

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date: 24.06.2014

Version number 9

Revision: 24.06.2014

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier****Product name:** Sodium perborate tetrahydrateSodium Perborate Tetrahydrate Q18**CAS Number:** 10486-00-7**EINECS Number:** 234-390-0**Index number:** 005-018-00-2**REACH-Registration number:** 01-2119516039-43-0002**1.2 Relevant identified uses of the substance or mixture and uses advised against****Application of the substance / the preparation:** Bleaching component of washing and cleaning agents**1.3 Details of the supplier of the safety data sheet****Manufacturer/Supplier:**

Evonik Treibacher GmbH

Auer von Welsbach Strasse 1

9330 Althofen

Austria

Telefon: +43 (0) 4262 505-574 / +43 (0) 4262 505-290

Fax: +43 (0) 4262 505-406

Further information obtainable from: msdsetg@treibacher.com**1.4 Emergency telephone number:**

+43 (0) 4262 505-574 / +43 (0) 4262 505-291 / +43 (0) 4262 505-290

+43 (0) 664-3377133 / +43 (0) 664-60505-290

+43 (0) 1 406 4343-0 (Austrian Poison Information Centre)

	IMCD
Distributed by IMCD Group sds@imcdgroup.com	
24 hour Emergency Telephone number	
UK customers	+44 1865 407333
Non-UK customers	+44 3700 492795

SECTION 2: Hazards identification**2.1 Classification of the substance or mixture****Classification according to Regulation (EC) No 1272/2008**

Repr. 1B H360Df May damage the unborn child. Suspected of damaging fertility.

Eye Dam. 1 H318 Causes serious eye damage.

STOT SE 3 H335 May cause respiratory irritation.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

T; Toxic

Repr. Cat. 2, 3

R61: May cause harm to the unborn child.

Xn; Harmful

R62: Possible risk of impaired fertility.

Xi; Irritant

R37-41: Irritating to respiratory system. Risk of serious damage to eyes.

2.2 Label elements**Labelling according to Regulation (EC) No 1272/2008**

The substance is classified and labelled according to the CLP regulation.

Hazard pictograms

GHS05

GHS07

GHS08

Signal word Danger**Hazard statements**

H318 Causes serious eye damage.

H360Df May damage the unborn child. Suspected of damaging fertility.

H335 May cause respiratory irritation.

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Precautionary statements

- P281 Use personal protective equipment as required.
- P202 Do not handle until all safety precautions have been read and understood.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P312 Call a POISON CENTER or doctor/physician if you feel unwell.
- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P411+P235 Store at temperatures not exceeding 30°C. Keep cool.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **2.3 Other hazards** Not applicable

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

· **3.1 Chemical characterization: Substances**

· **Components:**

CAS: 10486-00-7	Sodium perborate tetrahydrate	≥ 96%
EINECS: 234-390-0	T Repr. Cat. 2, 3 R61; Xn R62; Xi R37-41	
Index number: 005-018-00-2	Repr. 1B, H360Df; Eye Dam. 1, H318; STOT SE 3, H335	
Reg.nr.: 01-2119516039-43-0002	H335	

· **SVHC**

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· **Additional information:**

- Molecular formula: NaBO₃•4H₂O / NaBO₂•H₂O₂•3H₂O
- Molecular weight: 153.88 g/mol
- Further CAS-No.: 11138-47-9
- Further EINECS-No.: 234-390-0

SECTION 4: First aid measures

· **4.1 Description of first aid measures**

· **General information:** Personal protection for the First Aider.

· **After inhalation:**

- Take affected persons into fresh air and keep quiet.
- Seek medical treatment in case of complaints.

· **After skin contact:**

- Immediately rinse with water.
- If skin irritation continues, consult a doctor.

· **After eye contact:**

- Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

· **After swallowing:**

- If swallowed, rinse mouth with water (only if the person is conscious).
- Do not induce vomiting; call for medical help immediately.

· **4.2 Most important symptoms and effects, both acute and delayed** Irritation of the gastric mucosa

· **Information for doctor:** Treat symptomatically.

· **4.3 Indication of any immediate medical attention and special treatment needed**

- No further relevant information available.

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SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:**
 - Water
 - Foam
 - Carbon dioxide
- **For safety reasons unsuitable extinguishing agents:** Organic media
- **5.2 Special hazards arising from the substance or mixture**
 - In case of fire, the following can be released:
 - Oxygen
- **5.3 Advice for firefighters**
- **Protective equipment:**
 - Wear self-contained respiratory protective device.
 - Wear fully protective suit.
- **Additional information:**
 - Remove persons from danger area.
 - Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures** Wear protective clothing.
- **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**
 - Pick up mechanically.
 - Avoid formation of dust.
 - Send for recovery or disposal in suitable receptacles.
 - Clean the affected area carefully; suitable cleaners are:
 - Water
 - Dispose of the material collected according to regulations.
- **6.4 Reference to other sections**
 - See Section 7 for information on safe handling.
 - See Section 8 for information on personal protection equipment.
 - See Section 13 for disposal information.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
 - The usual precautionary measures are to be adhered to when handling chemicals.
 - Prevent formation of dust.
 - Wear protective clothing.
- **7.2 Information about fire - and explosion protection:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
 - Store in cool, dry conditions in well sealed receptacles.
- **Information about storage in one common storage facility:**
 - Do not store together with alkalis (caustic solutions).
 - Do not store together with acids.
 - Store away from reducing agents.
- **Further information about storage conditions:**
- **Maximum storage temperature:** < 40 °C
- **Recommended storage temperature:** < 30 °C
- **7.3 Specific end use(s)** Bleaching component of washing and cleaning agents

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SECTION 8: Exposure controls/personal protection

· **Additional information about design of technical facilities:**

Ensure good ventilation/exhaustion at the workplace.

· **8.1 Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **DNELs**

10332-33-9 Sodium perborate monohydrate

Oral	LT syst. effects	0.36 mg/kg bw/day (General Population) NOAEL: 648 mg/kg bw/day (based on AF of 1800)
Dermal	LT syst. effects	36 mg/kg bw/day (General Population) LOAEL: 648 mg/kg bw/day (based on AF of 18) 101 mg/kg bw/day (Human (worker)) Assessment factor: 3 x 1 x 6 x 4 x 2,5 x 5 = 900 As for the dermal route 1 % absorption can be assumed, the external DNEL is about 101 mg/kg bw/day.
Inhalative	LT local effects	0.5 mg/m ³ (General Population) NOAEC: 2.0 mg/m ³ (based on AF of 4) 2 mg/m ³ (Human (worker)) Assuming an amount of the respirable fraction in workplace air of about 30 - 50% of the inhalable fraction (ECB, 2007), a DNEL of 2 mg/m ³ can be derived.
	LT syst. effects	0.5 mg/m ³ (General Population) NOAEC: 2,0 mg/m ³ (based on AF of 4) 2 mg/m ³ (Human (worker))

· **PNECs** Not applicable

· **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:** Wash hands before breaks and at the end of work.

