Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH)
according to Regulation (EU) 2020/878

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

1.1. Product identifier

Article No. (manufacturer/supplier):	4 07110 B0000
Trade name/designation	epple 07110 Cast resin Component B UFI: F850-10VA-000K-6UNM

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

Relevant identified uses
Casting resin for casting electronic and other components.

1.3. Details of the supplier of the safety data sheet

supplier (manufacturer/importer/downstream user/distributor)

E. Epple & Co. GmbH
Hertzstr. 8
71083 Herrenberg
Telephone: +49 7032 / 9771-17
Telefax: +49 7032 / 9771-60
www.epple-chemie.de

Department responsible for information:
laboratory
E-mail (competent person): labor@epple-chemie.de

1.4. Emergency telephone number

Information center against poisoning Bonn: +49 (0) 228 / 19 240 (Advice in German)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [CLP]

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP].

Skin Irrit. 2 / H315	Skin corrosion/irritation	Causes skin irritation.
Eye Irrit. 2 / H319	Serious eye damage/eye irritation	Causes serious eye irritation.
Resp. Sens. 1 / H334	Respiratory or skin sensitisation	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin Sens. 1 / H317	Respiratory or skin sensitisation	May cause an allergic skin reaction.
Carc. 2 / H351	Carcinogenicity	Suspected of causing cancer.
STOT SE 3 / H335	STOT-single exposure	May cause respiratory irritation.
STOT RE 2 / H373	STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.

2.2. Label elements

The product is classified and labelled according to EC directives or corresponding national laws.

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms



Danger

Hazard statements

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317	May cause an allergic skin reaction.
H351	Suspected of causing cancer.
H335	May cause respiratory irritation.
H373	May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

P201	Obtain special instructions before use.
P260	Do not breathe vapour.
P280	Wear protective gloves.
P302 + P352	IF ON SKIN: Wash with plenty of water and soap.

P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P501	Dispose of contents/ container to an approved waste disposal plant.

Hazard components for labelling

Diphenylmethane Diisocyanate, isomers and homologues
2,2'-methylenediphenyl diisocyanate
diphenylmethane-4,4´-diisocyanate
diphenylmethane-2,4`-diisocyanate

Supplemental hazard information

EUH204 Contains isocyanates. May produce an allergic reaction.

Use restriction according to REACH annex XVII, no.: 74

Restrictions on use
As from 24 August 2023 adequate training is required before industrial or professional use.

2.3. **Other hazards**

No information available.

SECTION 3: Composition/information on ingredients

3.2. **Mixtures**

Description aromatic polyisocyanates

Hazardous ingredients

Classification according to Regulation (EC) No 1272/2008 [CLP]

EC No. CAS No. Index No.	REACH No. Designation classification: // Remark	weight-%
618-498-9 9016-87-9	Diphenylmethane Diisocyanate, isomers and homologues Acute Tox. 4 H332 / Skin Irrit. 2 H315 / Eye Irrit. 2 H319 / Resp. Sens. 1 H334 / Skin Sens. 1 H317 / Carc. 2 H351 / STOT SE 3 H335 / STOT RE 2 H373 Specific concentration limit (SCL): Eye Irrit. 2 H319 >= 5 / Skin Irrit. 2 H315 >= 5 / Resp. Sens. 1 H334 >= 0,1 / STOT SE 3 H335 >= 5	74,9 - 100
202-966-0 101-68-8 615-005-00-9	01-2119457014-47 diphenylmethane-4,4´-diisocyanate Acute Tox. 4 H332 / Skin Irrit. 2 H315 / Eye Irrit. 2 H319 / Resp. Sens. 1 H334 / Skin Sens. 1 H317 / Carc. 2 H351 / STOT SE 3 H335 / STOT RE 2 H373 Specific concentration limit (SCL): Eye Irrit. 2 H319 >= 5 / Skin Irrit. 2 H315 >= 5 / Resp. Sens. 1 H334 >= 0,1 / STOT SE 3 H335 >= 5 Acute toxicity estimate (ATE): ATE (inhalation, dust/mist): 0,36 mg/L	9,9 - 19,9
227-534-9 5873-54-1 615-005-00-9	01-2119480143-45 diphenylmethane-2,4`-diisocyanate Carc. 2 H351 / Acute Tox. 4 H332 / STOT RE 2 H373 / Eye Irrit. 2 H319 / STOT SE 3 H335 / Skin Irrit. 2 H315 / Resp. Sens. 1 H334 / Skin Sens. 1 H317 Specific concentration limit (SCL): Eye Irrit. 2 H319 >= 5 / Skin Irrit. 2 H315 >= 5 / Resp. Sens. 1 H334 >= 0,1 / STOT SE 3 H335 >= 5 Acute toxicity estimate (ATE): ATE (inhalation, dust/mist): 0,38 mg/L	9,9 - 19,9
219-799-4 2536-05-2 615-005-00-9	01-2119927323-43 2,2'-methylenediphenyl diisocyanate Carc. 2 H351 / Acute Tox. 4 H332 / STOT RE 2 H373 / Eye Irrit. 2 H319 / STOT SE 3 H335 / Skin Irrit. 2 H315 / Resp. Sens. 1 H334 / Skin Sens. 1 H317 Specific concentration limit (SCL): Eye Irrit. 2 H319 >= 5 / Skin Irrit. 2 H315 >= 5 / Resp. Sens. 1 H334 >= 0,1 / STOT SE 3 H335 >= 5 Acute toxicity estimate (ATE): ATE (inhalation, dust/mist): 0,52 mg/L	< 0,1

