

## Safety Data Sheet

### MAPEFLEX PU 65 comp. B

Safety Data Sheet dated 2/3/2017, version 6

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

##### 1.1. Product identifier

Trade name: MAPEFLEX PU 65 comp. B

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

Recommended use:

Hardener for polyurethane-based adhesives.

Adhesive

Uses advised against:

==

##### 1.3. Details of the supplier of the safety data sheet

Supplier:

MAPEI S.p.A. - Via Cafiero, 22 - 20158 Milano

Tel: +39-02-376731

Fax: +39-02-37673.214

Competent person responsible for the safety data sheet:

sicurezza@mapei.it

##### 1.4. Emergency telephone number

MAPEI S.p.A. - Tel. +(39)02376731 - (office hours)

Poison Centre - Ospedale di Niguarda - Milan - Tel. +39/02/66101029

#### SECTION 2: Hazards identification

##### 2.1. Classification of the substance or mixture

EC regulation criteria 1272/2008 (CLP)

- ⚠ Warning, Acute Tox. 4, Harmful if inhaled.
- ⚠ Warning, Skin Irrit. 2, Causes skin irritation.
- ⚠ Warning, Eye Irrit. 2, Causes serious eye irritation.
- ⚠ Danger, Resp. Sens. 1, May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- ⚠ Warning, Skin Sens. 1, May cause an allergic skin reaction.
- ⚠ Warning, Carc. 2, Suspected of causing cancer.
- ⚠ Warning, STOT SE 3, May cause respiratory irritation.
- ⚠ Warning, STOT RE 2, May cause damage to organs through prolonged or repeated exposure.

Adverse physicochemical, human health and environmental effects:

No other hazards

##### 2.2. Label elements

Hazard pictograms:

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Danger

Hazard Statements:

- H332 Harmful if inhaled.
- 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.
- P202 Do not handle until all safety precautions have been read and understood.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P308+P313 IF exposed or concerned: Get medical advice/attention.
- P312 Call a POISON CENTER if you feel unwell.

Special Provisions:

- EUH204 Contains isocyanates. May produce an allergic reaction.

Contains

- 4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate
- o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate
- 2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate
- diphenylmethanediisocyanate isomers and homologues

Special provisions according to Annex XVII of REACH and subsequent amendments:

None

2.3. Other hazards

vPvB Substances: None - PBT Substances: None

Other Hazards:

No other hazards

## SECTION 3: Composition/information on ingredients

3.1. Substances

N.A.

3.2. Mixtures

Hazardous components within the meaning of the CLP regulation and related classification:

>= 75% diphenylmethanediisocyanate isomers and homologues

Index number: 615-005-00-9, CAS: 9016-87-9, EC: 618-498-9

- ⚠ 3.1/4/Inhal Acute Tox. 4 H332
- ⚠ 3.3/2 Eye Irrit. 2 H319
- ⚠ 3.8/3 STOT SE 3 H335
- ⚠ 3.2/2 Skin Irrit. 2 H315
- ⚠ 3.4.1/1-1A-1B Resp. Sens. 1,1A,1B H334
- ⚠ 3.4.2/1-1A-1B Skin Sens. 1,1A,1B H317
- ⚠ 3.9/2 STOT RE 2 H373
- ⚠ 3.6/2 Carc. 2 H351

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>= 10% - < 20% 4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate  
REACH No.: 01-2119457014-47-XXXX, Index number: 615-005-00-9, CAS: 101-68-8, EC: 202-966-0

- ⚠ 3.1/4/Inhal Acute Tox. 4 H332
- ⚠ 3.3/2 Eye Irrit. 2 H319
- ⚠ 3.8/3 STOT SE 3 H335
- ⚠ 3.2/2 Skin Irrit. 2 H315
- ⚠ 3.4.1/1-1A-1B Resp. Sens. 1,1A,1B H334
- ⚠ 3.4.2/1-1A-1B Skin Sens. 1,1A,1B H317
- ⚠ 3.9/2 STOT RE 2 H373
- ⚠ 3.6/2 Carc. 2 H351