· **Respiratory protection:** Use suitable respiratory protective device when high concentrations are present.

· **Recommended filter device for short term use:**

Filter P1

Filter FFP1

· **Protection of hands:**



Protective gloves

· **Material of gloves**

PVC gloves

Rubber gloves

· **Penetration time of glove material** Value for the permeation: Level \geq 240 min. (EN 374)

· **Eye protection:** Gauze goggles

· **Body protection:** Protective work clothing

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SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form: Salt
Crystalline
free-flowing

Colour: White

· **Odour:** Odourless

· **Odour threshold:** Not applicable

· **pH-value (15 g/l) at 20 °C:** 10

· **Melting point/Melting range:** 338 K (at 1013 hPa)

· **Boiling point/Boiling range:** Not applicable

· **Flash point:** Not applicable

· **Flammability (solid, gaseous):** Product is not flammable.

· **Decomposition temperature:** ca. 60 °C

· **Self-igniting:** None

· **Danger of explosion:** Product does not present an explosion hazard.

· **Explosion limits:**

Lower: Not applicable

Upper: Not applicable

· **Oxidizing properties** None

· **Vapour pressure:** Not applicable

· **Density:** Not determined.

· **Bulk density:** 700 - 950 kg/m³

· **Solubility in / Miscibility with**
water at 20 °C: 23 g/l

· **9.2 Other information** Typ. grain size: 95 % > 0.10 mm
Active oxygen content: ca. 10 %

SECTION 10: Stability and reactivity

· **10.1 Reactivity**

· **10.2 Chemical stability**

· **Thermal decomposition / conditions to be avoided:** Thermal decomposition starts at 60 °C.

· **10.3 Possibility of hazardous reactions**

Exothermic thermal decomposition.

Reacts with reducing agents.

Reacts with alkali (lyes).

Reacts with acids.

· **10.4 Conditions to avoid**

Protect from heat and direct sunlight.

Protect from humidity and water.

· **10.5 Incompatible materials:** No further relevant information available.

· **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

· **Additional information:**

Stable at environment temperature.

To avoid thermal decomposition do not overheat.

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SECTION 11: Toxicological information

· **11.1 Information on toxicological effects**

· **Acute toxicity:**

· **LD/LC50 values relevant for classification:**

Oral	LD50	2567 mg/kg (Rat) (OECD Guideline 401 (Acute Oral Toxicity)) Mayr W (1987)
	NOEL	< 1000 mg/kg (Rat)
Dermal	LD50	> 2000 mg/kg (Rabbit) (OECD Guideline 402 (Acute Dermal Toxicity)) Limittest
	NOAEL fetotoxicity	100 mg/kg bw/day (Rat (female)) (Prenatal Developmental Toxicity Study (OECD 414)) Bussi, 1995
	NOAEL maternal toxic	100 mg/kg bw/day (Rat (female)) (Prenatal Developmental Toxicity Study (OECD 414)) Bussi, 1995

· **on the skin:** No irritant effect.

· **on the eye:** Strong irritant with the danger of severe eye injury.

· **Sensitization:** No sensitizing effects known.

· **Subacute to chronic toxicity:**

NOEL (oral, Rat): < 1000 mg/kg (28-day-Study)

Effects/organs affected:

Irritation of gastric mucosa.

· **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**

Repr. 1B

SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:**

EC50	3.3 mg/l (Pseudokirchneriella subcapitata) (OECD Guideline 201) Solvay Duphar B.V. (1993d)
	26.8 mg/l (Desmodesmus subspicatus)
EC50/48h	11 mg/l (Daphnia magna) (OECD Guideline 202) Solvay Duphar B.V. (1993c)
LC50/96h	51 mg/l (Brachydanio rerio) (OECD Guideline 203 (Fish, Acute Toxicity Test)) Solvay Duphar B.V. (1993b)
NOEC/48 h	8 mg/l (Daphnia magna)
NOEC/96h	25 mg/l (Brachydanio rerio)

· **12.2 Persistence and degradability**

The product is instabile in water. The declaration of the elimination also refers to the hydrolysis products.
Readily biodegradable

· **Other information:** Abiotic degradation because of hydrolysis and reduction.

· **12.3 Bioaccumulative potential**

Not worth-mentioning accumulating in organisms

Due to the ionic nature of sodium perborate and its degradation products a potential for bioaccumulation is not to be expected.

· **12.4 Mobility in soil**

Sodium perborate has no potential for adsorption onto sediments. It is readily degradable in aqueous media. Therefore, neither direct nor indirect exposure of soil is expected.

· **Additional ecological information:**

· **AOX-indication:** The product does not contain organically bounded halogens (AOX-free).

· **General notes:** Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water

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- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**
Must be specially treated adhering to official regulations.
Disposal must be made according to official regulations.
- **Waste disposal key:** 51540 (ÖNORM S 2100)

· **European waste catalogue**

16 03 03* inorganic wastes containing dangerous substances

- **Uncleaned packaging:**
- **Recommendation:**
Packagings that may not be cleansed are to be disposed of in the same manner as the product.

SECTION 14: Transport information

- **14.1 UN-Number**
- **ADR, ADN, IMDG, IATA** Void
- **14.2 UN proper shipping name**
- **ADR, ADN, IMDG, IATA** Void
- **14.3 Transport hazard class(es)**
- **ADR, ADN, IMDG, IATA**
- **Class** Void
- **14.4 Packing group**
- **ADR, IMDG, IATA** Void
- **14.5 Environmental hazards:** Void
- **14.6 Special precautions for user** Not applicable.
- **14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.
- **Transport/Additional information:** Not dangerous according to the above specifications.
Protect from heat and direct sunlight.
Store in a cool place.
- **UN "Model Regulation":** -

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**
- **Section 302 (extremely hazardous substances):** Substance is not listed.
- **Section 313 (Specific toxic chemical listings):** Substance is not listed.
- **TSCA (Toxic Substances Control Act):** Substance is not listed.
- **Proposition 65**
- **Chemicals known to cause cancer:** Substance is not listed.
- **Chemicals known to cause reproductive toxicity to females:** Substance is not listed.
- **Chemicals known to cause reproductive toxicity for males:** Substance is not listed.

