

SAFETY DATA SHEET

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II



Product name: DD-Härter B05-901/4 for two component color, mixing rate 5:1
Date of printing: 06.10.2023

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

1.1 Product identifier

Product name: DD-Härter B05-901/5 for two component color, mixing rate 5:1
Unique Formula Identifier (UFI-Code): 9C30-W0R2-M00F-MFWE
Product type: Curing agent

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

Field of application: metal industry
Identified uses: Industrial applications, Professional applications, Used by spraying.

1.3 Details of the supplier of the safety data sheet:

Producer/Supplier: Bisdorf GmbH
Industriestraße 49-51
D-52224 Stolberg
Telephone: +49 (0) 2402 / 71048
Telefax: +49 (0) 2402 / 75465
E-Mail address: bisdorf-lacke@arcor.de

1.4 Emergency telephone number

Emergency information: Information Center against Poisons
University Bonn
Telephone number: +49 (0)228 / 19240
Date of issue: 06.10.2023
Date of previous issue: 09.01.2023

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition: Mixture
Classification according to Regulation (EC) No. 1272/2008 [CLP]

Classification acc. to GHS

| Section | Hazard class | Hazard class and category | Hazard statement |
|---------|---|---------------------------|------------------|
| 2.6 | flammable liquid | Flam. Liq. 3 | H226 |
| 3.1I | acute toxicity (inhal.) | Acute Tox. 4 | H332 |
| 3.2 | skin corrosion/irritation | Skin Irrit. 2 | H315 |
| 3.4S | skin sensitisation | Skin Sens. 1 | H317 |
| 3.8R | specific target organ toxicity - single exposure (respiratory tract irritation) | STOT SE 3 | H335 |
| 3.8D | specific target organ toxicity - single exposure (narcotic effects, drowsiness) | STOT SE 3 | H336 |

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

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2.2 Label elements

Hazard pictograms:



Signal word: Danger

Hazard statements: H226 - Flammable liquid and vapor.
H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H332 - Harmful if inhaled.
H335 - May cause respiratory irritation.
H336 - May cause drowsiness or dizziness.
EUH066 - Repeated exposure may cause skin dryness or cracking.
EUH204 - Contains isocyanates. May produce an allergic reaction.

Precautionary statements:

Prevention: P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P260 - Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.

Response: P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P314 - Get medical advice/attention if you feel unwell.
P331 - Do NOT induce vomiting.

Storage: P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 - Store in a well-ventilated place. Keep cool.
P405 - Store locked up.

Disposal: P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements: Contains isocyanates. May produce an allergic reaction.

Indication at Labelling:

The pictogram GHS 02 (flame) can according GHS/CLP Art. 33 (3) substituted to label of ADR.

2.3 Other hazards

Endocrine disrupting properties (human health):

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

Endocrine disrupting properties (environment):

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

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PBT and vPvB assessment:

This substance/mixture contains components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB).

SECTION 3: Composition/information on ingredients

3.2 Mixtures

| Product/ingredient name | Identifiers | % | Classification 1272/2008/EC (CLP) | Type |
|--|---|-------|--|---------------------|
| xylene (mixture of isomers) | REACH: 01-2119488216-32 CAS: 1330-20-7 EG: 215-535-7 | 5-10 | Flam. Liq. 3, H226 Acute Tox. 4, H312 Acute Tox. 4, H332 Asp. Tox. 1, H304 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 STOT RE 2, H373 | C [1] [2] |
| ethylbenzene | REACH: 01-2119489370-35 CAS: 100-41-4 EG: 202-849-4 | <5 | Flam. Liq. 2, H225 Asp. Tox. 1, H304 Acute Tox. 4, H332 STOT SE 3, H335 STOT RE 2, H373 (hearing organs) | - [1] [2] |
| n-butyl acetate | REACH: 01-2119485493-29 CAS: 123-86-4 EG: 204-658-1 | 40-50 | Flam. Liq. 3, H226 STOT SE 3, H336 | - [1] |
| hexamethylene-1,6-diisocyanate (oligomere) | REACH: 01-2119488934-20 CAS: 28182-81-2 EG: 500-060-2 | 40-50 | Acute Tox. 4, H332 Skin Sens. 1, H317 STOT SE 3, H335 | - [1] |
| hexamethylene-diisocyanate | REACH: 01-2119457571-37 CAS: 822-06-0 EG: 212-485-8 | <0,3 | Acute Tox. 4, H302 Acute Tox. 1, H330 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 | - [1] [2] [6] |

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII

[4] Substance does not meet the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII.

[5] Substance of equivalent conce.

[6] No restriction regulation for the industrial and professional use of this product as the concentration is less than 0.1%.

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information: In all cases of doubt, or when symptoms persist, seek medical attention. If unconscious, place in recovery position and get medical attention immediately. Never give anything by mouth to an unconscious person. In any case show the physician the Safety Data Sheet.

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Inhalation: Remove affected persons from dangerous area by observing suitable respiratory Protection measures. Remove the casualty into fresh air and keep at rest. After intensive inhalation consult a doctor in every case, even if no symptoms occur.

Skin contact: Take off immediately all contaminated clothing. Wash contaminated clothing before reusing. Do not allow the product to dry on the skin. Wash skin thoroughly with soap and water or use recognised skin cleanser. Consult a doctor in case of persisting skin irritation.

Eye contact: Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Begin with medical treatment.

Ingestion: If swallowed, rinse mouth with water (only if the person is conscious). Do not induce vomiting unless directed to do so by medical personnel. Seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed

General information: When inhaled or swallowed depending on the time and amount, it can give rise to the following symptoms: headaches, giddiness, tiredness, nausea, vomiting, irregular heart beat, intoxication, unconsciousness, asphyxiation and fatality.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician: Symptomatic treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media



Suitable: Extinguishing measures to suit surroundings. In case of fire, use water spray jet, dry extinguishing powder, foam or carbon dioxide.

Not suitable: water jet.

5.2 Special hazards arising from the substance or mixture

Hazardous combustion
Products: Fire will produce dense black smoke containing hazardous combustion products. In a fire, the following may be released: carbon dioxide, carbon monoxide, not combusted hydrocarbons.

5.3 Advice for firefighters

Special protective equipment for fire-fighters: During fire-fighting wear self-contained breathing apparatus and protective clothing.

Additional information: The product is flammable. Use water spray to keep fire-exposed containers cool. Use extinguishing media suitable for surrounding materials. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

General information: To avoid fire, eliminate ignition sources. Provide adequate ventilation. Use personal protective equipment. Avoid contact with eyes, skin and clothing. Avoid breathing vapours, spray or mists.

6.2 Environmental precautions

General information: Do not discharge into the drains / surface waters / groundwater. Prevent spread over a wide area e.g. by containment or oil barriers.

6.3 Methods and material for containment and cleaning up

General information: Absorb with liquid-binding material (sand, diatomite, universal binders etc.) or use a spill kit. Containers in which spilt substance has been collected must be adequately labelled. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

6.4 Reference to other sections

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

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures: Keep away from sources of ignition - No smoking. Vapours may form explosive mixtures with air.
Take precautionary measures against electrostatic discharges. Provide good ventilation of working area. The working procedure should be planned as far as allowed by state-of-the-art technology so as to avoid release of hazardous substances or prevent skin contact. The level of risk involved in product handling must be reduced to a minimum by means of protective and preventive measures.

7.2 Conditions for safe storage, including any incompatibilities

General information: Store in a dry, cool and well-ventilated area. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. Store in accordance with local regulations.

German storage class: 10 - Combustible liquids neither in Storage Class 3

7.3 Specific end use(s)

See separate Product Data Sheet for recommendations or industrial sector specific solutions.

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values (Workplace Exposure Limits)

| Product/ingredient name | CAS-Nr. | Notation | Identifier | TWA [ppm] | TWA [mg/m ³] | STEL [ppm] | STEL [mg/m ³] | Source |
|-----------------------------|-----------|----------|------------|-----------|--------------------------|------------|---------------------------|-------------|
| xylene (mixture of isomers) | 1330-20-7 | skin | IOELV | 50 | 221 | 100 | 442 | 2017/164/EU |
| ethylbenzene | 100-41-4 | skin | IOELV | 100 | 442 | 200 | 884 | 2017/164/EU |
| n-butyl acetate | 123-86-4 | skin | MAK | 2 | 11 | 4 | 22 | DFG/GER |
| hexamethylene-diisocyanate | 822-06-0 | | TLV | 0.005 | 0,035 | | | ACGIH |
| hexamethylene-diisocyanate | 822-06-0 | Sa | IOELV | | | | 1 | 2017/164/EU |

Notation

STEL Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period unless otherwise specified

TWA Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average

Sa Sensitizing substance by inhalation.

DNELs/DMELs

| Product/ingredient name | | |
|-----------------------------|-------------------|--|
| xylene (mixture of isomers) | | |
| Oral | DNEL (population) | 1,6 mg/kg bw/day (Long-term - systemic effects) |
| Dermal | DNEL (worker) | 180 mg/kg bw/day (Long-term - systemic effects) |
| Inhalation | DNEL (population) | 108 mg/kg bw/day (Long-term - systemic effects) |
| | DNEL (worker) | 77 mg/m ³ (Long-term - systemic effects) |
| | | 289 mg/m ³ (Acute - systemic and local effects) |
| | DNEL (population) | 14,8 mg/m ³ (Long-term - systemic effects) |
| | | 174 mg/m ³ (Acute - systemic and local effects) |

| Product/ingredient name | | |
|-------------------------|---------------|--|
| ethylbenzene | | |
| Dermal | DNEL (worker) | 180 mg/kg bw/day (Long-term - systemic effects) |
| Inhalation | DNEL (worker) | 77 mg/m ³ (Long-term - systemic effects) |
| | | 289 mg/m ³ (Acute - systemic and local effects) |

| Product/ingredient name | | |
|-------------------------|-------------------|---|
| n-butyl acetate | | |
| Oral | DNEL (population) | 2 mg/kg bw/day (Long-term - systemic effects) |
| Dermal | DNEL (worker) | 11 mg/kg bw/day (Long-term - systemic effects) |
| Inhalation | DNEL (population) | 6 mg/kg bw/day (Long-term - systemic effects) |
| | DNEL (worker) | 600 mg/m ³ (Acute - local effects) |
| | | 300 mg/m ³ (Long-term - systemic effects) |
| | DNEL (population) | 300 mg/m ³ (Acute - local effects) |
| | | 35,7 mg/m ³ (Long-term - systemic effects) |

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| Product/ingredient name | | |
|--|---------------|--|
| hexamethylene-1,6-diisocyanate (oligomere) | | |
| Inhalation | DNEL (worker) | 1 mg/m ³ (local effects) |
| | DNEL (worker) | 0,5 mg/m ³ (Long-term - systemic and local effects) |

| Product/ingredient name | | |
|-----------------------------|---------------|--|
| hexamethylene-di-isocyanate | | |
| Inhalation | DNEL (worker) | 0,035 mg/m ³ (Long-term - systemic and local effects) |
| | DNEL (worker) | 0,07 mg/m ³ (Acute - systemic and local effects) |