>= 5% - < 10% o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate  
REACH No.: 01-2119480143-45-0000, Index number: 615-005-00-9, CAS: 5873-54-1, EC: 227-534-9

- ⚠ 3.6/2 Carc. 2 H351
- ⚠ 3.9/2 STOT RE 2 H373
- ⚠ 3.3/2 Eye Irrit. 2 H319
- ⚠ 3.8/3 STOT SE 3 H335
- ⚠ 3.2/2 Skin Irrit. 2 H315
- ⚠ 3.4.1/1-1A-1B Resp. Sens. 1,1A,1B H334
- ⚠ 3.4.2/1-1A-1B Skin Sens. 1,1A,1B H317
- ⚠ 3.1/4/Inhal Acute Tox. 4 H332

>= 0.49% - < 1% 2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate  
REACH No.: 01-2119927323-43-XXXX, Index number: 615-005-00-9, CAS: 2536-05-2, EC: 219-799-4

- ⚠ 3.6/2 Carc. 2 H351
- ⚠ 3.9/2 STOT RE 2 H373
- ⚠ 3.3/2 Eye Irrit. 2 H319
- ⚠ 3.8/3 STOT SE 3 H335
- ⚠ 3.2/2 Skin Irrit. 2 H315
- ⚠ 3.4.1/1-1A-1B Resp. Sens. 1,1A,1B H334
- ⚠ 3.4.2/1-1A-1B Skin Sens. 1,1A,1B H317
- ⚠ 3.1/4/Inhal Acute Tox. 4 H332

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

In case of skin contact:

Immediately take off all contaminated clothing.

Areas of the body that have - or are only even suspected of having - come into contact with the product must be rinsed immediately with plenty of running water and possibly with soap.

Wash thoroughly the body (shower or bath).

Remove contaminated clothing immediately and dispose off safely.

After contact with skin, wash immediately with soap and plenty of water.

In case of eyes contact:

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.

Protect uninjured eye.

Wash immediately with water for at least 10 minutes.

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In case of Ingestion:

Do NOT induce vomiting.

In case of Inhalation:

If breathing is irregular or stopped, administer artificial respiration.

In case of inhalation, consult a doctor immediately and show him packing or label.

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

The product is harmful following acute exposure to it and poses a serious health threat if inhaled.

If brought into contact with the eyes, the product causes irritation that may last for over 24h, if inhaled, it causes irritation to the airways, and if brought into contact with the skin it causes significant inflammation with erythema, scabs, and oedema.

The product may present a risk of carcinogenesis.

If inhaled, the product may cause sensitisation of the airways, and if brought into contact with the skin it may cause sensitisation of the skin.

This product is harmful: serious harm (functional disorders or significant morphological changes that are toxicology-related) may be caused by repeated or prolonged exposure to the product by inhalation.

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

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

Treatment:

(see paragraph 4.1)

## SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Water.

CO2 or Dry chemical fire extinguisher.

Extinguishing media which must not be used for safety reasons:

None in particular.

5.2. Special hazards arising from the substance or mixture

Do not inhale explosion and combustion gases.

Burning produces heavy smoke.

The original ingredients or unidentified toxic and/or irritant compounds may be present in the combustion fumes.

5.3. Advice for firefighters

Use suitable breathing apparatus.

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

Move undamaged containers from immediate hazard area if it can be done safely.

## SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Wear personal protection equipment.

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

Provide adequate ventilation.

Use appropriate respiratory protection.

See protective measures under point 7 and 8.

6.2. Environmental precautions

Limit leakages with earth or sand.

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

Retain contaminated washing water and dispose it.

In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

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Suitable material for taking up: absorbing material, organic, sand

6.3. Methods and material for containment and cleaning up  
Rapidly recover the product, wearing protective clothing.  
After the product has been recovered, rinse the area and materials involved with water.  
Suitable material for taking up: absorbing material, organic, sand  
Wash with plenty of water.  
Retain contaminated washing water and dispose it.