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- **Chemicals known to cause developmental toxicity:** Substance is not listed.
- **Carcinogenicity categories**

· **EPA (Environmental Protection Agency)**

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- **TLV (Threshold Limit Value established by ACGIH)** Substance is not listed.
- **NIOSH-Ca (National Institute for Occupational Safety and Health)** Substance is not listed.
- **OSHA-Ca (Occupational Safety and Health Administration)** Substance is not listed.
- **European Inventory of Existing Commercial chemical Substances (EINECS)** Substance is listed.
- **Canadian substance listings:**
- **Canadian Domestic Substances List (DSL)** Substance is not listed.
- **Canadian Ingredient Disclosure list (limit 0.1%)** Substance is not listed.
- **Canadian Ingredient Disclosure list (limit 1%)** Substance is not listed.
- **Philippines Inventory of Chemicals and Chemical Substances** Substance is listed.
- **Chinese Chemical Inventory of Existing Chemical Substances** Substance is listed.
- **Australian Inventory of Chemical Substances** Substance is listed.
- **Standard for the Uniform Scheduling of Drugs and Poisons** Substance is not listed.

· **Existing and New Chemical List (Japan)**

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- **National regulations:**
- **Information about limitation of use:**
Employment restrictions concerning pregnant and lactating women must be observed.
- **Other regulations, limitations and prohibitive regulations**

· **Substances of very high concern (SVHC) according to REACH, Article 57**

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- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has been carried out.

SECTION 16: Other information

· **Relevant phrases**

- H318 Causes serious eye damage.
- H335 May cause respiratory irritation.
- H360Df May damage the unborn child. Suspected of damaging fertility.
- R37 Irritating to respiratory system.
- R41 Risk of serious damage to eyes.
- R61 May cause harm to the unborn child.
- R62 Possible risk of impaired fertility.

· **Department issuing MSDS:**

HSE Department
Chemical Management

· **Abbreviations and acronyms:**

RIID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organization
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent

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LD50: Lethal dose, 50 percent

· *** Data compared to the previous version altered.**

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Annex: Exposure scenario 1**· Short title of the exposure scenario****· Relevant identified uses:**

Industrial processes relevant for sodium perborate and sodium perborate containing products

· Sector of Use SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites**· Process category**

PROC1 Use in closed process, no likelihood of exposure

PROC2 Use in closed, continuous process with occasional controlled exposure

PROC3 Use in closed batch process (synthesis or formulation)

PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises

PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

PROC13 Treatment of articles by dipping and pouring

PROC14 Production of preparations or articles by tableting, compression, extrusion, pelletisation

PROC15 Use as laboratory reagent

· Environmental release category

ERC1 Manufacture of substances

ERC2 Formulation of preparations

ERC3 Formulation in materials

· Description of the activities / processes covered in the Exposure Scenario

See section 1 of the annex to the Safety Data Sheet.

· Conditions of use**· Duration and frequency** 360 days/year**· Worker** Regular use with exposure up to 8 hrs. per workday.**· Physical parameters****· Physical state** Solid**· Concentration of the substance in the mixture** Raw material.**· Other operational conditions****· Other operational conditions affecting environmental exposure** Indoor and outdoor applications**· Other operational conditions affecting worker exposure**

Wear protective clothing.

Do not breathe dust.

Avoid contact with eyes.

Keep away from combustible material.

· Risk management measures

No. 1: Use descriptors: PROC 1, SU3

Operational conditions & typical RMMs: closed systems, Process sampling, elevated temperature

RMM: Sample via a closed loop or other system to avoid exposure

Inhalation Exposure: TRA Pred. Exp.: 0,01 ppm; Mod. pred. Exp.: 0,01 ppm

Dermal Exposure: TRA Pred. Exp.: 0,34 mg/kg/d; Mod. pred. Exp.: 0,34 mg/kg/d

No. 2: Use descriptors: PROC 2, SU3

Operational conditions & typical RMMs: Continuous process, Process sampling

RMM: Sample via a closed loop or other system to avoid exposure

Inh. Exp.: TRA Pred. Exp.: 0,50 ppm; Mod. pred. Exp.: 0,50 ppm

Derm. Exp.: TRA Pred. Exp.: 1,37 mg/kg/d; Mod. pred. Exp.: 1,37 mg/kg/d

No. 3: Use descriptors: PROC 3, SU3

Operational conditions & typical RMMs: Batch process, Process sampling, with local exhaust ventilation

RMM: Sample via a closed loop or other system to avoid exposure. Ensure material transfers are under containment or extract ventilation.

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Inh. Exp.: TRA Pred. Exp.: 1,00 ppm; Mod. Pred. Exp.: 1,00 ppm
Derm. Exp.: TRA Pred. Exp.: 0,34 mg/kg/d; Mod. pred. Exp.: 0,34 mg/kg/d

No. 4: Use descriptors: PROC 4, SU3

Operational conditions & typical RMMs: Process sampling, with local exhaust ventilation

RMM: Ensure material transfers are under containment or extract ventilation

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA LEV Eff. 90%; Mod. pred. Exp.: 0,50 ppm

Derm. Exp.: TRA Pred. Exp.: 6,86 mg/kg/d; TRA Derm. Exp. LEV RF 0,10; Mod. pred. Exp.: 0,69 mg/kg/d

No. 5: Use descriptors: PROC 4, SU3

Operational conditions & typical RMMs: Process sampling

RMM: Avoid carrying out activities involving exposure for more than 1 hour.

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA DF 15 min/h; Mod. pred. Exp.: 1,00 ppm

Derm. Exp.: TRA Pred. Exp.: 6,86 mg/kg/d; Mod. pred. Exp.: 6,86 mg/kg/d

No. 6: Use descriptors: PROC 4, SU3

Operational conditions & typical RMMs: Process sampling

RMM: Limit the substance content in the product to 25%; Avoid carrying out activities involving exposure for more than 4 hours.