PNECs

| Product/ingredient name | |
|-----------------------------|--|
| xylene (mixture of isomers) | |
| PNEC aqua | 0,327 mg/l (fresh water) 0,327 mg/l (marine water) |
| PNEC | 6,58 mg/l (STP (sewage treatment plant)) 2,31 mg/kg dw (soil) |
| PNEC sediment | 12,46 mg/kg dw (fresh water) 12,46 mg/kg dw (marine water) |

| Product/ingredient name | |
|-------------------------|--|
| ethylbenzole | |
| PNEC aqua | 0,1 mg/l (fresh water) 0,01 mg/l (marine water) |
| PNEC | 6,58 mg/l (STP (sewage treatment plant)) 2,68 mg/kg dw (soil) |
| PNEC sediment | 13,7 mg/kg dw (fresh water) 1,37 mg/kg dw (marine water) |

| Product/ingredient name | |
|-------------------------|--|
| n-butyl acetate | |
| PNEC aqua | 0,18 mg/l (fresh water) 0,018 mg/l (marine water) |
| PNEC | 35,6 mg/l (STP (sewage treatment plant)) 0,09 mg/kg dw (soil) |
| PNEC sediment | 0,981 mg/kg dw (fresh water) 0,098 mg/kg dw (marine water) |

| Product/ingredient name | |
|--|--|
| hexamethylene-1,6-diisocyanate (oligomere) | |
| PNEC aqua | 127 µg/l (fresh water) 12,7 µg/l (marine water) |
| PNEC | 38,28 mg/l (STP (sewage treatment plant)) 53,2 g/kg dw (soil) |
| PNEC sediment | 266,7 g/kg dw (fresh water) 26,67 mg/kg dw (marine water) |

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| Product/ingredient name | |
|--------------------------------|--|
| hexamethylene-1,6-diisocyanate | |
| PNEC aqua | 0,074 mg/l (fresh water) 0,0074 mg/l (marine water) |
| PNEC | 8,42 mg/l (STP (sewage treatment plant)) 0,0026 mg/kg dw (soil) |
| PNEC sediment | 0,01334 mg/kg dw (fresh water) 0,001334 mg/kg dw (marine water) |

8.2 Exposure controls / personal protection

Engineering measures

Refer to protective measures listed in sections 7.

Personal protective equipment:

Respiratory protection

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If working areas have insufficient ventilation: When the product is applied by means that will not generate an aerosol such as, brush or roller wear half or totally covering mask equipped with gas filter of type A, when grinding use particle filter of type P. Be sure to use an approved/certified respirator or equivalent.

Hand protection

If there is a potential for product skin contact, use of gloves tested to e.g. EN 374 will provide sufficient protection. Protective gloves should in any case be tested for workplace-specific suitability (e.g. mechanical resistance, product compatibility, antistatic properties). Comply with instructions and information provided by the glove manufacturer concerning use, care and replacement of the gloves. Replace protective gloves immediately upon damage or at the first signs of wear. As far as possible, plan work procedures so that wearing gloves will not be necessary.

| | Long term exposure | Short term exposure |
|--------------------------------------|--------------------|---------------------|
| Recommended gloves should be made of | Viton® | Nitril. |
| Material thickness | >0,7 mm | >0,4 mm |
| Permeation time | >480 min | >480 min |

Eye protection

Safety goggles with lateral shielding (DIN EN 166)

Body protection

Usual working clothes for the chemical industry, suitable for the job.

Environmental exposure controls:

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state: Fluid Colour: Colorless

Odor: Characteristic

Odor threshold: Not relevant for the hazard classification of the product.

Security-relevant basic data

| Parameter | |
|---|---|
| pH-value | Not applicable. |
| Melting point/Melting range | -76 °C |
| Boiling point/Boiling range | 124 - 128 °C |
| Flash point | ~25 °C (IP 170 (ABEL)) |
| Flammability (solid / gas) | Not applicable. |
| Ignition temperature | ~420 ° C (lowest value of the individual components) |
| Decomposition temperature | Not determined. |
| Auto-ignition temperature | The product is not self-igniting. |
| Explosive properties | Product is not explosive. However, formation of explosive air/steam mixtures as possible. |
| Explosion limits Lower Upper | 1,2 %(Vol) 7,5 %(Vol) |
| Oxidizing properties | Not determined |
| Vapour pressure | 13 hPa (20 °C) |
| Density | ~1,00 g/cm ³ (20 °C) |
| Vapor density | Not determined |
| Evaporation rate | No data available. |
| Solubility in Miscibility with water | Organic solvents (see point 3) Reacts with water! (immiscible at 15 °C) |
| Partition coefficient: (n-octanol/water) | Testing not relevant or not possible due to nature of the product. |
| Viscosity (expiry time after DIN 53211) Dynamic: Kinematic: | ~10 s DIN 4mm (20°C) |
| Solvent separation test | < 3% (20°C) |

9.2. Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity

General information: No specific test data related to reactivity available for this product or its ingredients.

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10.2 Chemical stability

General information: The product is stable.

10.3 Possibility of hazardous reactions

General information: Rubber and other synthetic material can be affected.

10.4 Conditions to avoid

General information: The product is flammable. Keep away from excessive heat, sparks or open fire.

10.5 Incompatible materials

General information: oxidising agents, acids

10.6 Hazardous decomposition products

General information: Thermal disintegration depends to a great extent on the external conditions. A complex mixture of solids, liquids and gases forms in the air, including among other substances carbon dioxide, carbon monoxide and other organic compounds, when this material is burnt or is thermally or oxidatively degraded.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

| Product/ingredient name | Result | Species | Dose | Exposure |
|--|---------------------------------|---------|-------------------------|----------|
| xylene (mixture of isomers) | LC50 Inhalation Gas | Rat | 5000 ppm | 4 hours |
| | LC50 Inhalation Vapour | Rat | 6350 ppm | 4 hours |
| | LD50 Dermal | Rabbit | >5000 mg/kg | - |
| | LD50 Oral | Rat | 4300 mg/kg | - |
| ethylbenzene | LC50 Inhalation Vapour | Rat | 17,2 mg/l | 4 hours |
| | LD50 Dermal | Rabbit | >5000 mg/kg | - |
| | LD50 Oral | Rat | 3500 mg/kg | - |
| n-butyl acetate | LC50 Inhalation Gas | Rat | 2730 ppm | 4 hours |
| | LC50 Inhalation Vapour | Rat | >21 mg/l | 4 hours |
| | LD50 Dermal | Rabbit | >17600 mg/kg | - |
| | LD50 Oral | Rat | 10768 mg/kg | - |
| hexamethylene-1,6-diisocyanate (oligomere) | LC50 Inhalation Dusts and mists | Rat | 18500 mg/m ³ | 1 hour |
| | LC50 Inhalation Dusts and mists | Rat | 1.5 mg/l | 4 hours |
| | LD50 Dermal | Rabbit | >2000 mg/kg | - |
| | LD50 Oral | Rat | >2500 mg/kg | - |
| hexamethylene-di-isocyanate | LC50 Inhalation Dusts and mists | Rat | 124 mg/m ³ | 4 hours |
| | LC50 Inhalation Vapour | Rat | 0,124 mg/m ³ | 4 hours |
| | LD50 Dermal | Rabbit | >7000 mg/kg | - |
| | LD50 Oral | Rat | 746 mg/kg | - |

Acute toxicity estimates

| Route | ATE value |
|---------------------|----------------|
| Oral | not rated |
| Dermal | not rated |
| Inhalation (vapors) | 13,119 mg/l/4h |

| Product/ingredient name | Result | Species | Score | Exposure |
|-----------------------------|-----------------------------|---------|-------|-------------------------|
| xylene (mixture of isomers) | Eyes - Severe irritant | Rabbit | - | 24 hours 5 milligrams |
| | Skin - Moderate irritant | Rabbit | - | 24 hours 500 milligrams |
| n-butyl acetate | Eyes - Mild irritant | Rabbit | - | 24 hours 500 milligrams |
| | Skin - Mild irritant | Rabbit | - | 24 hours 10 milligrams |
| | Respiratory - Mild irritant | Rabbit | - | - |

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| Product/ingredient name | Result | Species | Score | Exposure |
|--|-------------------------------|---------|-------|----------|
| hexamethylene-1,6-diisocyanate (oligomere) | Skin - Mild irritant | Rabbit | - | - |
| | Eyes - Mild irritant | Rabbit | - | - |
| | Respiratory – Irritant | Rabbit | - | - |
| hexamethylene-di-isocyanate | Skin - Severe irritant | Rabbit | - | - |
| | Eyes - Severe irritant | Rabbit | - | - |
| | Respiratory - Severe irritant | Rabbit | - | - |

Sensitiser

| Product/ingredient name | Route of exposure | Species | Result |
|--|-------------------|------------|-------------|
| hexamethylene-1,6-diisocyanate (oligomere) | Skin | Guinea pig | Sensitising |
| hexamethylene-1,6-diisocyanate | Skin | Guinea pig | Sensitising |

Mutagenicity

Remarks: No evidence of mutagenic effects.

Carcinogenicity

Remarks: No evidence of carcinogenic effects.

Reproductive toxicity

Remarks: No evidence that the substance is toxic for reproduction.

Teratogenicity

Remarks: No evidence that the substance may cause birth defects.

Specific target organ toxicity (single exposure)

| Product/ingredient name | Category | Route of exposure | Target organs |
|--|------------|-------------------|------------------------------|
| xylene (mixture of isomers) | Category 3 | Not applicable. | Respiratory tract Irritation |
| n-butyl acetate | Category 3 | Not applicable. | Narcotic effects |
| hexamethylene-1,6-diisocyanate (oligomere) | Category 3 | Not applicable. | Respiratory tract Irritation |
| hexamethylene-di-isocyanate | Category 3 | Not applicable. | Respiratory tract Irritation |

Specific target organ toxicity (repeated exposure)

| Product/ingredient name | Category | Route of exposure | Target organs |
|-----------------------------|------------|-------------------|----------------|
| xylene (mixture of isomers) | Category 2 | Not determined | Hearing organs |
| ethylbenzene | Category 2 | Not determined | Hearing organs |

Aspiration hazard

| Product/ingredient name | Result |
|-----------------------------|--------------------------------|
| xylene (mixture of isomers) | ASPIRATION HAZARD - Category 1 |
| ethylbenzene | ASPIRATION HAZARD - Category 1 |

Information on the likely routes of exposure

Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential chronic health effects

Inhaling of solvent components above the MWC-value can lead to health damage, e.g. irritation of the mucous membrane and respiratory organs, as well as damage to the liver, kidneys and the central nerve system. Indications for this are: headache, dizziness, fatigue, amyosthenia, drowsiness, in serious cases: unconsciousness. Solvents may cause some of the aforementioned effects through skin resorption. Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin resulting in non-allergic contact dermatitis and/or absorption through skin. Splashing may cause eye irritation and reversible damage.

