency and duration of use	Frequency of use	10 days/year
	Exposure duration	100 min
Other given operational conditions affecting consumers exposure	Indoor use.	
	Room size	58 m3
	Outdoor use.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Consumers

ConsExpo 4.1

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PC35	---	Consumer - inhalative,	0,0003mg/m³	0,0002

		short-term - local and systemic		

Dermal exposure is not considered to be relevant.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by 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.
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

1. Short title of Exposure Scenario 13: Use in road and construction applications		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Sectors of end-use	SU13: Manufacture of other non-metallic mineral products, e.g. plasters, cement SU19: Building and construction work	
Process categories	PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC24: High (mechanical) energy work-up of substances bound in materials and/or articles	
Environmental Release Categories	ERC3: Formulation in materials 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 ERC12a: Industrial processing of articles with abrasive techniques (low release) ERC12b: Industrial processing of articles with abrasive techniques (high release)	
2.1 Contributing scenario controlling environmental exposure for: ERC3, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7, ERC12a, ERC12b		
Amount used	Annual site tonnage (tons/year):	17,6 ton(s)/year
Frequency and duration of use	Continuous exposure	200 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	70 %
2.2 Contributing scenario controlling worker exposure for: PROC5		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	solid, liquid
	Vapour pressure	< 0,01 hPa
Frequency and duration of use	Frequency of use	365 days/year
	Exposure duration	480 min

Technical conditions and measures to control dispersion from source towards the worker	Provide local exhaust ventilation with enclosure of the source (Efficiency: 90 %)	

2.3 Contributing scenario controlling worker exposure for: PROC24

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 2%
	Physical Form (at time of use)	solid, liquid
	Vapour pressure	< 0,01 hPa
Frequency and duration of use	Frequency of use	365 days/year
	Exposure duration	480 min
Conditions and measures related to personal protection, hygiene and health evaluation	Wear respiratory protection. Particle filter:P2	

3. Exposure estimation and reference to its source

Environment

EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC3, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7	---	Water	PEC	2,20mg/L	---

Workers

Stoffenmanager V4.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC5	with local exhaust ventilation	Inhalation worker exposure	1,80mg/m³	---
PROC5	with local exhaust ventilation, With respiratory protection	Inhalation worker exposure	0,87mg/m³	---
PROC24	---	Inhalable dust.	1,38mg/m³	---
PROC24	---	Inhalable liquid	0,00mg/m³	---

Dermal exposure is not considered to be relevant.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by 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.
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
The environmental emission has been evaluated using EUSES 2.1 (http://ecb.jrc.ec.europa.eu/euses), in which default values have been used, unless otherwise indicated.
The worker exposure has been evaluated using Stoffenmanager 4.0 (www.stoffenmanager.nl)
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

1. Short title of Exposure Scenario 14: Use in road and construction applications	
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	SU13: Manufacture of other non-metallic mineral products, e.g. plasters, cement SU19: Building and construction work
Process categories	PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC24: High (mechanical) energy work-up of substances bound in materials and/or articles
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8e: Wide dispersive outdoor use of reactive substances in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix ERC10a: Wide dispersive outdoor use of long-life articles and materials with low release ERC11a: Wide dispersive indoor use of long-life articles and materials with low release

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8c, ERC8d, ERC8e, ERC8f, ERC10a, ERC11a		
Amount used	Annual site tonnage (tons/year):	17,6 ton(s)/year
Frequency and duration of use	Continuous exposure	200 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	70 %

2.2 Contributing scenario controlling worker exposure for: PROC5		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	solid, liquid
	Vapour pressure	< 0,01 hPa
Frequency and duration of use	Frequency of use	365 days/year
	Exposure duration	480 min
Technical conditions and	Provide local exhaust ventilation with enclosure of the source (Efficiency: 90 %)	

measures to control dispersion from source towards the worker		

2.3 Contributing scenario controlling worker exposure for: PROC24

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 2%
	Physical Form (at time of use)	solid, liquid
	Vapour pressure	< 0,01 hPa
Frequency and duration of use	Frequency of use	365 days/year
	Exposure duration	480 min
Conditions and measures related to personal protection, hygiene and health evaluation	Wear respiratory protection. Particle filter:P2	

3. Exposure estimation and reference to its source

Environment

EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC8a, ERC8b, ERC8c, ERC8d, ERC8e, ERC8f, ERC10a, ERC10b	---	Water	PEC	2,20mg/L	---

Workers

Stoffenmanager V4.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC5	with local exhaust ventilation	Inhalation worker exposure	1,80mg/m³	---
PROC5	with local exhaust ventilation, With respiratory protection	Inhalation worker exposure	0,87mg/m³	---
PROC24	---	Inhalable dust.	1,37mg/m³	---
PROC24	---	Inhalable liquid	0,00mg/m³	---

Dermal exposure is not considered to be relevant.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by 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.
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
The environmental emission has been evaluated using EUSES 2.1 (http://ecb.jrc.ec.europa.eu/euses), in which default values have been used, unless otherwise indicated.
The worker exposure has been evaluated using Stoffenmanager 4.0 (www.stoffenmanager.nl)
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

1. Short title of Exposure Scenario 15: Use in metal surface treatment.	
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC14: Metal surface treatment products, including galvanic and electroplating products
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8c, ERC8d, ERC8f, ERC9a, ERC9b

As no environmental hazard was identified no environmental related exposure assessment and risk characterization was performed.