Additional information

Full text of classification: see section 16

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 advice. In case of unconsciousness give nothing by mouth, place in recovery position and seek medical advice.

In case of inhalation

Remove casualty to fresh air and keep warm and at rest. In case of irregular breathing or respiratory arrest provide artificial respiration.

Following skin contact

Take off immediately all contaminated clothing. After contact with skin, wash immediately with plenty of water and soap. Do not use solvents or thinners.

After eye contact

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical advice immediately.

Following ingestion

If swallowed, rinse mouth with water (only if the person is conscious). Seek medical advice immediately. Keep victim calm. Do NOT induce vomiting.

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

In all cases of doubt, or when symptoms persist, seek medical advice.

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

First Aid, decontamination, treatment of symptoms.

SECTION 5: Firefighting measures

5.1. **Extinguishing media**

Suitable extinguishing media

alcohol resistant foam, carbon dioxide, Powder, spray mist, (water)

Unsuitable extinguishing media

strong water jet

5.2. **Special hazards arising from the substance or mixture**

Dense black smoke occurs during fire. Inhaling hazardous decomposing products can cause serious health damage.

5.3. **Advice for firefighters**

Provide a conveniently located respiratory protective device.

Additional information

Cool closed containers that are near the source of the fire. Do not allow water used to extinguish fire to enter drains, ground or waterways.

SECTION 6: Accidental release measures

6.1. **Personal precautions, protective equipment and emergency procedures**

Do not breathe vapours.

6.2. **Environmental precautions**

Do not allow to enter into surface water or drains. If the product contaminates lakes, rivers or sewages, inform competent authorities in accordance with local regulations.

6.3. **Methods and material for containment and cleaning up**

Isolate leaked material using non-flammable absorption agent (e.g. sand, earth, vermiculit, diatomaceous earth) and collect it for disposal in appropriate containers in accordance with the local regulations (see section 13). Use appropriate container to avoid environmental contamination. Fouled surfaces must be immediately cleaned with suitable solvents, Useable as such (flammable): water 45 vol.% ethanol or i-propanol 50 vol. % ammonia solution (density= 0.88) 5 vol.%
Alternative (non-flammable): sodium carbonate 5 vol.% water 95 vol.%.
Take up spilled residuals with the same agent and leave them for a few days in unclosed containers until there is no further reaction. Then, close the containers and dispose of them in accordance with the regulations for waste removal (refer to section 13).

6.4. **Reference to other sections**

Observe protective provisions (see section 7 and 8).

SECTION 7: Handling and storage

People who suffer from skin sensitization problems, asthma, allergies, chronic or recurring respiratory illnesses should not be deployed in any process using this mixture.
People who spray this preparation should have regular pulmonary function tests.

7.1. **Precautions for safe handling**

Advices on safe handling

Only use the material in places where open light, fire and other flammable sources can be kept away. Electrical equipment must be protected meeting the accepted standard.

7.2. **Conditions for safe storage, including any incompatibilities**

Requirements for storage rooms and vessels
Storage in accordance with the Ordinance on Industrial Safety and Health (BetrSiVO). Keep container tightly closed. Do not empty containers with pressure - no pressure vessel! Smoking is forbidden. Access only for authorised persons. Store carefully closed containers upright to prevent any leaks.

Hints on joint storage
Keep away from strongly acidic and alkaline materials as well as oxidizers. Keep away from amines, alcohols and water.

Further information on storage conditions
Take care of instructions on label. Store in a well-ventilated and dry room at temperatures between 5 °C and 30 °C. Protect from heat and direct sunlight. Keep container tightly closed. Remove all sources of ignition. Smoking is forbidden. Access only for authorised persons. Store carefully closed containers upright to prevent any leaks.

7.3. **Specific end use(s)**
Observe technical data sheet.Observe instructions for use.

SECTION 8: Exposure controls/personal protection

People who suffer from skin sensitization problems, asthma, allergies, chronic or recurring respiratory illnesses should not be deployed in any process using this mixture.
People who spray this preparation should have regular pulmonary function tests.