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11.2 Endocrine disrupting properties

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

11.3 Other hazards

The product is flammable. Keep away from excessive heat, sparks or open fire. In use, may form flammable/explosive vapour/air mixture. Electrostatic charges may be generated during pumping, release of which may cause a fire.

SECTION 12: Ecological information

12.1 Toxicity

| Product/ingredient name | Result | Species | Exposure |
|--|-----------------------|---|----------|
| xylene (mixture of isomers) | Acute EC50 3,82 mg/l | Daphnie - Daphnia magna | 48 hours |
| | Acute EC50 4,7 mg/l | Algae - Pseudokirchneriella subcapitata | 72 hours |
| ethylbenzene | Acute LC50 7,6 mg/l | Fish - Oncorhynchus mykiss | 96 hours |
| | Acute EC50 2,4 mg/l | Daphnie - Daphnia magna | 48 hours |
| | Acute EC50 4,6 mg/l | Algae - Pseudokirchneriella subcapitata | 72 hours |
| n-butyl acetate | Acute LC50 7 mg/l | Fish - Oncorhynchus mykiss | 96 hours |
| | Acute LC50 44 mg/l | Daphnie - Daphnia magna | 48 hours |
| | Acute EC50 647,7 mg/l | Algae - Selenastrum capricornutum | 72 hours |
| hexamethylene-1,6-diisocyanate (oligomere) | Acute LC50 18 mg/l | Fish - Oncorhynchus mykiss | 96 hours |
| | Acute EC50 >100 mg/l | Daphnie - Daphnia magna | 48 hours |
| | Acute EC50 199 mg/l | Algae - Desmodesmus subspicatus | 72 hours |
| | Acute LC50 >100 mg/l | Fish - Danio ririo | 96 hours |

12.2 Persistence and degradability

| Product/ingredient name | Result |
|--|------------------------------|
| xylene (mixture of isomers) | 87,8 % - 28 days |
| n-butyl acetate | 90 % - 28 days |
| hexamethylene-1,6-diisocyanate (oligomere) | 0 % - Not readily - 28 days |
| hexamethylene-di-isocyanate | 42 % - Not readily - 28 days |

| Product/ingredient name | Aquatic half-life | Photolysis | Biodegradability |
|--|-------------------|------------|------------------|
| xylene (mixture of isomers) | - | - | Readily |
| n-butyl acetate | - | - | Readily |
| hexamethylene-1,6-diisocyanate (oligomere) | - | - | Not readily |
| hexamethylene-di-isocyanate | - | - | Not readily |

12.3 Bioaccumulative potential

| Product/ingredient name | LogPow | BCF | Potential |
|--|--------|-------|-----------|
| xylene (mixture of isomers) | 3.16 | 25.9 | low |
| n-butyl acetate | 2.3 | - | low |
| hexamethylene-1,6-diisocyanate (oligomere) | 3.15 | 3.2 | low |
| hexamethylene-di-isocyanate | 0.02 | 57.63 | low |

12.4 Mobility in soil

Soil/water partition coefficient (KOC): Not available.

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12.5 Results of PBT and vPvB assessment

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.

12.6 Endocrine disrupting properties

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

12.7 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods



The generation of waste should be avoided or minimised wherever possible. Residues of the product is listed as hazardous waste. Dispose of according to all state and local applicable regulations. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Spillage, remains, discarded clothes and similar should be discarded in a fireproof container.




European waste catalogue no. (EWC) is given below.
European waste catalogue (EWC): 08 01 11*

Packaging

The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

SECTION 14: Transport information

Transport may take place according to national regulation or ADR for transport by road, RID for transport by train, IMDG for transport by sea, IATA for transport by air.

| | 14.1 UN no. | 14.2 Proper shipping name | 14.3 Transport hazard class(es) | 14.4 PG* | 14.5 Env* Additional information |
|--------------------------|----------------|------------------------------|--|-------------|--|
| ADR/RID Class | UN1263 | PAINT RELATED MATERIAL | 3  | III | No. Tunnel code (D/E) |
| IMDG Class | UN1263 | PAINT RELATED MATERIAL | 3  | III | No. Emergency schedules F-E, S-E |
| IATA Class | UN1263 | PAINT RELATED MATERIAL | 3  | III | No. - |

PG*.: Packing group

Env.* : Environmental hazards

14.6 Special precautions for user

Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable.

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SECTION 15: Regulatory information

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

EU Regulation

Regulation (EG) Nr. 1907/2006 (REACH)

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), with supplements.

Regulation (EG) Nr. 1272/2008 (CLP)

Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labeling and packaging of substances and mixtures (CLP), with supplements.

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation
Substances of very high concern

Substances mentioned on the so-called "candidate list of substances of very high concern (SVHC) for authorisation" published by the ECHA are not intentionally added to this product. Therefore it is not expected, that these substances are present in amounts of $\geq 0,1\%$ in this product.

National legislation (Germany)

Water hazard class: WGK 2 (Assessment by list): hazardous for water.

VOC: 500 g/l DIN ISO 11890 (Council Directive 1999/13/EC).

Information about limitation of use: Employment restrictions concerning young persons must be observed.

15.2 Chemical Safety Assessment

This product contains substances for which Chemical Safety Assessments are still required.

SECTION 16: Other information

Abbreviations and acronyms:

Abbr. Descriptions of used abbreviations

| | |
|--------|---|
| ADR | Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road) |
| BCF | bioconcentration factor |
| CAS | Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances) |
| CLP | Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures |
| CMR | Carcinogenic, Mutagenic or toxic for Reproduction |
| DGR | Dangerous Goods Regulations (see IATA/DGR) |
| DMEL | Derived Minimal Effect Level |
| DNEL | Derived No-Effect Level |
| EINECS | European Inventory of Existing Commercial Chemical Substances |
| ELINCS | European List of Notified Chemical Substances |
| EmS | Emergency Schedule |
| GHS | "Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations |
| IATA | International Air Transport Association |
| IMDG | International Maritime Dangerous Goods Code |
| IOELV | indicative occupational exposure limit value |
| MARPOL | International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant") |
| PBT | Persistent, Bioaccumulative and Toxic |

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PNEC Predicted No-Effect Concentration
ppm parts per million
REACH Registration, Evaluation, Authorisation and Restriction of Chemicals
RID Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
STEL short-term exposure limit
TWA time-weighted average
VOC Volatile Organic Compounds
vPvB very Persistent and very Bioaccumulative

Full text of classifications [CLP/GHS]:

Acute Tox. 4, H312 ACUTE TOXICITY (dermal) - Category 4
Acute Tox. 4, H332 ACUTE TOXICITY (inhalation) - Category 4
Aquatic Chronic 2, H411 LONG-TERM AQUATIC HAZARD - Category 2
Asp. Tox. 1, H304 ASPIRATION HAZARD - Category 1
Eye Irrit. 2, H319 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
Flam. Liq. 3, H225 FLAMMABLE LIQUIDS - Category 2
Flam. Liq. 3, H226 FLAMMABLE LIQUIDS - Category 3
Skin Irrit. 2, H315 SKIN CORROSION/IRRITATION - Category 2
Skin Sens. 1, H317 SKIN SENSITIZATION - Category 1
STOT RE 2, H373 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
STOT RE 2, H373 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (hearing organs) - Category 2
STOT SE 3, H335 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
STOT SE 3, H336 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

| Classification | Justification |
|---------------------|-----------------------|
| Flam. Liq. 3, H226 | On basis of test data |
| Skin Irrit. 2, H315 | Calculation method |
| Skin Sens. 1, H317 | Calculation method |
| Acute Tox. 4, H332 | Calculation method |
| STOT SE 3; H335 | Calculation method |
| STOT SE 3, H336 | Calculation method |

Notice to reader

The information contained in this safety data sheet is based on the present state of knowledge and EU and national legislation. It provides guidance on health, safety and environmental aspects for handling the product in a safe way and should not be construed as any guarantee of the technical performance or suitability for particular applications. It is always the duty of the user/employer to ascertain that the work is planned and carried out in accordance with the national regulations.

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xylene, mixture of isomers

Annex: Exposure scenario 1

SECTION 1: Title section

Short title of the exposure scenario Formulation & (re)packing of substances and mixtures (Industrial)

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

Process category

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

PROC4 Chemical production where opportunity for exposure arises

PROC5 Mixing or blending in batch processes

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

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

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

PROC14 Tableting, compression, extrusion, pelletisation, granulation

PROC15 Use as laboratory reagent

Environmental release category ERC2 Formulation into mixture

Description of the activities / processes covered in the Exposure Scenario

Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.

SECTION 2: Conditions of use affecting exposure

The usual precautionary measures should be adhered to in handling the chemicals.

Duration and frequency 8hrs (full working shift).

Worker

Frequency of use:

5 workdays/week.

Physical parameters

Physical state

Fluid

Vapour pressure: 0.5-10 kPa (20 °C)

Concentration of the substance in the mixture Covers use of substance / product up to 100%

Used amount per time or activity

Regional use tonnage (tonnes/year): 15000, SU3

Annual site tonnage (tonnes/year): 3750, SU3

Maximum daily site tonnage (kg/day): 12500, SU3

Other operational conditions

Emission days / year: 300

Assumes use at not more than 20°C above ambient temperature (unless stated differently).

Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting environmental exposure

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Release fraction to air from process (initial release prior to RMM) / wide dispersive use (regional only): 1 %.

Release fraction to wastewater from process (initial release prior to RMM) / wide dispersive use: 0.2 %.

Release fraction to soil from process (initial release prior to RMM) / wide dispersive use (regional only): 0.01 %.

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Other operational conditions affecting worker exposure

Clean working place and equipment every day. Avoid splashing. Remove spilled product immediately. Keep container tightly closed in a cool place. Avoid contact with the skin and eyes.

Other operational conditions affecting consumer exposure during the use of the product

Not applicable.

Risk management measures *Ensure that personal protective measures are used at all activities.*

Worker protection

Storage (PROC1 / PROC2):

Store substance within a closed system.

General exposures / Use (closed systems) PROC1 / PROC2 / PROC3:

Laboratory activities (PROC15):

No other specific measures identified.

Batch processes at elevated temperatures. Operation is carried out at elevated temperature (> 20°C above ambient temperature) PROC3:

Store / Handle product in closed systems.

Provide extract ventilation to points where emissions (can) occur.

Preparation of material for application. Use in contained batch (PROC3):

General exposures / Use (open systems) PROC4:

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Process sampling (PROC3):

Provide a good standard of general ventilation.

Avoid carrying out activities involving exposure for more than 1 hour(s).

Mixing operations (open systems) PROC5:

Material transfers Drum/Batch transfer (Non-dedicated facility) PROC8a:

Material transfers Drum/batch transfers (Non-dedicated facility) PROC8b:

Material transfers Drum/batch transfers (dedicated facility) PROC8b:

Filling of drums and small containers (PROC 9):

Production or preparation of articles by tableting, compression, extrusion or pelletisation (PROC14):

Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour).