6.4. Reference to other sections  
See also section 8 and 13

#### SECTION 7: Handling and storage

7.1. Precautions for safe handling  
Avoid contact with skin and eyes, inhalation of vapours and mists.  
Exercise the greatest care when handling or opening the container.  
Use localized ventilation system.  
Don't use empty container before they have been cleaned.  
Before making transfer operations, assure that there aren't any incompatible material residuals in the containers.  
Contaminated clothing should be changed before entering eating areas.  
Do not eat or drink while working.  
See also section 8 for recommended protective equipment.

7.2. Conditions for safe storage, including any incompatibilities  
Keep away from food, drink and feed.  
Incompatible materials:  
None in particular.  
Instructions as regards storage premises:  
Adequately ventilated premises.

7.3. Specific end use(s)  
None in particular

#### SECTION 8: Exposure controls/personal protection

8.1. Control parameters  
diphenylmethanediisocyanate isomers and homologues - CAS: 9016-87-9  
ACGIH - TWA: 0.05 ppm  
SUVA - TWA: 0.02 mg/m<sup>3</sup> - STEL: 0.02 mg/m<sup>3</sup>

4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate - CAS: 101-68-8  
SUVA - TWA: 0.02 mg/m<sup>3</sup> - STEL: 0.02 mg/m<sup>3</sup>  
NDS - TWA: 0.03 mg/m<sup>3</sup>  
NDSP - TWA: 0.09 mg/m<sup>3</sup>  
ACGIH - TWA(8h): 0.005 ppm - Notes: Resp sens  
ÅK - TWA: 0.05 mg/m<sup>3</sup>  
CK - TWA: 0.05 mg/m<sup>3</sup>

o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate - CAS: 5873-54-1  
NDS - TWA: 0.03 mg/m<sup>3</sup>  
NDSch - TWA: 0.09 mg/m<sup>3</sup>

2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate - CAS: 2536-05-2  
ACGIH - TWA: 0.051 mg/m<sup>3</sup>

DNEL Exposure Limit Values  
4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate - CAS: 101-68-8  
Worker Industry: 50 mg/kg - Exposure: Human Dermal - Frequency: Short Term, systemic effects  
Worker Industry: 0.1 mg/m<sup>3</sup> - Exposure: Human Inhalation - Frequency: Short Term, systemic effects