8.1. **Control parameters**
Occupational exposure limit values

not applicable

DNEL:

diphenylmethane-4,4´-diisocyanate
Index No. 615-005-00-9 / EC No. 202-966-0 / CAS No. 101-68-8
DNEL short-term oral (acute), Workers:
DNEL acute dermal, short-term (local), Workers: 28,7 mg/kg
DNEL acute dermal, short-term (systemic), Workers: 50 mg/kg
DNEL acute inhalative (local), Workers: 0,1 mg/m³
DNEL acute inhalative (systemic), Workers: 0,1 mg/m³
DNEL long-term inhalative (local), Workers: 0,05 mg/m³
DNEL long-term inhalative (systemic), Workers: 0,05 mg/m³

diphenylmethane-2,4`-diisocyanate
Index No. 615-005-00-9 / EC No. 227-534-9 / CAS No. 5873-54-1
DNEL short-term oral (acute), Workers:
DNEL long-term oral (repeated), Workers:
DNEL acute dermal, short-term (local), Workers: 28,7 mg/kg
DNEL acute dermal, short-term (systemic), Workers: 50 mg/kg
DNEL acute inhalative (local), Workers: 0,1 mg/m³
DNEL acute inhalative (systemic), Workers: 0,1 mg/m³
DNEL long-term inhalative (local), Workers: 0,05 mg/m³
DNEL long-term inhalative (systemic), Workers: 0,05 mg/m³

2,2'-methylenediphenyl diisocyanate
Index No. 615-005-00-9 / EC No. 219-799-4 / CAS No. 2536-05-2
DNEL acute dermal, short-term (local), Workers: 28,7 mg/cm²
DNEL acute dermal, short-term (systemic), Workers: 50 mg/kg bw/day
DNEL acute inhalative (local), Workers: 0,1 mg/m³
DNEL acute inhalative (systemic), Workers: 0,1 mg/m³
DNEL long-term inhalative (local), Workers: 0,05 mg/m³
DNEL long-term inhalative (systemic), Workers: 0,05 mg/m³

PNEC:

diphenylmethane-4,4´-diisocyanate
Index No. 615-005-00-9 / EC No. 202-966-0 / CAS No. 101-68-8
PNEC aquatic, freshwater: 1 mg/L
PNEC aquatic, marine water: 0,1 mg/L
PNEC, soil: 1 mg/kg dry weight
PNEC sewage treatment plant (STP): 1 mg/L

diphenylmethane-2,4`-diisocyanate
Index No. 615-005-00-9 / EC No. 227-534-9 / CAS No. 5873-54-1
PNEC aquatic, freshwater: > 1 mg/L
PNEC aquatic, marine water: > 0,1 mg/L
PNEC, soil: > 1 mg/kg
PNEC sewage treatment plant (STP): > 1 mg/L

2,2'-methylenediphenyl diisocyanate
Index No. 615-005-00-9 / EC No. 219-799-4 / CAS No. 2536-05-2
PNEC aquatic, freshwater: > 1 mg/L
PNEC, soil: > 1 mg/kg
PNEC sewage treatment plant (STP): > 1 mg/L

8.2. **Exposure controls**

Personal protection equipment

Respiratory protection
If the workplace limit values (AGW) are exceeded, a suitable breathing apparatus must be worn. Observe the wear time limits according GefStoffV in combination with the rules for using respiratory protection apparatus (BGR 190). Use only respiratory protection equipment with CE-symbol including four digit test number.
Use filter / combination filter according to EN 14387.
Suitable respiratory protection apparatus: ABEK-P2

Hand protection
For prolonged or repeated handling the following glove material must be used: NBR (Nitrile rubber)
Thickness of the glove material > 0,4 mm ; Breakthrough time: > 480 min.
Observe the instructions and details for use, storage, maintenance and replacement provided by the protective glove manufacturer. Penetration time of glove material depending on intensity and duration of exposure to skin. Recommended glove articles EN ISO 374
Barrier creams can help protecting exposed skin areas. In no case should they be used after contact.

Eye/face protection
Wear eye glasses with side protection according to EN 166.

Protective measures
After contact clean skin thoroughly with water and soap or use appropriate cleanser.

Environmental exposure controls
Do not allow to enter into surface water or drains. See section 7. No additional measures necessary.