Bulk transfers (closed systems) PROC8b:

Ensure that material transfer is avoided or provide extract ventilation. Use local exhaust at places where emission can occur.

Equipment cleaning and maintenance (PROC 8a, 8b):

Drain or remove substance from equipment prior to break-in or maintenance.

Retain drain downs in sealed storage pending disposal or for subsequent recycle.

Organisational protective measures

Ensure good ventilation. This can be achieved by using a local exhaust or general exhaust system. If these measures are insufficient to keep the solvent vapour concentration below the workplace limit, wear an adequate respiratory protective device.

The employer must ensure that the necessary personal protective devices are available and applied accordingly to the instructions.

Technical protective measures

Provide explosion-proof electrical equipment.

Ensure that suitable extractors are available on processing machines

Personal protective measures

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

Do not inhale gases / fumes / aerosols.

Safety glasses

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

Environmental protection measures

Air

Treatment of air emissions is not required for the purposes of REACH compliance but may be needed to comply with other environmental legislation.

Treat air emission to provide a typical removal efficiency of (%): 0

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Water

Sludge treatment: Incineration or in a landfill

Prevent discharge of undissolved substance to or recover from onsite wastewater.

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 93.6

Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/day): 6.31

Assumed domestic sewage treatment plant flow (m³/d): 2000

Soil Use bunds or dykes around storage facilities to prevent soil and water pollution in the event of a spill.

Disposal measures

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

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

Waste type Partially emptied and uncleaned packaging

Notes Disposal must be made according to official regulations.

SECTION 3: Exposure estimation

Worker (oral) No significant oral exposure.

Worker (dermal)

PROC 1 / 3 / 15:

Exposure estimate: 0.34 mg/kg/day

RCR: 0

PROC 2:

Exposure estimate: 1.37 mg/kg/day

RCR: 0.01

PROC 4 / 8b / 9:

Exposure estimate: 6.86 mg/kg/day

RCR: 0.04

PROC 5 / 8a:

Exposure estimate: 13.71 mg/kg/day

RCR: 0.04

PROC 14:

Exposure estimate: 3.43 mg/kg/day

RCR: 0.02

Worker (inhalation)

PROC 1:

Exposure estimate: 0.01 ppm

RCR: 0

PROC 2 / 15:

Exposure estimate: 10 ppm

RCR: 0.56

PROC 3:

Exposure estimate: 17.5 ppm

RCR: 0.99

PROC 4:

Exposure estimate: 14 ppm

RCR: 0.79

PROC 5 / 8a / 8b / 9 / 14:

Exposure estimate: 15 ppm

RCR: 0.85

Environment The calculated value is smaller than the PNEC.

Consumer Not relevant for this Exposure Scenario.

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SECTION 4: Guidance for downstream users

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

Version 3. <http://www.ecetoc.org/tra>

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.

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.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Annex to the extended Safety Data Sheet (eSDS)

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Annex: Exposure scenario 2

SECTION 1: Title section

Short title of the exposure scenario *Uses in Coatings - Industrial*

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

Process category

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

PROC4 Chemical production where opportunity for exposure arises

PROC5 Mixing or blending in batch processes

PROC7 Industrial spraying

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

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

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

PROC10 Roller application or brushing

PROC13 Treatment of articles by dipping and pouring

PROC14 Tableting, compression, extrusion, pelletisation, granulation

PROC15 Use as laboratory reagent

Environmental release category

ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Description of the activities / processes covered in the Exposure Scenario

Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.

SECTION 2: Conditions of use affecting exposure

The usual precautionary measures should be adhered to in handling the chemicals.

Duration and frequency *8hrs (full working shift).*

Worker

Frequency of use:

5 workdays/week.

Physical parameters

Physical state

Fluid

Vapour pressure: 0.5-10 kPa (20 °C)

Concentration of the substance in the mixture *Covers use of substance / product up to 100%*

Used amount per time or activity

Regional use tonnage (tonnes/year): 5000, SU3

Annual site tonnage (tonnes/year): 5000, SU3

Maximum daily site tonnage (kg/day): 17000, SU3

Other operational conditions

Continuous release.

Emissiondays /year: 300

Assumes use at not more than 20°C above ambient temperature (unless stated differently).

Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting environmental exposure

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Release fraction to air from process (initial release prior to RMM) / wide dispersive use (regional only): 98 %.

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Release fraction to wastewater from process (initial release prior to RMM) / wide dispersive use: 0.7 %.
Release fraction to soil from process (initial release prior to RMM) / wide dispersive use (regional only): 0 %.

Other operational conditions affecting worker exposure

Clean working place and equipment every day. Avoid splashing. Remove spilled product immediately. Keep container tightly closed in a cool place. Avoid contact with the skin and eyes.

Other operational conditions affecting consumer exposure during the use of the product

Not applicable.

Risk management measures

Ensure that personal protective measures are used at all activities. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.

Worker protection

Storage (PROC1 / PROC2):

Store substance within a closed system.

General exposures / Use (closed systems) PROC1 / PROC2 / PROC3:

Laboratory activities (PROC15):

No other specific measures identified.

Film formation - force drying, stoving and other technologies (closed systems).

Operation is carried out at elevated temperature (> 20°C above ambient temperature) PROC2:

Store / Handle product in closed systems.

Provide extract ventilation to points where emissions (can) occur.

Mixing operations (closed systems) PROC:

Film formation - air drying (PROC4):

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Preparation of material for application (PROC5):

Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).

Avoid manual contact with wet work pieces.

Transfer from/pouring from containers (PROC8a,8b,9):

Apply by Rolling or Brushing (PROC10):

Treatment by dipping and pouring (PROC13):

Production or preparation of articles by tableting, compression, extrusion or pelletisation (PROC14):

Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour).

Material transfers Drum/Batch transfer (Non-dedicated facility) PROC8a:

Material transfers Drum/batch transfers (Non-dedicated facility) PROC8b:

Material transfers Drum/batch transfers (dedicated facility) PROC8b:

Ensure that material transfer is avoided or provide extract ventilation.

Spraying (automatic/robotic) PROC7:

Carry out in a vented booth or extracted enclosure.

Spraying (PROC 7 (manuell)):

Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour).

Wear a respirator conforming to EN140 with Type A filter or better.

Equipment cleaning and maintenance (Non-dedicated facility) PROC 8a:

Drain or remove substance from equipment prior to break-in or maintenance.

Organisational protective measures

Ensure good ventilation. This can be achieved by using a local exhaustion or general exhaust system. If these measures are insufficient to keep the solvent vapour concentration below the workplace limit, wear an adequate respiratory protective device.

The employer must ensure that the necessary personal protective devices are available and applied accordingly to the instructions.

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Technical protective measures

Provide explosion-proof electrical equipment.
Ensure that suitable extractors are available on processing machines

Personal protective measures

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

Do not inhale gases / fumes / aerosols.

Safety glasses

Measures for consumer protection Not relevant for this Exposure Scenario.

Environmental protection measures

Air

Treatment of air emissions is not required for the purposes of REACH compliance but may be needed to comply with other environmental legislation.

Treat air emission to provide a typical removal efficiency of (%): 90

Water

Sludge treatment: Incineration or in a landfill

Prevent discharge of undissolved substance to or recover from onsite wastewater.

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 93.6

Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/day): 69000

Assumed domestic sewage treatment plant flow (m³/d): 2000

Soil Use bunds or dykes around storage facilities to prevent soil and water pollution in the event of a spill.

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

Disposal measures

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

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

Waste type Partially emptied and uncleaned packaging

Notes Disposal must be made according to official regulations.

SECTION 3: Exposure estimation

Worker (oral) No significant oral exposure.

Worker (dermal)

PROC 1 / 3 / 15:

Exposure estimate: 0.34 mg/kg/day

RCR: 0

PROC 2 / 8a:

Exposure estimate: 1.37 mg/kg/day

RCR: 0.01

PROC 4 / 13:

Exposure estimate: 13.71 mg/kg/day

RCR: 0.08

PROC 5:

Exposure estimate: 0.07 mg/kg/day

RCR: 0

PROC 7 (automatisch):

Exposure estimate: 2.14 mg/kg/day

RCR: 0.01

PROC 7 (manuell):

Exposure estimate: 42.86 mg/kg/day

RCR: 0.24

PROC 8a (Anlagenr.):

Exposure estimate: 0.69 mg/kg/day

RCR: 0

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PROC 8b / 9:

Exposure estimate: 6.86 mg/kg/day

RCR: 0.04

PROC 10:

Exposure estimate: 27.43 mg/kg/day

RCR: 0.15

PROC 14:

Exposure estimate: 3.43 mg/kg/day

RCR: 0.02

Worker (inhalation)

PROC 1:

Exposure estimate: 0.01 ppm

RCR: 0

PROC 2 / 8a (Anlagenr.) / 15:

Exposure estimate: 10 ppm

RCR: 0.56

PROC 3:

Exposure estimate: 17.5 ppm

RCR: 0.99

PROC 4 / 5 / 9 / 13 / 14:

Exposure estimate: 15 ppm

RCR: 0.85

PROC 7 (automatisch):

Exposure estimate: 12.5 ppm

RCR: 0.71

PROC 7 (manuell):

Exposure estimate: 7.5 ppm

RCR: 0.42

PROC 8a / 10:

Exposure estimate: 5 ppm

RCR: 0.28

PROC 8b:

Exposure estimate: 1.5 ppm

RCR: 0.08

Environment *The calculated value is smaller than the PNEC.*

Consumer *Not relevant for this Exposure Scenario.*

SECTION 4: Guidance for downstream users

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

Version 3. <http://www.ecetoc.org/tra>

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.

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.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Annex to the extended Safety Data Sheet (eSDS)

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II

Product name: DD-Härter B05-901/4 for two component color,
mixing rate 5:1
Date of printing: 06.10.2023



Annex: Exposure scenario 3

SECTION 1: Title section

Short title of the exposure scenario *Uses in Coatings - Professional*

Sector of Use

SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Process category

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

PROC4 Chemical production where opportunity for exposure arises

PROC5 Mixing or blending in batch processes

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

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

PROC10 Roller application or brushing

PROC11 Non industrial spraying

PROC13 Treatment of articles by dipping and pouring

PROC15 Use as laboratory reagent

PROC19 Manual activities involving hand contact

Environmental release category

ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)

ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)

Description of the activities / processes covered in the Exposure Scenario

Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.

SECTION 2: Conditions of use affecting exposure

The usual precautionary measures should be adhered to in handling the chemicals.

Duration and frequency 8hrs (full working shift).

Worker

Frequency of use:

5 workdays/week.

Physical parameters

Physical state

Fluid

Vapour pressure: 0.5-10 kPa (20 °C)

Concentration of the substance in the mixture

Covers use of substance / product up to 100% (unless stated otherwise).

Used amount per time or activity

Regional use tonnage (tonnes/year): 5000, SU22

Annual site tonnage (tonnes/year): 10, SU22

Maximum daily site tonnage (kg/day): 27.4, SU22

Other operational conditions

Continuous release.