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA CF: 5-25%; TRA DF 1 - 4 h; Mod. pred. Exp.: 1,80 ppm

Derm. Exp.: TRA Pred. Exp.: 6,86 mg/kg/d; TRA CF: 5-25%; Mod. pred. Exp.: 4,12 mg/kg/d

No. 7: Use descriptors: PROC 5, SU3

Operational conditions & typical RMMs: Mixing operations: Batch processes; Process sampling; with local exhaust ventilation

RMM: Ensure material transfers are under containment or extract ventilation

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA LEV-Eff.: 90%; Mod. pred. Exp.: 0,50 ppm

Derm. Exp.: TRA Pred. Exp.: 13,71 mg/kg/d; TRA Derm. Exp. LEV-RF: 0,01; Mod. pred. Exp.: 0,07 mg/kg/d

No. 8: Use descriptors: PROC 5, SU3

Operational conditions & typical RMMs: Mixing operations: Batch processes; Process sampling

RMM: Avoid carrying out activities involving exposure for more than 1 hour.

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA DF 15 min/h; Mod. pred. Exp.: 1,00 ppm

Derm. Exp.: TRA Pred. Exp.: 13,71 mg/kg/d; Mod. pred. Exp.: 13,71 mg/kg/d

No. 9: Use descriptors: PROC 5, SU3

Operational conditions & typical RMMs: Mixing operations: Batch processes; Process sampling

RMM: Limit the substance content in the product to 25%; Avoid carrying out activities involving exposure for more than 4 hours.

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA CF: 5-25%; TRA DF 1 - 4 h; Mod. pred. Exp.: 1,80 ppm

Derm. Exp.: TRA Pred. Exp.: 13,71 mg/kg/d; TRA CF: 5-25%; Mod. pred. Exp.: 8,23 mg/kg/d

No. 10: Use descriptors: PROC 8a, SU3

Operational conditions & typical RMMs: Bulk transfer; Non-dedicated facility; Transfer from/pouring from containerns

RMM: Ensure material transfers are under containment or extract ventilation.

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA LEV-Eff.: 90%; Mod. pred. Exp.: 0,50 ppm

Derm. Exp.: TRA Pred. Exp.: 13,71 mg/kg/d; TRA Derm. Exp. LEV-RF: 0,01; Mod. pred. Exp.: 0,14 mg/kg/d

No. 11: Use descriptors: PROC 8a, SU3

Operational conditions & typical RMMs: Bulk transfer; Non-dedicated facility; Transfer from/pouring from containerns

RMM: Avoid carrying out activities involving exposure for more than 1 hour.

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA DF 15 min/h; Mod. pred. Exp.: 1,00 ppm

Derm. Exp.: TRA Pred. Exp.: 13,71 mg/kg/d; Mod. pred. Exp.: 13,71 mg/kg/d

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No. 12: Use descriptors: PROC 8a, SU3

Operational conditions & typical RMMs: Bulk transfer; Non-dedicated facility; Transfer from/pouring from containerns

RMM: Limit the substance content in the product to 25%; Avoid carrying out activities involving exposure for more than 4 hours.

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA CF: 5-25%; TRA DF 1 - 4 h; Mod. pred. Exp.: 1,80 ppm

Derm. Exp.: TRA Pred. Exp.: 13,71 mg/kg/d; TRA CF: 5-25%; Mod. pred. Exp.: 8,23 mg/kg/d

No. 13: Use descriptors: PROC 8b, SU3

Operational conditions & typical RMMs: Bulk transfer; Dedicated facility; Transfer from/pouring from containerns; with local exhaust ventilation

RMM: Ensure material transfers are under containment or extract ventilation.

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA LEV-Eff.: 97%; Mod. pred. Exp.: 0,15 ppm

Derm. Exp.: TRA Pred. Exp.: 6,86 mg/kg/d; TRA Derm. Exp. LEV-RF: 0,10; Mod. pred. Exp.: 0,69 mg/kg/d

No. 14: Use descriptors: PROC 8b, SU3

Operational conditions & typical RMMs: Bulk transfer; Dedicated facility; Transfer from/pouring from containerns

RMM: Avoid carrying out activities involving exposure for more than 1 hour.

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA DF 15 min/h; Mod. pred. Exp.: 1,00 ppm

Derm. Exp.: TRA Pred. Exp.: 6,86 mg/kg/d; Mod. pred. Exp.: 6,86 mg/kg/d

No. 15: Use descriptors: PROC 8b, SU3

Operational conditions & typical RMMs: Bulk transfer; Dedicated facility; Transfer from/pouring from containerns

RMM: Limit the substance content in the product to 25%; Avoid carrying out activities involving exposure for more than 4 hours.

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA CF: 5-25%; TRA DF 1 - 4 h; Mod. pred. Exp.: 1,80 ppm

Derm. Exp.: TRA Pred. Exp.: 6,86 mg/kg/d; TRA CF: 5-25%; Mod. pred. Exp.: 4,12 mg/kg/d

No. 16: Use descriptors: PROC 9, SU3

Operational conditions & typical RMMs: Small package filling; Dedicated facility; Transfer from/pouring from containerns; with local exhaust ventilation

RMM: Ensure material transfers are under containment or extract ventilation.

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA LEV-Eff.: 90%; Mod. pred. Exp.: 0,50 ppm

Derm. Exp.: TRA Pred. Exp.: 6,86 mg/kg/d; TRA Derm. Exp. LEV-RF: 0,10; Mod. pred. Exp.: 0,69 mg/kg/d

No. 17: Use descriptors: PROC 9, SU3

Operational conditions & typical RMMs: Small package filling; Dedicated facility; Transfer from/pouring from containerns

RMM: Avoid carrying out activities involving exposure for more than 1 hour.

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA DF 15 min/h; Mod. pred. Exp.: 1,00 ppm

Derm. Exp.: TRA Pred. Exp.: 6,86 mg/kg/d; Mod. pred. Exp.: 6,86 mg/kg/d

No. 18: Use descriptors: PROC 9, SU3

Operational conditions & typical RMMs: Small package filling; Dedicated facility; Transfer from/pouring from containerns

RMM: Limit the substance content in the product to 25%; Avoid carrying out activities involving exposure for more than 4 hours.