SECTION 9: Physical and chemical properties

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

Physical state:	**Liquid**
Appearance:	**Liquid**
Colour:	**brown**
Odour:	**characteristic**
Odour threshold:	**not applicable**
Melting point/freezing point:	**-24 °C** Source: Diphenylmethane Diisocyanate, isomers and homologues
Initial boiling point and boiling range:	**not applicable**
Flammability:	**Combustible liquid.**
Lower and upper explosion limit:	
Lower explosion limit:	**not applicable**
Upper explosion limit:	**not applicable**

Flash point:	**> 200 °C**
Auto-ignition temperature:	**not applicable**
Decomposition temperature:	**not applicable**
pH at 20 °C:	**not applicable**
Kinematic viscosity (40°C):	**122,95 mm²/s**
Viscosity at 20 °C:	**0,1 - 0,2 Pa*s**
Solubility(ies):	
Water solubility at 20 °C:	**insoluble**
Partition coefficient: n-octanol/water:	**see section 12**
Vapour pressure at 20 °C:	**not applicable**
Density and/or relative density:	
Density at 20 °C:	**1,22 g/cm³**
Relative vapour density:	**not applicable**
particle characteristics:	**not applicable**

9.2. **Other information**

Solid content:	**100 weight-%**
solvent content:	
Organic solvents:	**0 weight-%**
Water:	**0 weight-%**
Solvent separation test:	**< 3 weight-% (ADR/RID)**

SECTION 10: Stability and reactivity

10.1. **Reactivity**
No information available.

10.2. **Chemical stability**
Stable when applying the recommended regulations for storage and handling. Further information on correct storage: refer to section 7.

10.3. **Possibility of hazardous reactions**
Keep away from strongly acidic and alkaline materials as well as oxidizers. Keep away from amines, alcohols and water. Reacts with water, forming carbon dioxide, producing bursting hazard in closed containers due to build-up of pressure.

10.4. **Conditions to avoid**
Stable when applying the recommended regulations for storage and handling. Further information on correct storage: refer to section 7. Hazardous decomposition byproducts may form with exposure to high temperatures.
Thermal decomposition: at > 260 °C:.

10.5. **Incompatible materials**
not applicable

10.6. **Hazardous decomposition products**
Hazardous decomposition byproducts may form with exposure to high temperatures, e.g.: carbon dioxide, carbon monoxide, smoke, nitrogen oxides.

SECTION 11: Toxicological information

11.1. **Information on hazard classes as defined in Regulation (EC) No 1272/2008**

Acute toxicity

diphenylmethane-4,4´-diisocyanate
oral, LD50, Rat: > 2000 mg/kg
Method: Directive 84/449/EWG, B.1
Toxicological study on a comparable product
dermal, LD50, Rabbit: > 9400 mg/kg
Method: OECD 402
Investigation on a comparable product
inhalative (dust and mist), LC50, Rat: 0,368 mg/L (4 h); Evaluation Harmful if inhaled.
Method: OECD 403

diphenylmethane-2,4`-diisocyanate

oral, LD50, Rat: > 2000 mg/kg
Method: Directive 84/449/EWG, B.1
Toxicological study on a comparable product
dermal, LD50, Rabbit: > 9400 mg/kg
Method: OECD 402
Investigation on a comparable product
inhalative (dust and mist), LC50, Rat: 0,387 mg/L (4 h); Evaluation Harmful if inhaled.

2,2'-methylenediphenyl diisocyanate
oral, LD50, Rat: > 2000 mg/kg
Method: Directive 84/449/EWG, B.1
Toxicological study on a comparable product
dermal, LD50, Rabbit: > 9400 mg/kg
Method: OECD 402
Investigation on a comparable product
inhalative (dust and mist), LC50, Rat: 0,527 mg/L (4 h); Evaluation Harmful if inhaled.
Method: OECD 403

Diphenylmethane Diisocyanate, isomers and homologues
oral, LD50, Rat: > 2000 mg/kg
Method: OECD 401
Investigation on a comparable product
dermal, LD50, Rabbit: > 9400 mg/kg
Method: OECD 402
inhalative (dust and mist), LC50, Rat: 0,31 mg/L (4 h)
Method: OECD 403

Skin corrosion/irritation; Serious eye damage/eye irritation

Causes skin irritation.

Causes serious eye irritation.

diphenylmethane-4,4´-diisocyanate
Skin, Rabbit: Evaluation Causes skin irritation.
Method: OECD 404
Toxicological study on a comparable product
eyes, Rabbit.: Evaluation non-irritant.
Method: OECD 405
Toxicological study on a comparable product

diphenylmethane-2,4`-diisocyanate
Skin, Rabbit: Evaluation irritant.
Method: OECD 404
Toxicological study on a comparable product

2,2'-methylenediphenyl diisocyanate
Skin, Rabbit: Evaluation mild irritant.
Method: OECD 404

Diphenylmethane Diisocyanate, isomers and homologues
Skin:, Rabbit: Evaluation mild irritant.
Method: OECD 404

Respiratory or skin sensitisation

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause an allergic skin reaction.

diphenylmethane-4,4´-diisocyanate
Skin, Mouse: ; Evaluation positive
Method: OECD 429
Respiratory system, Guinea pig: ; Evaluation positive

diphenylmethane-2,4`-diisocyanate
Skin, Mouse: ; Evaluation positive
Method: OECD 429
Toxicological study on a comparable product
Respiratory system, Guinea pig: ; Evaluation positive
Toxicological study on a comparable product

2,2'-methylenediphenyl diisocyanate
Skin, Mouse: ; Evaluation positive.
Method: OECD 429
May cause sensitization by skin contact.
Respiratory system, Guinea pig: ; Evaluation positive
May cause sensitization by inhalation.; Toxicological study on a comparable product

Diphenylmethane Diisocyanate, isomers and homologues
Skin, Mouse: ; Evaluation positive
Method: OECD 429
May cause sensitization by skin contact.
Respiratory system, Rat: ; Evaluation positive
May cause sensitization by skin contact.