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Worker Industry: 0.1 mg/m<sup>3</sup> - Exposure: Human Inhalation - Frequency: Short Term, local effects  
 Worker Industry: 0.05 mg/m<sup>3</sup> - Exposure: Human Inhalation - Frequency: Long Term, systemic effects  
 Worker Industry: 0.05 mg/m<sup>3</sup> - Exposure: Human Inhalation - Frequency: Long Term, local effects  
 Consumer: 25 mg/kg - Exposure: Human Dermal - Frequency: Short Term, systemic effects  
 Consumer: 0.05 mg/m<sup>3</sup> - Exposure: Human Inhalation - Frequency: Short Term, systemic effects  
 Consumer: 20 mg/kg - Exposure: Human Oral - Frequency: Short Term, systemic effects  
 Consumer: 0.05 mg/m<sup>3</sup> - Exposure: Human Inhalation - Frequency: Short Term, local effects  
 Consumer: 0.025 mg/m<sup>3</sup> - Exposure: Human Inhalation - Frequency: Long Term, systemic effects  
 Consumer: 0.025 mg/m<sup>3</sup> - Exposure: Human Inhalation - Frequency: Long Term, local effects  
 Worker Industry: 28.7 mg/cm<sup>2</sup> - Consumer: 17.2 mg/cm<sup>2</sup> - Exposure: Human Dermal - Frequency: Short Term, local effects  
 o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate - CAS: 5873-54-1  
 Worker Industry: 50 mg/kg - Consumer: 25 mg/kg - Exposure: Human Dermal - Frequency: Short Term, systemic effects  
 Worker Industry: 0.1 mg/m<sup>3</sup> - Consumer: 0.05 mg/m<sup>3</sup> - Exposure: Human Inhalation - Frequency: Short Term, systemic effects  
 Worker Industry: 28.7 mg/cm<sup>2</sup> - Consumer: 17.2 mg/cm<sup>2</sup> - Exposure: Human Dermal - Frequency: Short Term, local effects  
 Worker Industry: 0.1 mg/m<sup>3</sup> - Consumer: 0.05 mg/m<sup>3</sup> - Exposure: Human Inhalation - Frequency: Short Term, local effects  
 Worker Industry: 0.05 mg/m<sup>3</sup> - Consumer: 0.025 mg/m<sup>3</sup> - Exposure: Human Inhalation - Frequency: Long Term, systemic effects  
 Worker Industry: 0.05 mg/m<sup>3</sup> - Consumer: 0.025 mg/m<sup>3</sup> - Exposure: Human Inhalation - Frequency: Long Term, local effects  
 Consumer: 20 mg/kg - Exposure: Human Oral - Frequency: Short Term, systemic effects  
 2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate - CAS: 2536-05-2  
 Worker Industry: 50 mg/kg - Consumer: 25 mg/kg - Exposure: Human Dermal - Frequency: Short Term, systemic effects  
 Worker Industry: 0.1 mg/m<sup>3</sup> - Consumer: 0.05 mg/m<sup>3</sup> - Exposure: Human Inhalation - Frequency: Short Term, systemic effects  
 Worker Industry: 28.7 mg/cm<sup>2</sup> - Consumer: 17.2 mg/cm<sup>2</sup> - Exposure: Human Dermal - Frequency: Short Term, local effects  
 Worker Industry: 0.1 mg/m<sup>3</sup> - Consumer: 0.05 mg/m<sup>3</sup> - Exposure: Human Inhalation - Frequency: Short Term, local effects  
 Worker Industry: 0.05 mg/m<sup>3</sup> - Consumer: 0.025 mg/m<sup>3</sup> - Exposure: Human Inhalation - Frequency: Long Term, systemic effects  
 Worker Industry: 0.05 mg/m<sup>3</sup> - Consumer: 0.025 mg/m<sup>3</sup> - Exposure: Human Inhalation - Frequency: Long Term, local effects  
 Consumer: 20 mg/kg - Exposure: Human Oral - Frequency: Long Term, systemic effects  
 PNEC Exposure Limit Values  
 4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate - CAS: 101-68-8  
 Target: Fresh Water - Value: 1 mg/l - Type of hazard: >  
 Target: Marine water - Value: 0.1 mg/l - Type of hazard: >  
 Target: Soil (agricultural) - Value: 1 mg/kg - Type of hazard: >  
 Target: Microorganisms in sewage treatments - Value: 1 mg/l - Type of hazard: >  
 o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate - CAS: 5873-54-1  
 Target: Fresh Water - Value: 1 mg/l - Type of hazard: >

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Target: Marine water - Value: 0.1 mg/l - Type of hazard: >  
 Target: Soil (agricultural) - Value: 1 mg/kg - Type of hazard: >  
 Target: Microorganisms in sewage treatments - Value: 1 mg/l - Type of hazard: >  
 2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate - CAS: 2536-05-2  
 Target: Fresh Water - Value: 1 mg/l - Type of hazard: >  
 Target: Marine water - Value: 0.1 mg/kg - Type of hazard: >  
 Target: Soil (agricultural) - Value: 1 mg/l - Type of hazard: >  
 Target: Microorganisms in sewage treatments - Value: 1 mg/l - Type of hazard: >

#### 8.2. Exposure controls

##### Eye protection:

Safety goggles.

Use close fitting safety goggles, don't use eye lens.

##### Protection for skin:

Use clothing that provides comprehensive protection to the skin, e.g. cotton, rubber, PVC or viton.