Emissiondays /year: 365

Assumes use at not more than 20°C above ambient temperature (unless stated differently).

Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting environmental exposure

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Annex to the extended Safety Data Sheet (eSDS)

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II



Product name: DD-Härter B05-901/4 for two component color, mixing rate 5:1
Date of printing: 06.10.2023

Release fraction to air from process (initial release prior to RMM) / wide dispersive use (regional only): 98 %.

Release fraction to wastewater from process (initial release prior to RMM) / wide dispersive use: 1 %.

Release fraction to soil from process (initial release prior to RMM) / wide dispersive use (regional only): 1 %.

Other operational conditions affecting worker exposure

Clean working place and equipment every day. Avoid splashing. Remove spilled product immediately.

Keep container tightly closed in a cool place.

Avoid contact with the skin and eyes.

Other operational conditions affecting consumer exposure during the use of the product

Not applicable.

Risk management measures

Ensure that personal protective measures are used at all activities.

Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.

Worker protection

Storage (PROC1 / PROC2):

Store substance within a closed system.

General exposures / Use (closed systems) PROC1 / PROC2 / PROC3:

Filling / preparation of equipment from drums or containers (Use in closed systems) PROC2:

Ensure material transfers are under containment or extract ventilation.

Preparation of material for application. Use in contained batch (PROC3):

Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).

Use drum pumps or carefully pour from container.

Film formation - air drying Indoor (PROC4):

Provide a good standard of general ventilation.

Provide extract ventilation to points where emissions (can) occur.

Avoid manual contact with wet work pieces.

Film formation - air drying Outdoors (PROC 4):

Ensure operation is undertaken outdoors. Avoid manual contact with wet work pieces. Clear spills immediately.

Avoid carrying out activities involving exposure for more than 1 hour(s).

Preparation of material for application Indoor PROC 5:

Provide a good standard of general ventilation (10 to 15 air changes per hour).

Controlled ventilation means air is supplied or removed by a powered fan.

Avoid carrying out activities involving exposure for more than 1 hour(s).

Preparation of material for application Outdoor (PROC 5):

Ensure operation is undertaken outdoors.

Avoid carrying out activities involving exposure for more than 1 hour(s).

Material transfers Drum/Batch transfer (Non-dedicated facility) PROC8a:

Material transfers Drum/batch transfers (Non-dedicated facility) PROC8b:

Material transfers Drum/batch transfers (dedicated facility) PROC8b:

Transfer via enclosed lines.

Clear transfer lines prior to de-coupling.

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Equipment cleaning and maintenance (Non-dedicated facility) PROC 8a:

Drain down system prior to equipment break-in or maintenance.

Avoid carrying out activities involving exposure for more than 4 hour(s).

Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour).

Roller, spreader, flow application Indoor (PROC 10):

Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour).

Wear a respirator conforming to EN140 with Type A filter or better.

Roller, spreader, flow application Outdoor (PROC 10):

Dipping, immersion and pouring Outdoor (PROC 13):

Ensure Operation is undertaken outdoors. Wear a respirator conforming to EN140 with Type A filter or better. Automate activity where possible.

Annex to the extended Safety Data Sheet (eSDS)

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II



Product name: DD-Härter B05-901/4 for two component color, mixing rate 5:1
Date of printing: 06.10.2023

Spraying Manual (PROC 11):

Carry out in a vented booth or extracted enclosure.

Spraying (PROC 11, außen):

Ensure operation is undertaken outdoors.

Avoid carrying out activities involving exposure for more than 4 hour(s).

Wear a respirator conforming to EN140 with Type A filter or better.

Dipping, immersion and pouring Indoor (PROC 13):

Use local exhaust at places where emission can occur.

Avoid carrying out activities involving exposure for more than 4 hour(s).

Laboratory activities (PROC15):

Handle substance within a predominantly closed system provided with extract ventilation.

Hand application - fingerpaints, pastels, adhesives PROC19 Indoor:

Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour).

Limit the substance content in the product to 5%.

Hand application - fingerpaints, pastels, adhesives PROC19 Outdoor:

Ensure operation is undertaken outdoors.

Limit the substance content in the product to 5%.

Avoid carrying out activities involving exposure for more than 4 hour(s).

Organisational protective measures

Ensure good ventilation. This can be achieved by using a local exhaust or general exhaust system. If these measures are insufficient to keep the solvent vapour concentration below the workplace limit, wear an adequate respiratory protective device.

The employer must ensure that the necessary personal protective devices are available and applied accordingly to the instructions.

Technical protective measures

Provide explosion-proof electrical equipment.

Ensure that suitable extractors are available on processing machines

Personal protective measures

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

Do not inhale gases / fumes / aerosols.

Safety glasses

Measures for consumer protection Not relevant for this Exposure Scenario.

Environmental protection measures

Air

Treatment of air emissions is not required for the purposes of REACH compliance but may be needed to comply with other environmental legislation.

Treat air emission to provide a typical removal efficiency of (%): 0

Water

Sludge treatment: Incineration or in a landfill

Prevent discharge of undissolved substance to or recover from onsite wastewater.

Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 93.6

Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/day): 4600

Assumed domestic sewage treatment plant flow (m³/d): 2000

Soil Use bunds or dykes around storage facilities to prevent soil and water pollution in the event of a spill.

Disposal measures

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

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

Waste type Partially emptied and uncleaned packaging

Notes Disposal must be made according to official regulations.

Annex to the extended Safety Data Sheet (eSDS)

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II

Product name: DD-Härter B05-901/4 for two component color,
mixing rate 5:1
Date of printing: 06.10.2023



SECTION 3: Exposure estimation

Worker (oral) No significant oral exposure.

Worker (dermal)

PROC 1:

Exposure estimate: 0.34 mg/kg/day

RCR: 0

PROC 2:

Exposure estimate: 0.14 mg/kg/day

RCR: 0

PROC 3 / 15:

Exposure estimate: 0.03 mg/kg/day

RCR: 0

PROC 4 (innen) / 8b:

Exposure estimate: 6.86 mg/kg/day

RCR: 0.04

PROC 4 (außen):

Exposure estimate: 1.37 mg/kg/day

RCR: 0.01

PROC 5 / 8a:

Exposure estimate: 13.71 mg/kg/day

RCR: 0.08

PROC 10:

Exposure estimate: 27.43 mg/kg/day

RCR: 0.15

PROC 11 (innen):

Exposure estimate: 2.14 mg/kg/day

RCR: 0.01

PROC 11 (außen):

Exposure estimate: 21.43 mg/kg/day

RCR: 0.12

PROC 13:

Exposure estimate: 0.69 mg/kg/day

RCR: 0

PROC 19:

Exposure estimate: 28.29 mg/kg/day

RCR: 0.16

Worker (inhalation)

PROC 1:

Exposure estimate: 0.1 ppm

RCR: 0.01

PROC 2:

Exposure estimate: 4 ppm

RCR: 0.23

PROC 3:

Exposure estimate: 7.5 ppm

RCR: 0.42

PROC 4 (innen):

Exposure estimate: 3.5 ppm

RCR: 0.2

PROC 4 + 10 + 13 (jew. außen):

Exposure estimate: 7 ppm

RCR: 0.39

PROC 5 (innen) / 19 (innen):

Exposure estimate: 6 ppm

RCR: 0.34

Annex to the extended Safety Data Sheet (eSDS)

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II



Product name: DD-Härter B05-901/4 for two component color, mixing rate 5:1
Date of printing: 06.10.2023

PROC 5 (außen) / 8a:

Exposure estimate: 14 ppm

RCR: 0.79

PROC 8b:

Exposure estimate: 15 ppm

RCR: 0.85

PROC 10 (innen):

Exposure estimate: 3 ppm

RCR: 0.17

PROC 11 (innen):

Exposure estimate: 5 ppm

RCR: 0.28

PROC 11 (außen):

Exposure estimate: 10.5 ppm

RCR: 0.59

PROC 13 (innen):

Exposure estimate: 12 ppm

RCR: 0.68

PROC 15:

Exposure estimate: 0.6 ppm

RCR: 0.03

PROC 19 (außen):

Exposure estimate: 8.4 ppm

RCR: 0.47

Environment *The calculated value is smaller than the PNEC.*

Consumer *Not relevant for this Exposure Scenario.*

SECTION 4: Guidance for downstream users

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

Version 3. <http://www.ecetoc.org/tra>

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.

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.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Annex to the extended Safety Data Sheet (eSDS)

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II

Product name: DD-Härter B05-901/4 for two component color,
mixing rate 5:1
Date of printing: 06.10.2023



n-butyl acetate

Annex: Exposure scenario 1

SECTION 1: Title section

Short title of the exposure scenario

Use in formulation. (Industrial)

Formulation & (re)packing of substances and mixtures (Industrial)

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

Process category

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

PROC5 Mixing or blending in batch processes

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

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

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

PROC15 Use as laboratory reagent

Environmental release category ERC2 Formulation into mixture

Description of the activities / processes covered in the Exposure Scenario

Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.

SECTION 2: Conditions of use affecting exposure

The usual precautionary measures should be adhered to in handling the chemicals.

Duration and frequency 8hrs (full working shift).

Worker

Frequency of use:

5 workdays/week.

Environment The product may not be released into the environment without control.

Physical parameters

Physical state

Fluid

Vapour pressure: 11.6 hPa (20 °C)

Concentration of the substance in the mixture Covers use of substance / product up to 100%

Other operational conditions

Emission days / year: 225

Assumes a good basic standard of occupational hygiene is implemented.

Assumes use at ambient temperature (unless stated differently).

Other operational conditions affecting environmental exposure

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Flow rate of receiving surface water: 18000 m³/day.

Release fraction to air from process (initial release prior to RMM) / wide dispersive use (regional only): 3.6 %.

Release fraction to wastewater from process (initial release prior to RMM) / wide dispersive use: 0 %.

Release fraction to soil from process (initial release prior to RMM) / wide dispersive use (regional only): 0 %.

Other operational conditions affecting worker exposure

Clean working place and equipment every day. Avoid splashing. Remove spilled product immediately.

Keep container tightly closed in a cool place.

Avoid contact with the skin and eyes.

Annex to the extended Safety Data Sheet (eSDS)

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II



Product name: DD-Härter B05-901/4 for two component color, mixing rate 5:1
Date of printing: 06.10.2023

Other operational conditions affecting consumer exposure during the use of the product

Not applicable.

Risk management measures

Ensure that personal protective measures are used at all activities.

Wear suitable gloves tested to EN374 during the activities where excessive skin contact is possible.

Eye Protection – suitable eye protection should be worn when handling product if there is a risk of splashing.

Worker protection

General exposures / Use (closed systems) PROC1 / PROC2 / PROC3:

Material transfers Drum/batch transfers (Non-dedicated facility) PROC8b:

Material transfers Drum/batch transfers (dedicated facility) PROC8b:

Laboratory activities (PROC15):

No other specific measures identified.