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

Suspected of causing cancer.

diphenylmethane-4,4´-diisocyanate
Carcinogenicity; Evaluation Occurrence of tumors in the highest dose group
Method: OECD 453
inhalative; Investigation on a comparable product
Reproductive toxicity; Evaluation Does not show teratogenic effects in animal experiments
Method: OECD 414
rat, female; inhalative; Investigation on a comparable product
genotoxicity; Evaluation negative
Method: OECD 471 (Ames test).
in-vitro; Salmonella typhimurium; Toxicological study on a comparable product
genotoxicity; Evaluation negative
Method: OECD 474
in-vivo; rat, male; inhalative
genotoxicity; Evaluation negative
Method: OECD 489
in-vivo; rat, male; inhalative

diphenylmethane-2,4`-diisocyanate
Carcinogenicity; Evaluation Occurrence of tumors in the highest dose group
Method: OECD 453
inhalative; Investigation on a comparable product
Reproductive toxicity; Evaluation Does not show teratogenic effects in animal experiments
Method: OECD 414
rat, female; inhalative; Investigation on a comparable product
genotoxicity; Evaluation negative
Method: OECD 471 (Ames test).
in-vitro
genotoxicity; Evaluation negative
Method: OECD 474
in-vivo; rat, male; inhalative

2,2'-methylenediphenyl diisocyanate
Carcinogenicity; Evaluation Occurrence of tumors in the highest dose group
Method: OECD 453
Investigation on a comparable product
Reproductive toxicity; Evaluation Does not show teratogenic effects in animal experiments
Method: OECD 414
Investigation on a comparable product
genotoxicity; Evaluation negative
Method: OECD 471 (Ames test).
in-vitro
genotoxicity; Evaluation negative
Method: OECD 474
in-vivo; rat, male; Toxicological study on a comparable product

Diphenylmethane Diisocyanate, isomers and homologues
Carcinogenicity; Evaluation Occurrence of tumors in the highest dose group
Method: OECD 453

Rat; inhalative
Reproductive toxicity; Evaluation Does not show teratogenic effects in animal experiments
Method: OECD 414
rat, female; inhalative
genotoxicity; Evaluation negative
Method: OECD 471 (Ames test)
in-vitro
genotoxicity; Evaluation negative
Method: OECD 474
in-vivo; rat, male; Investigation on a comparable product

STOT-single exposure; STOT-repeated exposure

May cause respiratory irritation.

May cause damage to organs through prolonged or repeated exposure.

diphenylmethane-4,4´-diisocyanate
Specific target organ toxicity (single exposure), Irritation Evaluation May cause respiratory irritation.
Specific target organ toxicity (repeated exposure) Evaluation May cause damage to organs through prolonged or repeated exposure.

diphenylmethane-2,4`-diisocyanate
Specific target organ toxicity (single exposure), Irritation Evaluation May cause respiratory irritation.
inhalative; Respiratory system
Specific target organ toxicity (repeated exposure) Evaluation May cause damage to organs through prolonged or repeated exposure if inhaled.
inhalative; Respiratory system

2,2'-methylenediphenyl diisocyanate
Specific target organ toxicity (single exposure), Irritation Evaluation May cause respiratory irritation.
inhalative; Respiratory system
Specific target organ toxicity (repeated exposure) Evaluation May cause damage to organs through prolonged or repeated exposure.
inhalative; Respiratory system

Diphenylmethane Diisocyanate, isomers and homologues
Specific target organ toxicity (single exposure), Irritation Evaluation May cause respiratory irritation.
Respiratory system; inhalative
Specific target organ toxicity (repeated exposure) Evaluation May cause damage to organs through prolonged or repeated exposure if inhaled.
Respiratory system; inhalative

Aspiration hazard

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

Practical experience/human evidence

Because of the isocyanate components' properties of this and with consideration of similar preparations the following applies: This mixture may cause acute irrtation and/or sensitization of airways which lead to tightness in thorax, short-breath and asthmatic complaints. After sensitization even concentrations below the exposure limit values may cause asthma. Repeated inhaling can lead to permanent illness of the respiratory tract. 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.