Use protective gloves that provides comprehensive protection, e.g. P.V.C., neoprene or rubber.

Suitable materials for safety gloves; EN 374:

Polychloroprene - CR: thickness  $\geq 0,5\text{mm}$ ; breakthrough time  $\geq 480\text{min}$ .

Nitrile rubber - NBR: thickness  $\geq 0,35\text{mm}$ ; breakthrough time  $\geq 480\text{min}$ .

Butyl rubber - IIR: thickness  $\geq 0,5\text{mm}$ ; breakthrough time  $\geq 480\text{min}$ .

Fluorinated rubber - FKM: thickness  $\geq 0,4\text{mm}$ ; breakthrough time  $\geq 480\text{min}$ .

##### Respiratory protection:

Use respiratory protection where ventilation is insufficient or exposure is prolonged.

Use adequate protective respiratory equipment.

In case of insufficient ventilation use mask with A filters (EN 14387).).

Personal Protective Equipment should comply with relevant CE standards (as EN 374 for gloves and EN 166 for goggles), correctly maintained and stored. Consult the supplier to check the suitability of equipment against specific chemicals and for user information.

##### Thermal Hazards:

None

##### Environmental exposure controls:

None

##### Appropriate engineering controls:

None

## SECTION 9: Physical and chemical properties

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

Appearance:	liquid	
Colour:	various	
Odour:	typical	
Odour threshold:	N.A.	
pH:	N.A.	
Melting point / freezing point:	N.A.	
Initial boiling point and boiling range:	N.A.	
Solid/gas flammability:	N.A.	
Upper/lower flammability or explosive limits:	N.A.	
Vapour density:	N.A.	
Flash point:	>195 °C	
Evaporation rate:	N.A.	
Vapour pressure:	N.A.	



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Relative density:	1,1 g/cm <sup>3</sup> (23°C)
Vapour density (air=1):	N.A.
Solubility in water:	N.A.
Solubility in oil:	N.A.
Viscosity:	N.A.
Auto-ignition temperature:	N.A.
Explosion limits(by volume):	N.A.
Decomposition temperature:	N.A.
Partition coefficient (n-octanol/water):	N.A.
Explosive properties:	N.A.
Oxidizing properties:	N.A.
9.2. Other information	
Miscibility:	N.A.
Fat Solubility:	N.A.
Conductivity:	N.A.
Substance Groups relevant properties	N.A.

#### SECTION 10: Stability and reactivity

- 10.1. Reactivity
  - Stable under normal conditions
- 10.2. Chemical stability
  - Stable under normal conditions
- 10.3. Possibility of hazardous reactions
  - It may generate flammable gases on contact with elementary metals (alkalis and alkaline earth, alloys in powder or vapours) and powerful reducing agents.
  - It may generate toxic gases on contact with oxidising mineral acids, and powerful oxidising agents.
  - It may catch fire on contact with oxidising mineral acids, and powerful oxidising agents.
- 10.4. Conditions to avoid
  - Stable under normal conditions.
- 10.5. Incompatible materials
  - None in particular.
- 10.6. Hazardous decomposition products
  - None.
  - It releases carbon dioxide in contact with water
  - It polymerises on heating

#### SECTION 11: Toxicological information

- 11.1. Information on toxicological effects
  - Route(s) of entry:
  - Ingestion: Yes
  - Inhalation: Yes
  - Contact: No
  - There is no toxicological data available on the mixture. Consider the individual concentration of each component to assess toxicological effects resulting from exposure to the mixture.
  - Toxicological information on main components of the mixture:
    - Toxicological information of the product: N.A.
    - Toxicological information of the main substances found in the product:
      - diphenylmethanediisocyanate isomers and homologues - CAS: 9016-87-9
      - a) acute toxicity:
        - Test: LD50 - Route: Oral - Species: Rat > 10000 mg/kg
        - Test: LD50 - Route: Skin - Species: Rabbit > 9400 mg/kg
        - Test: LC50 - Route: Inhalation Dust - Species: Rat = 0.31 mg/l - Duration: 4h