Mixing operations (open systems) PROC5:

Material transfers Drum/Batch transfer (Non-dedicated facility) PROC8a:

Filling of drums and small containers (PROC 9):

Small scale weighing PROC9:

Use local exhaust at places where emission can occur.

Organisational protective measures

Ensure good ventilation. This can be achieved by using a local exhaust or general exhaust system. If these measures are insufficient to keep the solvent vapour concentration below the workplace limit, wear an adequate respiratory protective device.

The employer must ensure that the necessary personal protective devices are available and applied accordingly to the instructions.

Technical protective measures

Provide explosion-proof electrical equipment.

Ensure that suitable extractors are available on processing machines

Personal protective measures

Detailed measures on hand protection according to Safety Data Sheet, section 8.

Do not inhale gases / fumes / aerosols.

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

Environmental protection measures

Air

Treatment of air emissions is not required for the purposes of REACH compliance but may be needed to comply with other environmental legislation.

Water

Size of sewage treatment plant (m³/d): 2000

Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/day): 119631

Prevent discharge of undissolved substance to or recover from onsite wastewater.

Soil *No special measures required.*

Disposal measures

Must not be disposed of with household waste. Do not allow to reach sewage system.

Disposal must be made according to official regulations.

SECTION 3: Exposure estimation

Worker (oral) *No significant oral exposure.*

Worker (dermal)

PROC 2, 5, 8a, 8b:

Exposure estimate: 1.3714 mg/kg/day

RCR: 0.124675

PROC 3, 9:

Exposure estimate: 0.6857 mg/kg/day

RCR: 0.06234

PROC 15:

Exposure estimate: 0.3429 mg/kg/day

RCR: 0.03117

Annex to the extended Safety Data Sheet (eSDS)

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II



Product name: DD-Härter B05-901/4 for two component color,
mixing rate 5:1
Date of printing: 06.10.2023

Worker (inhalation)

PROC 2, 5, 8a, 9:

Exposure estimate: 24.2 mg/m³

RCR: 0.080665

PROC 3, 15:

Exposure estimate: 48.3993 mg/m³

RCR: 0.16133

PROC 8b:

Exposure estimate: 120.9982 mg/m³

RCR: 0.40333

Environment

Highest estimated Values for ERC2:

Risc characterisation ratio (RCR): 0.2229

Consumer Not relevant for this Exposure Scenario.

SECTION 4: Guidance for downstream users

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

Version 3. <http://www.ecetoc.org/tra>

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.

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.

Annex to the extended Safety Data Sheet (eSDS)

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II

Product name: DD-Härter B05-901/4 for two component color,
mixing rate 5:1
Date of printing: 06.10.2023



Annex: Exposure scenario 2

SECTION 1: Title section

Short title of the exposure scenario *Uses in Coatings - Industrial*

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

Process category

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

PROC4 Chemical production where opportunity for exposure arises

PROC5 Mixing or blending in batch processes

PROC7 Industrial spraying

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

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

PROC10 Roller application or brushing

PROC13 Treatment of articles by dipping and pouring

PROC15 Use as laboratory reagent

Environmental release category

ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Description of the activities / processes covered in the Exposure Scenario

Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.

SECTION 2: Conditions of use affecting exposure

The usual precautionary measures should be adhered to in handling the chemicals.

Duration and frequency *8hrs (full working shift).*

Worker

Frequency of use:

5 workdays/week.

Environment *The product may not be released into the environment without control.*

Physical parameters

Physical state

Fluid

Vapour pressure: 11.6 hPa (20 °C)

Concentration of the substance in the mixture *Covers use of substance / product up to 100%*

Used amount per time or activity *Annual site tonnage (tons per year): 43000*

Other operational conditions

Emission days / year: 225

Assumes a good basic standard of occupational hygiene is implemented.

Assumes use at ambient temperature (unless stated differently).

Other operational conditions affecting environmental exposure

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Flow rate of receiving surface water: 18000 m³/day.

Release fraction to air from process (initial release prior to RMM) / wide dispersive use (regional only): 0.8 %.

Release fraction to wastewater from process (initial release prior to RMM) / wide dispersive use: 2 %.

Release fraction to soil from process (initial release prior to RMM) / wide dispersive use (regional only): 0 %.

Annex to the extended Safety Data Sheet (eSDS)

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II



Product name: DD-Härter B05-901/4 for two component color,
mixing rate 5:1
Date of printing: 06.10.2023

Other operational conditions affecting worker exposure

Clean working place and equipment every day. Avoid splashing. Remove spilled product immediately. Keep container tightly closed in a cool place. Avoid contact with the skin and eyes.

Other operational conditions affecting consumer exposure during the use of the product

Not applicable.

Risk management measures

Ensure that personal protective measures are used at all activities.

Wear suitable gloves tested to EN374 during the activities where excessive skin contact is possible.

Eye Protection – suitable eye protection should be worn when handling product if there is a risk of splashing.

Worker protection

General exposures / Use (closed systems) PROC1 / PROC2 / PROC3:

General exposures / Use (open systems) PROC4:

Mixing operations (open systems) PROC5:

No other specific measures identified.

Spraying PROC7:

Daily cleaning of equipment and work area. It must be ensured that the work is carried out outside the breathing zone of the worker (head-product distance greater than 1m). Regular inspection and maintenance of equipment and machinery.

Carry out in a vented booth or extracted enclosure.

Material transfers Drum/Batch transfer (Non-dedicated facility) PROC8a:

Use local exhaust at places where emission can occur.

Material transfers Drum/batch transfers (Non-dedicated facility) PROC8b:

Material transfers Drum/batch transfers (dedicated facility) PROC8b:

Transfer via enclosed lines.

Clear transfer lines prior to de-coupling.

Apply by Rolling or Brushing (PROC10):

Treatment by dipping and pouring (PROC13):

Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour).

Use of a local source exhaust with adequate effectiveness.

Organisational protective measures

Ensure good ventilation. This can be achieved by using a local exhaust or general exhaust system. If these measures are insufficient to keep the solvent vapour concentration below the workplace limit, wear an adequate respiratory protective device.

The employer must ensure that the necessary personal protective devices are available and applied accordingly to the instructions.

Technical protective measures

Provide explosion-proof electrical equipment.

Ensure that suitable extractors are available on processing machines

Personal protective measures

Detailed measures on hand protection according to Safety Data Sheet, section 8.

Do not inhale gases / fumes / aerosols.

Measures for consumer protection Not relevant for this Exposure Scenario.

Environmental protection measures

Air

Treatment of air emissions is not required for the purposes of REACH compliance but may be needed to comply with other environmental legislation.

Water

Size of sewage treatment plant (m³/d): 2000

Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/day): 1080.7

Prevent discharge of undissolved substance to or recover from onsite wastewater.

Soil No special measures required.

Disposal measures

Must not be disposed of with household waste. Do not allow to reach sewage system.

Disposal must be made according to official regulations.

Annex to the extended Safety Data Sheet (eSDS)

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II

Product name: DD-Härter B05-901/4 for two component color,
mixing rate 5:1
Date of printing: 06.10.2023



SECTION 3: Exposure estimation

Worker (oral) No significant oral exposure.

Worker (dermal)

PROC 1:

Exposure estimate: 0.0343 mg/kg/day

RCR: 0.003117

PROC 2, 5, 8a, 8b, 13:

Exposure estimate: 1.3714 mg/kg/day

RCR: 0.124675

PROC 3, 4:

Exposure estimate: 0.6857 mg/kg/day

RCR: 0.06234

PROC 7:

Exposure estimate: 4.2857 mg/kg/day

RCR: 0.3896

PROC 10:

Exposure estimate: 2.7429 mg/kg/day

RCR: 0.24935

PROC 15:

Exposure estimate: 0.3429 mg/kg/day

RCR: 0.03117

Worker (inhalation)

PROC 1:

Exposure estimate: 0.0484 mg/m³

RCR: 0.000161

PROC 2, 5, 8a, 10, 13:

Exposure estimate: 24.2 mg/m³

RCR: 0.080665

PROC 3, 15:

Exposure estimate: 48.3993 mg/m³

RCR: 0.16133

PROC 4:

Exposure estimate: 96.7986 mg/m³

RCR: 0.3227

PROC 7:

Exposure estimate: 0.0001 mg/m³

RCR: 0

PROC 8b:

Exposure estimate: 120.9982 mg/m³

RCR: 0.40333

Environment

Highest estimated Values for ERC4:

Risc characterisation ratio (RCR): 0.9254

Consumer Not relevant for this Exposure Scenario.

SECTION 4: Guidance for downstream users

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

Version 3. <http://www.ecetoc.org/tra>

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.

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.

Annex to the extended Safety Data Sheet (eSDS)

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II

Product name: DD-Härter B05-901/4 for two component color,
mixing rate 5:1
Date of printing: 06.10.2023



Annex: Exposure scenario 3

SECTION 1: Title section

Short title of the exposure scenario *Uses in Coatings - Professional*

Sector of Use

SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Process category

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

PROC4 Chemical production where opportunity for exposure arises

PROC5 Mixing or blending in batch processes

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

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

PROC10 Roller application or brushing

PROC11 Non industrial spraying

PROC13 Treatment of articles by dipping and pouring

PROC15 Use as laboratory reagent

PROC19 Manual activities involving hand contact

Environmental release category

ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)

ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)

Description of the activities / processes covered in the Exposure Scenario

Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.

SECTION 2: Conditions of use affecting exposure

The usual precautionary measures should be adhered to in handling the chemicals.

Duration and frequency 8hrs (full working shift).

Worker

Frequency of use:

5 workdays/week.

Environment The product may not be released into the environment without control.

Physical parameters

Physical state

Fluid

Vapour pressure: 11.6 hPa (20 °C)

Concentration of the substance in the mixture Covers use of substance / product up to 100%

Used amount per time or activity Annual site tonnage (tons per year): 2000

Other operational conditions

Emission days / year: 225

Assumes a good basic standard of occupational hygiene is implemented.

Assumes use at ambient temperature (unless stated differently).

Other operational conditions affecting environmental exposure

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Flow rate of receiving surface water: 18000 m³/day.

Release fraction to air from process (initial release prior to RMM) / wide dispersive use (regional only): 99 %.

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Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II



Product name: DD-Härter B05-901/4 for two component color,
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Release fraction to wastewater from process (initial release prior to RMM) / wide dispersive use: 1 %.
Release fraction to soil from process (initial release prior to RMM) / wide dispersive use (regional only): 0 %.

Other operational conditions affecting worker exposure

Clean working place and equipment every day. Avoid splashing. Remove spilled product immediately.
Keep container tightly closed in a cool place.
Avoid contact with the skin and eyes.

Other operational conditions affecting consumer exposure during the use of the product

Not applicable.

Risk management measures

Ensure that personal protective measures are used at all activities.
Wear suitable gloves tested to EN374 during the activities where excessive skin contact is possible.
Eye Protection – suitable eye protection should be worn when handling product if there is a risk of splashing.