Overall assessment on CMR properties

The ingredients in this mixture do not meet the criteria for classification as CMR category 1A or 1B according to CLP.

Remark

There is no information available on the preparation itself . The preparation has been assessed following the conventional method of the Dangerous Preparations Directive 1999/45/EC and classified according to the toxicological dangers.See chapters 2 and 15 for details.

11.2. **Information on other hazards**

Endocrine disrupting properties
No information available.

SECTION 12: Ecological information

Classification according to Regulation (EC) No 1272/2008 [CLP]
Do not allow to enter into surface water or drains.

12.1. **Toxicity**

diphenylmethane-4,4´-diisocyanate
Fish toxicity, LC50, Danio rerio : > 1000 mg/L (96 h)
Method: OECD 203
Investigation on a comparable product
Algae toxicity, ErC50, Scenedesmus subspicatus: > 1640 mg/L (72 h)
Method: OECD 201
Investigation on a comparable product
Daphnia toxicity, EC50, Daphnia magna (Big water flea): > 1000 mg/L (24 h)
Method: OECD 202
Investigation on a comparable product
Bacteria toxicity, EC50, Activated sludge: > 100 mg/L (3 h)
Method: OECD 209
Investigation on a comparable product

diphenylmethane-2,4`-diisocyanate
Fish toxicity, LC50, Danio rerio : > 1000 mg/L (96 h)
Method: OECD 203
Investigation on a comparable product
Algae toxicity, ErC50, Scenedesmus subspicatus: > 1640 mg/L (72 h)
Method: OECD 201
Investigation on a comparable product
Daphnia toxicity, EC50, Daphnia magna (Big water flea): > 1000 mg/L (24 h)
Method: OECD 202
Investigation on a comparable product
Bacteria toxicity, EC50, Activated sludge: > 100 mg/L (3 h)
Method: OECD 209
Investigation on a comparable product

2,2'-methylenediphenyl diisocyanate
Fish toxicity, LC50, Danio rerio : > 1000 mg/L (96 h)
Method: OECD 203
Investigation on a comparable product
Algae toxicity, ErC50, Scenedesmus subspicatus: > 1640 mg/L (72 h)
Method: OECD 201
Investigation on a comparable product
Daphnia toxicity, EC50, Daphnia magna (Big water flea): > 1000 mg/L (24 h)
Method: OECD 202
Investigation on a comparable product
Bacteria toxicity, EC50, Activated sludge: > 100 mg/L (3 h)
Method: OECD 209
Investigation on a comparable product

Diphenylmethane Diisocyanate, isomers and homologues
Fish toxicity, LC50, Danio rerio : > 1000 mg/L (96 h)
Method: OECD 203
Algae toxicity, ErC50, Scenedesmus subspicatus: > 1640 mg/L (72 h)
Method: OECD 201
Daphnia toxicity, EC50, Daphnia magna (Big water flea): > 1000 mg/L (24 h)
Method: OECD 202
Bacteria toxicity, EC50, Activated sludge: > 100 mg/L (3 h)
Method: OECD 209

Long-term Ecotoxicity

diphenylmethane-4,4´-diisocyanate
Fish toxicity, LC50 (96 h)
Method: OECD 202
Investigation on a comparable product
Daphnia toxicity, NOEC, Daphnia magna (Big water flea): > 10 mg/L (21 d)
Method: OECD 202
Toxicity to soil macroorganisms, NOEC, Eisenia fetida: > 1000 mg/kg (14 d)
Method: OECD 207
Investigation on a comparable product

Terrestrial toxicity, NOEC, Avena sativa: > 1000 mg/kg (14 d)
Method: OECD 208
Investigation on a comparable product
Terrestrial toxicity, NOEC, Lactuca sativa: > 1000 mg/kg (14 d)
Method: OECD 208
Investigation on a comparable product

diphenylmethane-2,4`-diisocyanate
Daphnia toxicity, NOEC, Daphnia magna (Big water flea): > 10 mg/L (21 d)
Method: OECD 202
Investigation on a comparable product
Toxicity to soil macroorganisms, NOEC:, Eisenia fetida: > 1000 mg/kg (14 d)
Method: OECD 207
Investigation on a comparable product
Terrestrial toxicity, NOEC, Avena sativa: > 1000 mg/kg (14 d)
Method: OECD 208
Investigation on a comparable product
Terrestrial toxicity, NOEC, Lactuca sativa: > 1000 mg/kg (14 d)
Method: OECD 208
Investigation on a comparable product

2,2'-methylenediphenyl diisocyanate
Daphnia toxicity, NOEC, Daphnia magna (Big water flea): > 10 mg/L (21 d)
Method: OECD 202
Investigation on a comparable product
Toxicity to soil macroorganisms, NOEC:, Eisenia fetida: > 1000 mg/kg (14 d)
Method: OECD 207
Investigation on a comparable product
Terrestrial toxicity, NOEC:, Avena sativa: > 1000 mg/kg (14 d)
Method: OECD 208
Investigation on a comparable product
Terrestrial toxicity, NOEC:, Lactuca sativa: > 1000 mg/kg (14 d)
Method: OECD 208
Investigation on a comparable product