2.2 Contributing scenario controlling consumer exposure for: PC14

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 5%
	Physical Form (at time of use)	solid, liquid
Frequency and duration of use	Frequency of use	6 days/year
	Exposure duration	60 min
Other given operational conditions affecting consumers exposure	Indoor/Outdoor use.	
	Room size	15 m3

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Consumers

No consumer exposure anticipated.

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

1. Short title of Exposure Scenario 16: Use in surface treatment products	
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC15: Non-metal-surface treatment products PC31: Polishes and wax blends
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8c, ERC8d, ERC8f, ERC9a, ERC9b

As no environmental hazard was identified no environmental related exposure assessment and risk characterization was performed.

2.2 Contributing scenario controlling consumer exposure for: PC15: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 5%
	Physical Form (at time of use)	solid, liquid
Frequency and duration of use	Frequency of use	365 days/year
	Exposure duration	60 min
Other given operational conditions affecting consumers exposure	Indoor/Outdoor use.	
	Room size	15 m3

2.3 Contributing scenario controlling consumer exposure for: PC15: Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 5%
	Physical Form (at time of use)	solid, liquid
Frequency and duration of use	Exposure duration	110 min
Other given operational conditions affecting consumers exposure	Indoor/Outdoor use.	
	Room size	58 m3

2.4 Contributing scenario controlling consumer exposure for: PC31: Polishes, spray (furniture,

shoes)		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 5%
	Physical Form (at time of use)	solid, liquid
Frequency and duration of use	Frequency of use	8 days/year
	Exposure duration per day	90 min
Other given operational conditions affecting consumers exposure	Indoor use.	
	Room size	58 m3
	Outdoor use.	
2.5 Contributing scenario controlling consumer exposure for: PC31: Polishes, wax / cream (floor, furniture, shoes)		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 5%
	Physical Form (at time of use)	solid, liquid
Frequency and duration of use	Frequency of use	26 days/year
Other given operational conditions affecting consumers exposure	Indoor/Outdoor use.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Consumers

ConsExpo 4.1

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PC15: Spray cleaners	---	Consumer - inhalative, long-term - local and systemic	0,0003mg/m³	0,0002
PC31: Polishes, spray	---	Consumer - inhalative, short-term - local and systemic	0,226mg/m³	0,151

Dermal exposure is not considered to be relevant.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by 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.
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

1. Short title of Exposure Scenario 17: Use in/as air care products (spray products)	
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC3: Air care products
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8c, ERC8d, ERC8f, ERC9a, ERC9b

As no environmental hazard was identified no environmental related exposure assessment and risk characterization was performed.

2.2 Contributing scenario controlling consumer exposure for: PC3		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 1% - 5%
	Physical Form (at time of use)	solid, liquid, (non viscous)
Frequency and duration of use	Spray Duration	15 min
	Exposure duration	15 min
Other given operational conditions affecting consumers exposure	Indoor/Outdoor use.	
	Room size	30 m3
	Assumes activities are at ambient temperature.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Consumers

Advanced REACH Tool (ART model)

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PC3	75th percentile value	Consumer - inhalative, short-term - local and systemic	0,15mg/m³	0,1
PC3	90th percentile value	Consumer - inhalative,	0,085mg/m³	0,057

		long-term - local and systemic		

Dermal exposure is not considered to be relevant.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by 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.
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For scaling see: http://www.advancedreachtool.com
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

1. Short title of Exposure Scenario 18: Use in textile industry		
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)	
Chemical product category	PC34: Textile dyes, finishing and impregnating products; including bleaches and other processing aids	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems	
2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8c, ERC8d, ERC8f, ERC9a, ERC9b		
As no environmental hazard was identified no environmental related exposure assessment and risk characterization was performed.		
2.2 Contributing scenario controlling consumer exposure for: PC34: Cleaning and washing/floor, carpet and furniture products/furniture leather spray		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 5%
	Physical Form (at time of use)	solid, liquid
Frequency and duration of use	Frequency of use	1 days/year
	Exposure duration	240 min
Other given operational conditions affecting consumers exposure	Indoor use.	
	Room size	58 m3
	Outdoor use.	
2.3 Contributing scenario controlling consumer exposure for: PC34: Cleaning and washing/laundry products/detergent powder		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 5%
	Physical Form (at time of use)	solid, liquid
Frequency and duration of use	Frequency of use	365 days/year
	Exposure duration	10 min
Other given operational conditions affecting consumers	Indoor use.	
	Room size	58 m3

exposure	Outdoor use.