Worker protection

General exposures / Use (closed systems) PROC1 / PROC2 / PROC3:

General exposures / Use (open systems) PROC4:

Mixing operations (open systems) PROC5:

Laboratory activities (PROC15):

No other specific measures identified.

Material transfers Drum/Batch transfer (Non-dedicated facility) PROC8a:

Limit the substance content in the product to 25%.

Use local exhaustion at places where emission can occur.

Material transfers Drum/batch transfers (Non-dedicated facility) PROC8b:

Material transfers Drum/batch transfers (dedicated facility) PROC8b:

Transfer via enclosed lines.

Clear transfer lines prior to de-coupling.

Apply by Rolling or Brushing (PROC10):

Treatment by dipping and pouring (PROC13):

Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour).

Spraying (PROC 11):

Daily cleaning of equipment and work area. It must be ensured that the work is carried out outside the breathing zone of the worker (head-product distance greater than 1m). Regular inspection and maintenance of equipment and machinery.

Carry out in a vented booth or extracted enclosure.

Manual Spraying Indoor (PROC11) bis 45%:

Limit the substance content in the product to 45%.

It must be ensured that manual activity is minimized. Avoid frequent and direct contact with the substance. Checks to verify the correct application of risk minimization measures and Compliance with the conditions of use are established. Daily cleaning of equipment and work area. Regular inspection and maintenance of equipment and machinery. Avoid splashes. Make sure doors and windows are open (general ventilation). Use of a local source exhaust with adequate effectiveness.

Or:

Wearing a half mask with filter type P2L or better.

Hand application - fingerpaints, pastels, adhesives. PROC19:

Use local exhaustion at places where emission can occur.

Avoid carrying out activities involving exposure for more than 4 hour(s).

Or: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Avoid carrying out activities involving exposure for more than 1 hour(s).

Organisational protective measures

Ensure good ventilation. This can be achieved by using a local exhaustion or general exhaust system. If these measures are insufficient to keep the solvent vapour concentration below the workplace limit, wear an adequate respiratory protective device.

The employer must ensure that the necessary personal protective devices are available and applied accordingly to the instructions.

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Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II



Product name: DD-Härter B05-901/4 for two component color, mixing rate 5:1
Date of printing: 06.10.2023

Technical protective measures

Provide explosion-proof electrical equipment.

Ensure that suitable extractors are available on processing machines

Personal protective measures

Detailed measures on hand protection according to Safety Data Sheet, section 8.

Do not inhale gases / fumes / aerosols.

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

Environmental protection measures

Air

Treatment of air emissions is not required for the purposes of REACH compliance but may be needed to comply with other environmental legislation.

Water

Size of sewage treatment plant (m³/d): 2000

Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/day): 1934.6

Prevent discharge of undissolved substance to or recover from onsite wastewater.

Soil *No special measures required.*

Disposal measures

Must not be disposed of with household waste. Do not allow to reach sewage system.

Disposal must be made according to official regulations.

SECTION 3: Exposure estimation

Worker (oral) *No significant oral exposure.*

Worker (dermal)

PROC 1:

Exposure estimate: 0.0343 mg/kg/day

RCR: 0.003117

PROC 2, 5, 8a, 8b, 13:

Exposure estimate: 1.3714 mg/kg/day

RCR: 0.124675

PROC 3, 4:

Exposure estimate: 0.6857 mg/kg/day

RCR: 0.06234

PROC 10:

Exposure estimate: 2.7429 mg/kg/day

RCR: 0.24935

PROC 11 (Kabine):

Exposure estimate: 10.7143 mg/kg/day

RCR: 0.974

PROC 11 (Absaugung / Maske):

Exposure estimate: 4.8214 mg/kg/day

RCR: 0.4383

PROC 15:

Exposure estimate: 0.3429 mg/kg/day

RCR: 0.03117

PROC 19 (Absaug., 4h):

Exposure estimate: 8.4857 mg/kg/day

RCR: 0.77143

PROC 19 (Belüft., 1h):

Exposure estimate: 2.8286 mg/kg/day

RCR: 0.2571

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Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II



Product name: DD-Härter B05-901/4 for two component color, mixing rate 5:1
Date of printing: 06.10.2023

Worker (inhalation)

PROC 1:

Exposure estimate: 0.0484 mg/m³

RCR: 0.000161

PROC 2, 5, 8a:

Exposure estimate: 24.2 mg/m³

RCR: 0.080665

PROC 3, 15:

Exposure estimate: 48.3993 mg/m³

RCR: 0.16133

PROC 4:

Exposure estimate: 96.7986 mg/m³

RCR: 0.3227

PROC 8b:

Exposure estimate: 120.9982 mg/m³

RCR: 0.40333

PROC 11 (Kabine):

Exposure estimate: 0.0001 mg/m³

RCR: 0

PROC 11 (Absaugung):

Exposure estimate: 153 mg/m³

RCR: 0.51

PROC 11 (Maske):

Exposure estimate: 116 mg/m³

RCR: 0.3867

PROC 10, 13, 19 (Belüft., 1h):

Exposure estimate: 145.1979 mg/m³

RCR: 0.484

PROC 19 (Absaug., 4h):

Exposure estimate: 67.759 mg/m³

RCR: 0.22586

Environment

Highest estimated Values for ERC8a, 8d:

Risc characterisation ratio (RCR): 0.012923

Consumer Not relevant for this Exposure Scenario.

SECTION 4: Guidance for downstream users

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

Version 3. <http://www.ecetoc.org/tra>

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.

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.

Annex to the extended Safety Data Sheet (eSDS)

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II



Product name: DD-Härter B05-901/4 for two component color, mixing rate 5:1
Date of printing: 06.10.2023

Hexamethylen-1,6-diisocyanate (oligomere)

Annex: Exposure scenario 1

Summary of Exposure Scenarios

- **Industrial end use** SU 3; SU12, SU13, SU19; PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15; ERC5, ERC6a, ERC6c, ERC6d

1. Short title of Exposure Scenario: - Industrial end use

| | |
|--------------------------------|---|
| Main User Groups | : SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites |
| Sector of use | : SU12: Manufacture of plastics products, including compounding and conversion SU13: Manufacture of other non-metallic mineral products, e.g. plasters, cement SU19: Building and construction work |
| 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) 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 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 | : ERC5: Industrial use resulting in inclusion into or onto a matrix ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates) ERC6c: Industrial use of monomers for manufacture of thermoplastics ERC6d: Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers |

2.1 Contributing scenario controlling environmental exposure for: ERC5, ERC6a, ERC6c, ERC6d

Product characteristics

Molar Mass : 545 g/mol
Vapour pressure : < 0,00000319 hPa at 20 °C

Amount used

Annual amount used per site: : > 1000

Annex to the extended Safety Data Sheet (eSDS)

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II



Product name: DD-Härter B05-901/4 for two component color, mixing rate 5:1
Date of printing: 06.10.2023

Environment factors not influenced by risk management

Remarks : None identified for this scenario.

Other given operational conditions affecting environmental exposure

Number of emission days per year : < 300
Emission or Release Factor: Air : 0
Emission or Release Factor: Water : 0
Emission or Release Factor: Soil : 0

Technical conditions and measures / Organizational measures

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

Air : All waste gases from processes are transferred to a combustion unit or to an activated carbon filter.
Water : No waste water occurs.
Soil : Sealing of all relevant soil surfaces in the facility is required.

Organizational measures to prevent/limit release from the site

Remarks : Procedural and/or control technologies are used to minimise emissions and the resulting exposure during cleaning and maintenance procedures.

Conditions and measures related to external treatment of waste for disposal

Waste treatment : Organic solvent used for cleaning procedures is disposed off via a hazardous waste combustion unit. The waste from processes is disposed by incineration in a waste combustor. During waste treatment, exposure of the environment is not expected.

2.2 Contributing scenario controlling worker exposure for:

PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15

Product characteristics

Concentration of the Substance in Mixture/Article

Remarks : In the range of 50%.

Molar Mass : 545 g/mol

Vapour pressure : < 0,00000319 hPa at 20 °C

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Frequency of use : <= 220 days/year

General exposures : 8 hours/day

PROC 5 : 1 - 4 hours/day

PROC 7 : 1 - 4 hours/day

PROC 8a : 1 - 4 hours/day

Human factors not influenced by risk management

Remarks : None identified for this scenario.

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor use

Annex to the extended Safety Data Sheet (eSDS)

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II



Product name: DD-Härter B05-901/4 for two component color, mixing rate 5:1

Date of printing: 06.10.2023

Technical conditions and measures

Use with local exhaust ventilation. Minimal efficiency extract ventilation: 90% In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), containment (e.g. housing) is recommended.

PROC7: Industrial spraying

Local exhaust ventilation (about 0.3 m/s) has to be used from top to down and overspray has to be collected in a filter.

Organisational measures to prevent /limit releases, dispersion and exposure

Procedural and/or control technologies are used to minimise emissions and the resulting exposure during cleaning and maintenance procedures. Persons who suffer from skin complaints or other hypersensitivity reactions of skin should not work with the product. Control staff entry to work area. Ensure all equipment is well maintained. Regular cleaning of equipment, work area and clothing.

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

Elevated exposure is estimated. Regarding the sensitising effects of the substance, exposure time should be reduced or other effective RMMs should be considered.

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

Elevated exposure is estimated. Regarding the sensitising effects of the substance, exposure time should be reduced or other effective RMMs should be considered.

PROC10: Roller application or brushing

Elevated exposure is estimated. Regarding the sensitising effects of the substance, exposure time should be reduced or other effective RMMs should be considered.

PROC13: Treatment of articles by dipping and pouring

Elevated exposure is estimated. Regarding the sensitising effects of the substance, exposure time should be reduced or other effective RMMs should be considered.

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

For processes where the opportunity for exposure arises, the use of gloves and protective clothing is stipulated. Protective gloves complying with EN 374. Wear eye protection/ face protection. In short-term processes where contact to substance cannot be excluded (e.g. sampling operations), an air-fed mask or a combination of activated carbon filter and particular filter is required. Keep away from foodstuffs, drinks and tobacco. Wash hands before breaks and at end of work and use skin-protecting ointment. Keep working clothes separately. Take off all contaminated clothing immediately.

PROC7: Industrial spraying

Wear a one-way overall, gloves and a full-face respirator mask with external air supply.