Diphenylmethane Diisocyanate, isomers and homologues
Daphnia toxicity, NOEC, Daphnia magna (Big water flea): > 10 mg/L (21 d)
Method: OECD 202
Toxicity to soil macroorganisms, NOEC, Eisenia fetida: > 1000 mg/kg (14 d)
Method: OECD 207
Terrestrial toxicity, NOEC, Avena sativa: > 1000 mg/kg (14 d)
Method: OECD 208
Terrestrial toxicity, NOEC, Lactuca sativa: > 1000 mg/kg (14 d)
Method: OECD 208

12.2. **Persistence and degradability**

diphenylmethane-4,4´-diisocyanate
Biodegradation:: (28 d)Evaluation not potentially degradable
Method: OECD 302C
Investigation on a comparable product

diphenylmethane-2,4`-diisocyanate
Biodegradation:: (28 d)Evaluation not potentially degradable
Method: OECD 302C
Investigation on a comparable product

2,2'-methylenediphenyl diisocyanate
Biodegradation:: (28 d)Evaluation not potentially degradable
Method: OECD 302C
Investigation on a comparable product

Diphenylmethane Diisocyanate, isomers and homologues
Biodegradation:, aerobic: (28 d)Evaluation not biodegradable
Method: OECD 302C

12.3. **Bioaccumulative potential**

Diphenylmethane Diisocyanate, isomers and homologues

Partition coefficient: n-octanol/water: < 14 ; Evaluation Accumulation in aquatic organisms is not expected.
Method: OECD 305 C
The substance hydrolyzes rapidly in water

Bioconcentration factor (BCF)

diphenylmethane-4,4´-diisocyanate
Bioconcentration factor (BCF), Cyprinus carpio (Common Carp): 200 ; Evaluation Accumulation in aquatic organisms is not expected.
Method: OECD 305 E

diphenylmethane-2,4`-diisocyanate
Bioconcentration factor (BCF), Cyprinus carpio (Common Carp): 200 ; Evaluation Accumulation in aquatic organisms is not expected.
Method: OECD 305 E
Investigation on a comparable product

2,2'-methylenediphenyl diisocyanate
Bioconcentration factor (BCF), Cyprinus carpio (Common Carp): 200 ; Evaluation Accumulation in aquatic organisms is not expected.
Method: OECD 305 E
Investigation on a comparable product

Diphenylmethane Diisocyanate, isomers and homologues
Bioconcentration factor (BCF), Cyprinus carpio (Common Carp): 92 ; Evaluation Accumulation in aquatic organisms is not expected.
Method: OECD 305 E

12.4. **Mobility in soil**
Toxicological data are not available.

12.5. **Results of PBT and vPvB assessment**

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. **Endocrine disrupting properties**
No information available.

12.7. **Other adverse effects**
No information available.

SECTION 13: Disposal considerations

13.1. **Waste treatment methods**

Appropriate disposal / Product
Recommendation
Do not allow to enter into surface water or drains. Handle contaminated packages in the same way as the substance itself.This material and its container must be disposed of in a safe way. Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.
Observe in addition any national regulations!

Switzerland: Disposal in accordance with the Ordinance on the Transport of Waste (VeVA) and the Ordinance on the Avoidance and Disposal of Waste (VVEA).

List of proposed waste codes/waste designations in accordance with EWC
080501* Waste isocyanates
*Hazardous waste according to Directive 2008/98/EC (waste framework directive).

Appropriate disposal / Package
Dispose of packaging and contaminated filters at a offical hazardous waste incinerator facility.
Recommendation:
Waste codes / waste designations according to EWC / AVV: 15 01 10*

Non-contaminated packages may be recycled.

SECTION 14: Transport information

No dangerous good in sense of this transport regulation.

14.1. **UN number or ID number**

not applicable

14.2. **UN proper shipping name**

14.3. **Transport hazard class(es)**

not applicable

14.4. **Packing group**

not applicable

14.5. **Environmental hazards**

Land transport (ADR/RID)	not applicable
Marine pollutant	not applicable

14.6. **Special precautions for user**

Transport always in closed, upright and safe containers. Make sure that persons transporting the product know what to do in case of an accident or leakage.
Advices on safe handling: see parts 6 - 8

Further information

Land transport (ADR/RID)

Tunnel restriction code	-

Sea transport (IMDG)

EmS-No.	not applicable

14.7. **Maritime transport in bulk according to IMO instruments**

No transport as bulk according IBC - Code.