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA KF: 5-25%; TRA DF 1-4 h; Mod. erw. Exp.: 1,80 ppm

Derm. Exp.: TRA Pred. Exp.: 6,86 mg/kg/d; TRA KF: 5-25%; Mod. pred. Exp.: 4,12

No. 19: Use descriptors: PROC 13, SU3

Operational conditions & typical RMMs: Dipping, immersion and pouring

Inh. Exp.: TRA Pred. Exp.: 1 ppm; Mod. pred. Exp.: 1 ppm

Derm. Exp.: TRA Pred. Exp.: 13,71 mg/kg/d; Mod. pred. Exp.: 13,71 mg/kg/d

No. 20: Use descriptors: PROC 14, SU3

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Operational conditions & typical RMMs: Production or preparation of articles by tableting, compression, extrusion or pelletisation

Inh. Exp.: TRA Pred. Exp.: 1 ppm; Mod. pred. Exp.: 1 ppm

Derm. Exp.: TRA Pred. Exp.: 3,43 mg/kg/d; Mod. pred. Exp.: 3,43 mg/kg/d

No. 21: Use descriptors: PROC 15, SU3

Operational conditions & typical RMMs: Laboratory activities, with local exhaust ventilation

Inh. Exp.: TRA Pred. Exp.: 0,50 ppm; Mod. pred. Exp.: 0,50 ppm

Derm. Exp.: TRA Pred. Exp.: 0,34 mg/kg/d; Mod. pred. Exp.: 0,34 mg/kg/d

Risk characterization

No. 1: Use descriptors: PROC 1, SU3

Operational conditions & typical RMMs: closed systems, Process sampling, elevated temperature

RCR (inhalation): 0.005; RCR (dermal): 0.003; RCR (all routes): 0.008

No. 2: Use descriptors: PROC 2, SU3

Operational conditions & typical RMMs: Continuous process, Process sampling

RCR (inhalation): 0.25; RCR (dermal): 0.01; RCR (all routes): 0.26

No. 3: Use descriptors: PROC 3, SU3

Operational conditions & typical RMMs: Batch process, Process sampling, with local exhaust ventilation

RCR (inhalation): 0.50; RCR (dermal): 0.003; RCR (all routes): 0.50

No. 4: Use descriptors: PROC 4, SU3

Operational conditions & typical RMMs: Process sampling, with local exhaust ventilation

RCR (inhalation): 0.25; RCR (dermal): 0.01; RCR (all routes): 0.26

No. 5: Use descriptors: PROC 4, SU3

Operational conditions & typical RMMs: Process sampling

RCR (inhalation): 0.50; RCR (dermal): 0.07; RCR (all routes): 0.57

No. 6: Use descriptors: PROC 4, SU3

Operational conditions & typical RMMs: Process sampling

RCR (inhalation): 0.90; RCR (dermal): 0.136; RCR (all routes): 0.64

No. 7: Use descriptors: PROC 5, SU3

Operational conditions & typical RMMs: Mixing operations: Batch processes; Process sampling; with local exhaust ventilation

RCR (inhalation): 0.25; RCR (dermal): 0.00; RCR (all routes): 0.25

No. 8: Use descriptors: PROC 5, SU3

Operational conditions & typical RMMs: Mixing operations: Batch processes; Process sampling

RCR (inhalation): 0.50; RCR (dermal): 0.136; RCR (all routes): 0.64

No. 9: Use descriptors: PROC 5, SU3

Operational conditions & typical RMMs: Mixing operations: Batch processes; Process sampling

RCR (inhalation): 0.90; RCR (dermal): 0.08; RCR (all routes): 0.98

No. 10: Use descriptors: PROC 8a, SU3

Operational conditions & typical RMMs: Bulk transfer; Non-dedicated facility; Transfer from/pouring from containerns

RCR (inhalation): 0.25; RCR (dermal): 0.00; RCR (all routes): 0.25

No. 11: Use descriptors: PROC 8a, SU3

Operational conditions & typical RMMs: Bulk transfer; Non-dedicated facility; Transfer from/pouring from containerns

RCR (inhalation): 0.50; RCR (dermal): 0.136; RCR (all routes): 0.64

No. 12: Use descriptors: PROC 8a, SU3

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Operational conditions & typical RMMs: Bulk transfer; Non-dedicated facility; Transfer from/pouring from containerns

RCR (inhalation): 0.90; RCR (dermal): 0.081; RCR (all routes): 0.98

No. 13: Use descriptors: PROC 8a, SU3

Operational conditions & typical RMMs: Bulk transfer; Non-dedicated facility; Transfer from/pouring from containerns; with local exhaust ventilation

RCR (inhalation): 0.08; RCR (dermal): 0.01; RCR (all routes): 0.08

No. 14: Use descriptors: PROC 8a, SU3

Operational conditions & typical RMMs: Bulk transfer; Dedicated facility; Transfer from/pouring from containerns

RCR (inhalation): 0.50; RCR (dermal): 0.07; RCR (all routes): 0.57

No. 15: Use descriptors: PROC 8a, SU3

Operational conditions & typical RMMs: Bulk transfer; Dedicated facility; Transfer from/pouring from containerns

RCR (inhalation): 0.90; RCR (dermal): 0.04; RCR (all routes): 0.94

No. 16: Use descriptors: PROC 9, SU3

Operational conditions & typical RMMs: Small package filling; Dedicated facility; Transfer from/pouring from containerns; with local exhaust ventilation

RCR (inhalation): 0.25; RCR (dermal): 0.007; RCR (all routes): 0.26

No. 17: Use descriptors: PROC 9, SU3

Operational conditions & typical RMMs: Small package filling; Dedicated facility; Transfer from/pouring from containerns

RCR (inhalation): 0.50; RCR (dermal): 0.07; RCR (all routes): 0.57

No. 18: Use descriptors: PROC 9, SU3

Operational conditions & typical RMMs: Small package filling; Dedicated facility; Transfer from/pouring from containerns

RCR (inhalation): 0.90; RCR (dermal): 0.04; RCR (all routes): 0.94

No. 19: Use descriptors: PROC 13, SU3

Operational conditions & typical RMMs: Dipping, immersion and pouring

RCR (inhalation): 0.50; RCR (dermal): 0.03; RCR (all routes): 0.53

No. 20: Use descriptors: PROC 14, SU3

Operational conditions & typical RMMs: Production or preparation of articles by tableting, compression, extrusion or pelletisation

RCR (inhalation): 0.50; RCR (dermal): 0.03; RCR (all routes): 0.53

No. 21: Use descriptors: PROC 15, SU3

Operational conditions & typical RMMs: Laboratory activities, with local exhaust ventilation

RCR (inhalation): 0.25; RCR (dermal): 0.00; RCR (all routes): 0.25

· Worker protection**· Organisational protective measures**

Provide Internal Plant Instruction.

Keep good industrial hygiene.

Employment restrictions concerning pregnant and lactating women must be observed.

· Technical protective measures

Ensure good ventilation/exhaustion at the workplace.

Ensure that suitable extractors are available on processing machines

· Personal protective measures

Do not inhale dust / smoke / mist.

Avoid contact with the eyes.

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Pregnant women should strictly avoid inhalation or skin contact.