Annex to the extended Safety Data Sheet (eSDS)

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II



Product name: DD-Härter B05-901/4 for two component color, mixing rate 5:1

Date of printing: 06.10.2023

3. Exposure estimation and reference to its source

Environment

| Scenario | Assessment Method | conditions | | Exposure | characterisation ratio (PEC/PNEC) |
|----------|-------------------|------------------------------|-----|-------------------------|-----------------------------------|
| | | Air | PEC | 0 mg/m ³ | 0 |
| | | Freshwater | PEC | 0 mg/l | 0 |
| | | Marine water | PEC | 0 mg/l | 0 |
| | | Sediment | PEC | 0 mg/kg dry weight | 0 |
| | | Soil | PEC | 0 mg/kg dry weight | 0 |
| | | STP (sewage-treatment plant) | PEC | 0 mg/l | 0 |
| | | Secondary poisoning | PEC | 0 mg/kg wet weight | 0 |
| | | Humans via the environment | PEC | 0 mg/kg body weight/day | 0 |

Workers

| Contributing Scenario | Exposure Assessment Method | Specific conditions | Value type | Level of Exposure | Risk characterisation ratio (Exposure value/DNEL) |
|-----------------------|----------------------------|---------------------|------------------------|------------------------|---|
| All PROCs | | | short term, inhalation | Not relevant | |
| All PROCs | | | short term, dermal | Not relevant | |
| PROC 3 | ECETOC TRA | LEV: 90% efficiency | long term, inhalation | 0,21 mg/m ³ | 0,42 |
| PROC 4 | ECETOC TRA | LEV: 90% efficiency | long term, inhalation | 0,21 mg/m ³ | 0,42 |
| PROC 5 | ECETOC TRA | LEV: 90% efficiency | long term, inhalation | 0,21 mg/m ³ | 0,42 |
| PROC 8a | ECETOC TRA | LEV: 90% efficiency | long term, inhalation | 0,21 mg/m ³ | 0,42 |
| PROC 8b | ECETOC TRA | LEV: 90% efficiency | long term, inhalation | 0,21 mg/m ³ | 0,42 |
| PROC 9 | ECETOC TRA | LEV: 90% efficiency | long term, inhalation | 0,21 mg/m ³ | 0,42 |
| PROC 10 | ECETOC TRA | LEV: 90% efficiency | long term, inhalation | 0,21 mg/m ³ | 0,42 |
| PROC 11 | ECETOC TRA | LEV: 90% efficiency | long term, inhalation | 0,21 mg/m ³ | 0,42 |
| PROC 13 | ECETOC TRA | LEV: 90% efficiency | long term, inhalation | 0,21 mg/m ³ | 0,42 |
| PROC 14 | ECETOC TRA | LEV: 90% efficiency | long term, inhalation | 0,21 mg/m ³ | 0,42 |
| PROC 15 | ECETOC TRA | LEV: 90% efficiency | long term, inhalation | 0,21 mg/m ³ | 0,42 |
| | Qualitative assessment | | Workers (dermal) | * | |

*Due to the applied RMMs it is considered that the risks of dermal exposure are sufficiently controlled.

Based on the applied RMMs the risk towards humans and the environment is sufficiently controlled (RCR ≤ 1).

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

A downstream user may evaluate whether he operates within the conditions set in the exposure scenario by using the information provided in section 2. This evaluation may be based on an expert judgement or on the utilisation of risk assessment tools that are recommended by ECHA.

Annex to the extended Safety Data Sheet (eSDS)

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II

Product name: DD-Härter B05-901/4 for two component color,
mixing rate 5:1
Date of printing: 06.10.2023



Hexamethylen-1,6-diisocyanate (homopolymer)

Annex: Exposure scenario 2

Summary of Exposure Scenarios

- Professional end use SU 22; SU 10, SU12, SU13, SU19; PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC14, PROC15; ERC2, ERC8c, ERC8f

1. Short title of Exposure Scenario: - Professional end use

Main User Groups : **SU 22:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Sector of use : **SU 10:** Formulation [mixing] of preparations and/ or re-packaging (excluding alloys)
SU12: Manufacture of plastics products, including compounding and conversion
SU13: Manufacture of other non-metallic mineral products, e.g. plasters, cement
SU19: Building and construction work

Process category : **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)
PROC10: Roller application or brushing
PROC11: Non industrial spraying
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 : **ERC2:** Formulation of preparations
ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix
ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix

2.1 Contributing scenario controlling environmental exposure for: ERC2, ERC8c, ERC8f

Product characteristics

Molar Mass : 545 g/mol
Vapour pressure : < 0,00000319 hPa at 20 °C

Annex to the extended Safety Data Sheet (eSDS)

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II



Product name: DD-Härter B05-901/4 for two component color, mixing rate 5:1

Date of printing: 06.10.2023

Amount used

Annual amount used per site: : > 1000

Environment factors not influenced by risk management

Remarks : None identified for this scenario.

Other given operational conditions affecting environmental exposure

Number of emission days per year : < 300

Emission or Release Factor: Air : 0

Emission or Release Factor: Water: 0

Emission or Release Factor: Soil : 0

Technical conditions and measures / Organizational measures

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

Air : All waste gases from processes are transferred to a combustion unit or to an activated carbon filter.

Water : No waste water occurs.

Soil : Sealing of all relevant soil surfaces in the facility is required.

Organizational measures to prevent/limit release from the site

Remarks : Procedural and/or control technologies are used to minimise emissions and the resulting exposure during cleaning and maintenance procedures.

Conditions and measures related to external treatment of waste for disposal

Waste treatment : Organic solvent used for cleaning procedures is disposed off via a hazardous waste combustion unit. The waste from processes is disposed by incineration in a waste combustor. During waste treatment, exposure of the environment is not expected.

2.2 Contributing scenario controlling worker exposure for: PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC14, PROC15

Product characteristics

Concentration of the Substance in Mixture/Article

Remarks : In the range of 50%.

Molar Mass : 545 g/mol

Vapour pressure : < 0,00000319 hPa at 20 °C

Physical Form (at time of use) : Liquid substance

Frequency and duration of use

Frequency of use : <= 220 days/year

General exposures : 8 hours/day

PROC 5 : 1 - 4 hours/day

PROC 8a : 1 - 4 hours/day

Human factors not influenced by risk management

Remarks : None identified for this scenario.

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor use

Annex to the extended Safety Data Sheet (eSDS)

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II



Product name: DD-Härter B05-901/4 for two component color, mixing rate 5:1

Date of printing: 06.10.2023

Technical conditions and measures

Use with local exhaust ventilation. Minimal efficiency extract ventilation: 90% In long-term processes where contact to substance cannot be excluded (e.g. filling and mixing operations), containment (e.g. housing) is recommended.

PROC11: Non industrial spraying

Local exhaust ventilation (about 0.3 m/s) has to be used from top to down and overspray has to be collected in a filter.

Organisational measures to prevent /limit releases, dispersion and exposure

Procedural and/or control technologies are used to minimise emissions and the resulting exposure during cleaning and maintenance procedures. Persons who suffer from skin complaints or other hypersensitivity reactions of skin should not work with the product. Control staff entry to work area. Ensure all equipment is well maintained. Regular cleaning of equipment, work area and clothing.

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

Elevated exposure is estimated. Regarding the sensitising effects of the substance, exposure time should be reduced or other effective RMMs should be considered.

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

Elevated exposure is estimated. Regarding the sensitising effects of the substance, exposure time should be reduced or other effective RMMs should be considered.

PROC10: Roller application or brushing

Elevated exposure is estimated. Regarding the sensitising effects of the substance, exposure time should be reduced or other effective RMMs should be considered.

PROC13: Treatment of articles by dipping and pouring

Elevated exposure is estimated. Regarding the sensitising effects of the substance, exposure time should be reduced or other effective RMMs should be considered.

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

For processes where the opportunity for exposure arises, the use of gloves and protective clothing is stipulated. Protective gloves complying with EN 374. Wear eye protection/ face protection. In short-term processes where contact to substance cannot be excluded (e.g. sampling operations), an air-fed mask or a combination of activated carbon filter and particular filter is required. Keep away from foodstuffs, drinks and tobacco. Wash hands before breaks and at end of work and use skin-protecting ointment. Keep working clothes separately. Take off all contaminated clothing immediately.

PROC11: Non industrial spraying

Wear a one-way overall, gloves and a full-face respirator mask with external air supply.

Annex to the extended Safety Data Sheet (eSDS)

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II



Product name: DD-Härter B05-901/4 for two component color, mixing rate 5:1
 Date of printing: 06.10.2023

3. Exposure estimation and reference to its source

Environment

| Scenario | Assessment Method | conditions | | Exposure | characterisation ratio (PEC/PNEC) |
|----------|-------------------|------------|------------------------------|--------------------------------|-----------------------------------|
| | | | Air | PEC 0 mg/m ³ | 0 |
| | | | Freshwater | PEC 0 mg/l | 0 |
| | | | Marine water | PEC 0 mg/l | 0 |
| | | | Sediment | PEC 0 mg/kg dry weight | 0 |
| | | | Soil | PEC 0 mg/kg dry weight | 0 |
| | | | STP (sewage-treatment plant) | PEC 0 mg/l | 0 |
| | | | Secondary poisoning | PEC 0 mg/kg wet weight | 0 |
| | | | Humans via the environment | PEC 0 mg/kg body weight/day | 0 |

Workers

| Contributing Scenario | Exposure Assessment Method | Specific conditions | Value type | Level of Exposure | Risk characterisation ratio (Exposure value/DNEL) |
|-----------------------|----------------------------|---------------------|------------------------|------------------------|---|
| All PROCs | | | short term, inhalation | Not relevant | |
| All PROCs | | | short term, dermal | Not relevant | |
| PROC 3 | ECETOC TRA | LEV: 90% efficiency | long term, inhalation | 0,21 mg/m ³ | 0,42 |
| PROC 4 | ECETOC TRA | LEV: 90% efficiency | long term, inhalation | 0,21 mg/m ³ | 0,42 |
| PROC 5 | ECETOC TRA | LEV: 90% efficiency | long term, inhalation | 0,21 mg/m ³ | 0,42 |
| PROC 8a | ECETOC TRA | LEV: 90% efficiency | long term, inhalation | 0,21 mg/m ³ | 0,42 |
| PROC 8b | ECETOC TRA | LEV: 90% efficiency | long term, inhalation | 0,21 mg/m ³ | 0,42 |
| PROC 9 | ECETOC TRA | LEV: 90% efficiency | long term, inhalation | 0,21 mg/m ³ | 0,42 |
| PROC 10 | ECETOC TRA | LEV: 90% efficiency | long term, inhalation | 0,21 mg/m ³ | 0,42 |
| PROC 11 | ECETOC TRA | LEV: 90% efficiency | long term, inhalation | 0,21 mg/m ³ | 0,42 |
| PROC 13 | ECETOC TRA | LEV: 90% efficiency | long term, inhalation | 0,21 mg/m ³ | 0,42 |
| PROC 14 | ECETOC TRA | LEV: 90% efficiency | long term, inhalation | 0,21 mg/m ³ | 0,42 |
| PROC 15 | ECETOC TRA | LEV: 90% efficiency | long term, inhalation | 0,21 mg/m ³ | 0,42 |
| | Qualitative assessment | | Workers (dermal) | * | |

*Due to the applied RMMs it is considered that the risks of dermal exposure are sufficiently controlled.

Based on the applied RMMs the risk towards humans and the environment is sufficiently controlled (RCR ≤ 1).

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

A downstream user may evaluate whether he operates within the conditions set in the exposure scenario by using the information provided in section 2. This evaluation may be based on an expert judgement or on the utilisation of risk assessment tools that are recommended by ECHA.