SECTION 15: Regulatory information

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

EU legislation

Directive 2010/75/EU on industrial emissions [Industrial Emissions Directive]
VOC-value (in g/L): 0

Use restriction according to REACH annex XVII, no.: 74
Restrictions on use
As from 24 August 2023 adequate training is required before industrial or professional use.

National regulations

Restrictions of occupation
Observe employment restrictions under the Maternity Protection Directive 92/85/EEC or stricter national regulations, if applicable.

Switzerland: Maternity Protection Ordinance (SR 822.111.52): Pregnant women and nursing mothers may only come into contact with or be exposed to this preparation during their work if it has been established on the basis of a risk assessment by a specialist that, in the context of the activities and the protective measures taken, exposure will not result in harm to the mother or child.

Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC) or stricter national regulations, if applicable.

Switzerland: Youth Labour Protection Ordinance (ArGV 5; SR 822.115): Young people up to the age of 18 may only come into contact with or be exposed to this preparation during their work if the Federal Office for Professional Education and Technology (OPET) or the State Secretariat for Economic Affairs (SECO) has authorised an exception.

For professional use only. Product is not intended for consumer use.

Substance/product listed in the following inventories:
AICS no informtion
DSL no information
EHS no information
IECSC no information
KECI no information
MITI no information
NZLoC no information

PICCS no information
TCSI no information
TSCA no information

15.2. **Chemical Safety Assessment**

For the following substances of this mixture a chemical safety assessment has been carried out:

EC No. CAS No.	Designation	REACH No.
202-966-0 101-68-8	diphenylmethane-4,4´-diisocyanate	01-2119457014-47
227-534-9 5873-54-1	diphenylmethane-2,4`-diisocyanate	01-2119480143-45
219-799-4 2536-05-2	2,2'-methylenediphenyl diisocyanate	01-2119927323-43

SECTION 16: Other information

Full text of classification in section 3:

Acute Tox. 4 / H332	Acute toxicity (inhalative)	Harmful if inhaled.
Skin Irrit. 2 / H315	Skin corrosion/irritation	Causes skin irritation.
Eye Irrit. 2 / H319	Serious eye damage/eye irritation	Causes serious eye irritation.
Resp. Sens. 1 / H334	Respiratory or skin sensitisation	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin Sens. 1 / H317	Respiratory or skin sensitisation	May cause an allergic skin reaction.
Carc. 2 / H351	Carcinogenicity	Suspected of causing cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard).
STOT SE 3 / H335	STOT-single exposure	May cause respiratory irritation.
STOT RE 2 / H373	STOT-repeated exposure	May cause damage to organs (or state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard).

Classification procedure

Classification for mixtures and used evaluation method according to regulation (EC) No 1272/2008 [CLP]

Skin Irrit. 2	Skin corrosion/irritation	Calculation method.
Eye Irrit. 2	Serious eye damage/eye irritation	Calculation method.
Resp. Sens. 1	Respiratory or skin sensitisation	Calculation method.
Skin Sens. 1	Respiratory or skin sensitisation	Calculation method.
Carc. 2	Carcinogenicity	Calculation method.
STOT SE 3	STOT-single exposure	Calculation method.
STOT RE 2	STOT-repeated exposure	Calculation method.

Abbreviations and acronyms

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
OEL	Occupational Exposure Limit Value
BLV	Biological Limit Value
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging
CMR	Carcinogenic, Mutagenic and Reprotoxic
DIN	German Institute for Standardization / German industrial standard
DNEL	Derived No-Effect Level
EAKV	European Waste Catalogue Directive
EC	Effective Concentration
EC	European Community
EN	European Standard
IATA-DGR	International Air Transport Association – Dangerous Goods Regulations
IBC Code	International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
ICAO-TI	International Civil Aviation Organization Technical Instructions for the Safe Transport of Dangerous Goods by Air
IMDG Code	International Maritime Code for Dangerous Goods
ISO	International Organization for Standardization
LC	Lethal Concentration

LD	Lethal Dose
MARPOL	Maritime Pollution: The International Convention for the Prevention of Pollution from Ships
OECD	Organisation for Economic Cooperation and Development
PBT	persistent, bioaccumulative, toxic
PNEC	Predicted No Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
UN	United Nations
VOC	Volatile Organic Compounds
vPvB	very persistent and very bioaccumulative

Abbreviations and acronyms
n.a. = not applicable
n.b. = not determined

Further information
Classification according to Regulation (EC) No 1272/2008 [CLP]

The information supplied on this safety data sheet complies with our current level of knowledge as well as with national and EU regulations.Without written approval, the product must not be used for purposes different from those mentioned in section 1.It is always the user's duty to take any necessary measures for meeting the requirements laid down by local rules and regulations.The details in this safety data sheet describe the safety requirements of our product and are not to be regarded as guaranteed attributes of the product.