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Consumers

ConsExpo 4.1

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PC34: Cleaning and washing/floor, carpet and furniture products/furniture leather spray	---	Consumer - inhalative, short-term - local and systemic	0,226mg/m³	0,151

Dermal exposure is not considered to be relevant.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by 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.
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

1. Short title of Exposure Scenario 19: Use in/as photochemicals	
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC30: Photo-chemicals
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8c, ERC8d, ERC8f, ERC9a, ERC9b

As no environmental hazard was identified no environmental related exposure assessment and risk characterization was performed.

2.2 Contributing scenario controlling consumer exposure for: PC30

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 1% - 5%
	Physical Form (at time of use)	solid, liquid, (non viscous)
Frequency and duration of use	Exposure duration	360 min
Other given operational conditions affecting consumers exposure	Indoor use.	
	Assumes activities are at ambient temperature.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Consumers

Advanced REACH Tool (ART model)

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PC30	75th percentile value	Consumer - inhalative, short-term - local and systemic	0,0026mg/m³	0,002
PC30	90th percentile value	Consumer - inhalative, long-term - local and systemic	0,0015mg/m³	0,001

Dermal exposure is not considered to be relevant.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by 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.
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For scaling see: http://www.advancedreachtool.com
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

1. Short title of Exposure Scenario 20: Use in biocidal products	
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC8: Biocidal products
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8c, ERC8d, ERC8f, ERC9a, ERC9b

As no environmental hazard was identified no environmental related exposure assessment and risk characterization was performed.

2.2 Contributing scenario controlling consumer exposure for: PC8: Biocidal products, spray - Mixing and loading

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 5%
	Physical Form (at time of use)	granular-like, liquid
Frequency and duration of use	Frequency of use	9 days/year
	Exposure duration	240 min
Other given operational conditions affecting consumers exposure	Indoor/Outdoor use.	
	Room size	20 m3

2.3 Contributing scenario controlling consumer exposure for: PC8: Biocidal products, spray - Electrical evaporator, insect repellents

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 5%
	Physical Form (at time of use)	solid, liquid
Frequency and duration of use	Frequency of use	150 days/year
	Exposure duration	240 min
Other given operational conditions affecting consumers exposure	Indoor/Outdoor use.	
	Room size	16 m3

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Consumers

ConsExpo 4.1

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PC8: Biocidal products, spray - Mixing and loading	---	Consumer - inhalative, short-term - local and systemic	0,658mg/m³	0,439
PC8: Biocidal products, spray - Electrical evaporator, insect repellents	---	Consumer oral, long-term - local and systemic	0,86mg/kg bw/day	0,344
PC8: Biocidal products, spray - Electrical evaporator, insect repellents	---	Consumer - inhalative, long-term - local and systemic	0,184mg/m³	0,122

Dermal exposure is not considered to be relevant.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by 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.
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

1. Short title of Exposure Scenario 21: Other consumer uses	
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC12: Fertilizers PC18: Ink and toners PC20: Products such as ph-regulators, flocculants, precipitants, neutralization agents PC23: Leather tanning, dye, finishing, impregnation and care products PC24: Lubricants, greases, release products PC26: Paper and board dye, finishing and impregnation products: including bleaches and other processing aids PC28: Perfumes, fragrances PC29: Pharmaceuticals PC32: Polymer preparations and compounds PC36: Water softeners PC37: Water treatment chemicals PC39: Cosmetics, personal care products
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8e: Wide dispersive outdoor use of reactive substances in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8c, ERC8d, ERC8e, ERC8f, ERC9a, ERC9b

As no environmental hazard was identified no environmental related exposure assessment and risk characterization was performed.

2.2 Contributing scenario controlling consumer exposure for: PC12, PC18, PC20, PC23, PC24, PC26, PC28, PC29, PC32, PC36, PC37, PC39

Product characteristics	Physical Form (at time of use)	solid, liquid, spray aerosol
Frequency and duration of use	Frequency of use	365 days/year
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.
	Ensure spraying away from persons.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Consumers

No consumer exposure anticipated.

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

DISTRIBUTOR COMPANY INFORMATION			
name	**BRENNTAG N.V.**	**BRENNTAG Nederland B.V.**	**BRENNTAG SOUTH AFRICA (PTY) LTD**
address	Nijverheidslaan 38 8540 Deerlijk	Donker Duyvisweg 44 3316 BM Dordrecht	11 Mansell Road Killarney Gardens, 7441
country	Belgium	The Netherlands	South Africa
phone number	+32 (0)56 77 69 44	+31 (0)78 65 44 944	+27 (0)21 0201800
website	www.brenntag.be	www.brenntag.nl	www.brenntag.co.za
e-mail	info@brenntag.be	info@brenntag.nl	info@brenntag.co.za
activities	Distribution and export of chemicals and ingredients		
VAT number	BE0405317567	NL001375945B01	4740102209
emergency number(24/365)	+32 (0)56 77 69 44	+31 (0)78 6544 944	+27 (0)21 0201800
management systems: certifications	ISO 9001, ISO 14001, ISO 22000, FSSC 22000, GMP+ Feed, ESAD	ISO 9001, ISO 14001, ISO 22000, FSSC 22000, OHSAS 18001, GMP+ Feed, ESAD, AEO	ISO 9001, FSSC 22000