Tightly sealed goggles

Use suitable respiratory protective device when high concentrations are present.

· **Measures for consumer protection** Not relevant for this Exposure Scenario.

· **Environmental protection measures**

Avoid release to the environment. Obtain special instructions / refer to Safety Data Sheet.

· **Air**

Exhaust air is cleaned in dedusting process.

Exhaust air is introduced into the gas scrubber.

· **Water** Ensure that all wastewater is collected and treated in a wastewater treatment plant.

· **Soil** Avoid contact with soil and / or ground water during the application.

· **Notes** In case of unintended release of the product: See section 6 of the Safety Data Sheet.

· **Disposal measures** Must be specially treated adhering to official regulations.

· **Disposal procedures**

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· **Waste type**

Solid product residues

Partially emptied and uncleaned packaging

· **Exposure estimation**

The exposure estimation was carried out in accordance with ECETOC TRA.

Detailed information on the exposure estimation can be found at <http://www.ecetoc.org/tra>.

· **Consumer** Not relevant for this Exposure Scenario.

· **Guidance for downstream users** No further relevant information available.

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Annex: Exposure scenario 2

- **Short title of the exposure scenario**
- **Sector of Use**
SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
- **Process category**
PROC1 Use in closed process, no likelihood of exposure
PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises
PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC10 Roller application or brushing
PROC13 Treatment of articles by dipping and pouring
PROC15 Use as laboratory reagent
PROC19 Hand-mixing with intimate contact and only PPE available
- **Environmental release category**
ERC8a Wide dispersive indoor use of processing aids in open systems
ERC8b Wide dispersive indoor use of reactive substances in open systems
ERC8e Wide dispersive outdoor use of reactive substances in open systems
- **Description of the activities / processes covered in the Exposure Scenario**
See section 1 of the annex to the Safety Data Sheet.
- **Conditions of use**
- **Duration and frequency** 360 days/year
- **Worker** Regular use with exposure up to 8 hrs. per workday.
- **Physical parameters**
- **Physical state** Solid
- **Concentration of the substance in the mixture** Raw material.
- **Other operational conditions**
- **Other operational conditions affecting environmental exposure** Indoor and outdoor applications
- **Other operational conditions affecting worker exposure**
Wear protective clothing.
Do not breathe dust.
Avoid contact with eyes.
Keep away from combustible material.
- **Other operational conditions affecting consumer exposure** No special measures required.
- **Other operational conditions affecting consumer exposure during the use of the product** Not applicable.
- **Risk management measures**
No. 1: Use descriptors: PROC 4, SU22
Operational conditions & typ. RMMs: Open systems, Process sampling, with local exhaust ventilation
RMM: Ensure material transfers are under containment or extract ventilation
Inhalation Exposure: TRA Pred. Exp.: 5,00 ppm; TRA LEV Eff.: 80% Mod. pred. Exp.: 1 ppm
Dermal Exposure: TRA Pred. Exp.: 6,86 mg/kg/d; TRA Derm. Exp. RF: 0,1; Mod. Pred. Exp.: 0,69 mg/kg/d
Risk characterization: RCR (Inhalation): 0,5; RCR (dermal): 0,007; RCR (all routes): 0,507

No. 2: PROC 4, SU22
Operational conditions & typ. RMMs: Open systems, Process sampling, with local exhaust ventilation
RMM: Avoid carrying out activities involving exposure for more than 1 hour.
Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA DF.: 15 min/h; Mod. pred. Exp.: 1 ppm
Derm. Exp.: TRA Pred. Exp.: 6,86 mg/kg/d; Mod. pred. Exp.: 6,86 mg/kg/d
RCR (Inh.): 0,5; RCR (derm.): 0,07; RCR (all routes): 0,57

No. 3: PROC 4, SU22
Operational conditions & typ. RMMs: Open systems
RMM: Limit the substance content in the product to 25%. Avoid carrying out activities involving exposure for more than 4 hours.

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Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA KF: 5-25%; TRA DF: 1-4 hours; Mod. pred. Exp.: 1,80 ppm
Derm. Exp.: TRA Pred. Exp.: 6,86 mg/kg/d; TRA CF: 5-25%; Mod. pred. Exp.: 4,12 mg/kg/d
RCR (Inh.): 0,9; RCR (derm.): 0,04; RCR (all routes): 0,94

No. 4: PROC 8a, SU22

Operational conditions & typ. RMMs: Bulk transfer, Non-dedicated facility; Transfer/Pouring from containers; with local exhaust ventilation

RMM: Ensure material transfers are under containment or extract ventilation

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA LEV Eff.: 80% Mod. pred. Exp.: 1 ppm
Derm. Exp.: TRA Pred. Exp.: 13,71 mg/kg/d; TRA Derm. Exp. RF: 0,01; Mod. pred. Exp.: 0,14 mg/kg/d
RCR (Inh.): 0,5; RCR (derm.): 0,001; RCR (all routes): 0,50

No. 5: PROC 8a, SU22

Operational conditions & typ. RMMs: Bulk transfer, Non-dedicated facility; Transfer/Pouring from containers; with local exhaust ventilation

RMM: Avoid carrying out activities involving exposure for more than 1 hour.

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA DF.: 15 min/h; Mod. pred. Exp.: 1 ppm
Derm. Exp.: TRA Pred. Exp.: 13,71 mg/kg/d; Mod. pred. Exp.: 13,71 mg/kg/d
RCR (Inh.): 0,5; RCR (derm.): 0,14; RCR (all routes): 0,64

No. 6: PROC 8a, SU22

Operational conditions & typ. RMMs: Bulk transfer, Non-dedicated facility; Transfer/Pouring from containers

RMM: Limit the substance content in the product to 25%. Avoid carrying out activities involving exposure for more than 4 hours.

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA CF: 5-25%; TRA DF: 1-4 hours; Mod. pred. Exp.: 1,80 ppm
Derm. Exp.: TRA Pred. Exp.: 13,71 mg/kg/d; TRA CF: 5-25%; Mod. pred. Exp.: 8,23 mg/kg/d
RCR (Inh.): 0,9; RCR (derm.): 0,08; RCR (all routes): 0,98

No. 7: PROC 8b, SU22

Operational conditions & typ. RMMs: Bulk transfer, Dedicated facility; Transfer/Pouring from containers; with local exhaust ventilation

RMM: Ensure material transfers are under containment or extract ventilation

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA LEV eff.: 85%; Mod. pred. Exp.: 1 ppm
Derm. Exp.: TRA Pred. Exp.: 6,86 mg/kg/d; TRA LEV RF: 0,10; Mod. pred. Exp.: 0,69 mg/kg/d
RCR (Inh.): 0,5; RCR (derm.): 0,01; RCR (all routes): 0,51

No. 8: PROC 8b, SU22

Operational conditions & typ. RMMs: Bulk transfer, Dedicated facility; Transfer/Pouring from containers
RMM: Avoid carrying out activities involving exposure for more than 1 hour.

Inh. Exp.: TRA pred. Exp.: 5,00 ppm; TRA DF.: 15 min/h; Mod. pred. Exp.: 1 ppm
Derm. Exp.: TRA pred. Exp.: 6,86 mg/kg/d; Mod. pred. Exp.: 6,86 mg/kg/d
RCR (Inh.): 0,5; RCR (derm.): 0,07; RCR (all routes): 0,57

No. 9: PROC 8b, SU22

Operational conditions & typ. RMMs: Bulk transfer, Dedicated facility; Transfer/Pouring from containers
RMM: Limit the substance content in the product to 25%. Avoid carrying out activities involving exposure for more than 4 hours.

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA CF: 5-25%; TRA DF: 1-4 hours; Mod. pred. Exp.: 1,80 ppm
Derm. Exp.: TRA Pred. Exp.: 6,86 mg/kg/d; TRA CF: 5-25%; Mod. pred. Exp.: 4,12 mg/kg/d
RCR (Inh.): 0,9; RCR (derm.): 0,04; RCR (all routes): 0,94

No. 10: PROC 9, SU22

Operational conditions & typ. RMMs: Small package filling, Dedicated facility; Transfer/Pouring from containers; with local exhaust ventilation

RMM: Ensure material transfers are under containment or extract ventilation

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA LEV eff.: 80%; Mod. pred. Exp.: 1 ppm
Derm. Exp.: TRA Pred. Exp.: 6,86 mg/kg/d; TRA LEV RF: 0,10; Mod. pred. Exp.: 0,69 mg/kg/d

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RCR (Inh.): 0,5; RCR (derm.): 0,01; RCR (all routes): 0,51

No. 11: PROC 9, SU22

Operational conditions & typ. RMMs: Small package filling, Dedicated facility; Transfer/Pouring from containers;

RMM: Avoid carrying out activities involving exposure for more than 1 hour.

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA DF.: 15 min/h; Mod. pred. Exp.: 1 ppm

Derm. Exp.: TRA Pred. Exp.: 6,86 mg/kg/d; Mod. pred. Exp.: 6,86 mg/kg/d

RCR (Inh.): 0,5; RCR (derm.): 0,07; RCR (all routes): 0,57

No. 12: PROC 9, SU22

Operational conditions & typ. RMMs: Bulk transfer, Dedicated facility; Transfer/Pouring from containers; RMM: Limit the substance content in the product to 25%. Avoid carrying out activities involving exposure for more than 4 hours.

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA CF: 5-25%; TRA DF: 1-4 hours; Mod. pred. Exp.: 1,80 ppm

Derm. Exp.: TRA Pred. Exp.: 6,86 mg/kg/d; TRA CF: 5-25%; Mod. pred. Exp.: 4,12 mg/kg/d

RCR (Inh.): 0,9; RCR (derm.): 0,04; RCR (all routes): 0,94

No. 13: PROC 10, SU22

Operational conditions & typ. RMMs: Rolling, Brushing; with local exhaust ventilation

RMM: Ensure material transfers are under containment or extract ventilation

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA LEV eff.: 80%; Mod. pred. Exp.: 1 ppm

Derm. Exp.: TRA Pred. Exp.: 13,71 mg/kg/d; TRA LEV RF: 0,05; Mod. pred. Exp.: 0,69 mg/kg/d

RCR (Inh.): 0,5; RCR (derm.): 0,01; RCR (all routes): 0,51

No. 14: PROC 10, SU22

Operational conditions & typ. RMMs: Rolling, Brushing

RMM: Avoid carrying out activities involving exposure for more than 1 hour.

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA DF.: 15 min/h; Mod. pred. Exp.: 1 ppm

Derm. Exp.: TRA Pred. Exp.: 13,71 mg/kg/d; Mod. pred. Exp.: 13,71 mg/kg/d

RCR (Inh.): 0,5; RCR (derm.): 0,14; RCR (all routes): 0,64

No. 15: PROC 10, SU22

Operational conditions & typ. RMMs: Rolling, Brushing

RMM: Limit the substance content in the product to 25%. Avoid carrying out activities involving exposure for more than 4 hours.

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA CF: 5-25%; TRA DF: 1-4 hours; Mod. pred. Exp.: 1,80 ppm

Derm. Exp.: TRA Pred. Exp.: 13,71 mg/kg/d; TRA CF: 5-25%; Mod. pred. Exp.: 8,23 mg/kg/d

RCR (Inh.): 0,9; RCR (derm.): 0,08; RCR (all routes): 0,98

No. 16: PROC 13, SU22

Operational conditions & typ. RMMs: Dipping, immersion and pouring; with local exhaust ventilation

RMM: Ensure material transfers are under containment or extract ventilation

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA LEV eff.: 80%; Mod. pred. Exp.: 1 ppm

Derm. Exp.: TRA Pred. Exp.: 13,71 mg/kg/d; TRA LEV RF: 0,05; Mod. pred. Exp.: 0,69 mg/kg/d

RCR (Inh.): 0,5; RCR (derm.): 0,01; RCR (all routes): 0,51

No. 17: PROC 13, SU22

Operational conditions & typ. RMMs: Dipping, immersion and pouring

RMM: Avoid carrying out activities involving exposure for more than 1 hour.

Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA DF.: 15 min/h; Mod. pred. Exp.: 1 ppm

Derm. Exp.: TRA Pred. Exp.: 13,71 mg/kg/d; Mod. pred. Exp.: 13,71 mg/kg/d

RCR (Inh.): 0,5; RCR (derm.): 0,14; RCR (all routes): 0,64

No. 18: PROC 13, SU22

Operational conditions & typ. RMMs: Dipping, immersion and pouring

RMM: Limit the substance content in the product to 25%. Avoid carrying out activities involving exposure for more than 4 hours.

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Inh. Exp.: TRA Pred. Exp.: 5,00 ppm; TRA CF: 5-25%; TRA DF: 1-4 hours; Mod. pred. Exp.: 1,80 ppm
Derm. Exp.: TRA Pred. Exp.: 13,71 mg/kg/d; TRA CF: 5-25%; Mod. pred. Exp.: 8,23 mg/kg/d
RCR (Inh.): 0,9; RCR (derm.): 0,08; RCR (all routes): 0,98

No. 19: PROC 15, SU22

Operational conditions & typ. RMMs: Laboratory activities

Inh. Exp.: TRA Pred. Exp.: 0,5; Mod. pred. Exp.: 0,5 ppm

Derm. Exp.: TRA Pred. Exp.: 0,34 mg/kg/d; Mod. pred. Exp.: 0,34 mg/kg/d

RCR (Inh.): 0,25; RCR (derm.): 0,003; RCR (all routes): 0,25

No. 20: PROC 19, SU22

Operational conditions & typ. RMMs: Hand application; fingerpaints, pastels, adhesives

Inh. Exp.: TRA Pred. Exp.: 5; TRA LEV eff.: 80%; Mod. pred. Exp.: 1 ppm

Derm. Exp.: TRA Pred. Exp.: 141,43 mg/kg/d; PPE: gloves; Mod. pred. Exp.: 28,29 mg/kg/d

RCR (Inh.): 0,50; RCR (derm.): 0,28; RCR (all routes): 0,78

No. 21: PROC 19, SU22

Operational conditions & typ. RMMs: Hand application; fingerpaints, pastels, adhesives

Inh. Exp.: TRA Pred. Exp.: 5; TRA DF: 15 min/h; Mod. pred. Exp.: 1 ppm

Derm. Exp.: TRA Pred. Exp.: 141,43 mg/kg/d; PPE: gloves; Mod. pred. Exp.: 28,29 mg/kg/d

RCR (Inh.): 0,50; RCR (derm.): 0,28; RCR (all routes): 0,78

No. 22: PROC 19, SU22

Operational conditions & typ. RMMs: Hand application; fingerpaints, pastels, adhesives

Inh. Exp.: TRA Pred. Exp.: 5; TRA CF: 5-25%; TRA DF: 1-4 hours; Mod. pred. Exp.: 1,80 ppm

Derm. Exp.: TRA Pred. Exp.: 141,43 mg/kg/d; TRA CF: 5-25%; PPE: gloves; Mod. pred. Exp.: 8,49 mg/kg/d

RCR (Inh.): 0,90; RCR (derm.): 0,08; RCR (all routes): 0,98

· **Worker protection**· **Organisational protective measures** No special measures required.· **Technical protective measures** Ensure that suitable extractors are available on processing machines· **Personal protective measures**

Do not inhale dust / smoke / mist.

Avoid contact with the eyes.

Pregnant women should strictly avoid inhalation or skin contact.

Tightly sealed goggles

Use suitable respiratory protective device when high concentrations are present.

· **Measures for consumer protection** No special measures required.· **Environmental protection measures**

Avoid release to the environment. Obtain special instructions / refer to Safety Data Sheet.

· **Air** Exhaust air is cleaned in dedusting process.· **Water** Ensure that all wastewater is collected and treated in a wastewater treatment plant.· **Soil** Avoid contact with soil and / or ground water during the application.· **Notes** In case of unintended release of the product: See section 6 of the Safety Data Sheet.· **Disposal measures** Must be specially treated adhering to official regulations.· **Disposal procedures**

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· **Waste type**

Solid product residues

Partially emptied and uncleaned packaging

· **Exposure estimation** The exposure estimation was carried out in accordance with ECETOC TRA.· **Consumer** Not relevant for this Exposure Scenario.· **Guidance for downstream users** No further relevant information available.

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Annex: Exposure scenario 3

- **Short title of the exposure scenario**
- **Sector of Use SU21** Consumer uses: Private households / general public / consumers
- **Product category PC35** Washing and cleaning products (including solvent based products)
- **Environmental release category**
ERC8a Wide dispersive indoor use of processing aids in open systems
ERC8b Wide dispersive indoor use of reactive substances in open systems
- **Description of the activities / processes covered in the Exposure Scenario**
See section 1 of the annex to the Safety Data Sheet.
- **Conditions of use**
- **Duration and frequency**

Information type	Data field	Explanation
Duration of transfer	1 minute	AISE (2009c) gives value of < 1 minute
Duration of washing (laundry detergent)	20 minutes	AISE (2009c) gives value of 10 minutes (the longer duration was chosen to cover also the use of other products that may have longer durations of use than laundry detergents)
Frequency of use of laundry detergents	3 times a day	Maximum frequency provided by AISE (2009c)
Amount of laundry detergent used	290 g	Maximum amount of detergent given by AISE (2009c)
Duration of treatment (bleach)	10 minutes	AISE (2009c) gives 5 to 10 minutes
Frequency of use of bleaches	Once a day	AISE (2009c) gives a maximal use frequency of 4 times a week; however, once a day was chosen to reflect the exposure on the day of use
Amount of bleach used	70 g	Maximum amount of bleach given by AISE (2009c)

- **Physical parameters**
- **Physical state** Solid
- **Concentration of the substance in the mixture** Raw material.
- **Other operational conditions**
- **Other operational conditions affecting environmental exposure** No special measures required.
- **Other operational conditions affecting worker exposure**
Avoid contact with eyes.
Keep away from combustible material.
- **Other operational conditions affecting consumer exposure**
Avoid contact with eyes.
Keep out of the reach of children.
Wash thoroughly after handling.
- **Other operational conditions affecting consumer exposure during the use of the product**
The directions for use must indicate the limits for proper use.
- **Risk management measures**
- **Worker protection**
- **Organisational protective measures** No special measures required.
- **Technical protective measures** Ensure that suitable extractors are available on processing machines
- **Personal protective measures**
Do not inhale dust / smoke / mist.
Avoid contact with the eyes.
Pregnant women should strictly avoid inhalation or skin contact.
Tightly sealed goggles
Use suitable respiratory protective device when high concentrations are present.
- **Measures for consumer protection**
Ensure adequate labelling.
Keep out of reach of children.
Observe consumer information and advice on safe use.
- **Environmental protection measures**
- **Water** Ensure that all wastewater is collected and treated in a wastewater treatment plant.

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- **Disposal measures** Consider information on recovery / recycling provided by the manufacturer / supplier.
- **Disposal procedures**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Waste type**
Solid product residues
Partially emptied and uncleaned packaging
- **Exposure estimation**
- **Consumer**
The exposure estimation was carried out in accordance with ECETOC TRA.
Detailed information on the exposure estimation can be found at <http://www.ecetoc.org/tra>.

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