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g) reproductive toxicity:

Test: map1 - Route: Inhalation - Species: Rat = 12 mg/m<sup>3</sup>

4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate - CAS: 101-68-8

a) acute toxicity:

Test: LD50 - Route: Oral - Species: Rat > 2000 mg/kg

Test: LD50 - Route: Skin - Species: Rabbit > 9400 mg/kg

Test: LC50 - Route: Inhalation Dust - Species: Rat = 0.368 mg/l - Duration: 4h

b) skin corrosion/irritation:

Test: Skin Irritant - Route: Skin - Species: Rabbit : Positive

d) respiratory or skin sensitisation:

Test: Skin Sensitization - Route: Skin - Species: Mouse : Positive

Test: Respiratory Sensitization - Route: Inhalation : Positive

f) carcinogenicity:

Test: Carcinogenicity - Route: Inhalation - Species: Rat = 6 mg/m<sup>3</sup> - Notes: 2 y

g) reproductive toxicity:

Test: map1 - Route: Inhalation - Species: Rat = 12 mg/m<sup>3</sup> - Notes: 20 d

o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate - CAS: 5873-54-1

a) acute toxicity:

Test: LC50 - Route: Inhalation Dust - Species: Rat = 0.387 mg/l - Duration: 4h

Test: LD50 - Route: Skin - Species: Rabbit > 9400 mg/kg

Test: LD50 - Route: Oral - Species: Rat > 2000 mg/kg

e) germ cell mutagenicity:

Test: map1 - Route: Inhalation - Species: Rat = 12 mg/m<sup>3</sup>

2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate - CAS: 2536-05-2

a) acute toxicity:

Test: LD50 - Route: Oral - Species: Rat > 2000 mg/kg

Test: LC50 - Route: Inhalation Dust - Species: Rat = 0.527 mg/l - Duration: 4h

Test: LD50 - Route: Skin - Species: Rabbit > 9400 mg/kg

e) germ cell mutagenicity:

Test: map1 - Route: Inhalation - Species: Rat = 12 mg/m<sup>3</sup>

Corrosive/Irritating Properties:

Skin:

The product can cause irritation by contact.

Eye:

The product can cause irritation by contact

Cancerogenic Effects:

May cause cancer

Mutagenic Effects:

No effects are known.

Teratogenic Effects:

No effects are known.

Additional Information:

For this reason, the contact with the skin should be avoided. Once sensitization has occurred, exposures to small amounts of material may cause erythema and edema locally.

Carcinogenic category 3

If not differently specified, the information required in Regulation (EU)2015/830 listed below must be considered as N.A.:

a) acute toxicity

b) skin corrosion/irritation

c) serious eye damage/irritation

d) respiratory or skin sensitisation

e) germ cell mutagenicity

f) carcinogenicity

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- g) reproductive toxicity
- h) STOT-single exposure
- i) STOT-repeated exposure
- j) aspiration hazard

#### SECTION 12: Ecological information

##### 12.1. Toxicity

Adopt good industrial practices, so that the product is not released into the environment.

Not available data on the mixture

diphenylmethanediisocyanate isomers and homologues - CAS: 9016-87-9

##### a) Aquatic acute toxicity:

Endpoint: LC50 - Species: Fish > 1000 mg/l - Duration h: 96

Endpoint: EC50 - Species: Daphnia > 1000 mg/l - Duration h: 24

Endpoint: EC50 - Species: Algae > 1640 mg/l - Duration h: 72

##### b) Aquatic chronic toxicity:

Endpoint: NOEC - Species: Daphnia > 10 mg/l - Notes: 21 d

##### c) Bacteria toxicity:

Endpoint: EC50 > 100 mg/l - Duration h: 3

##### d) Terrestrial toxicity:

Endpoint: NOEC > 1000 mg/kg - Notes: 14 d

##### e) Plant toxicity:

Endpoint: NOEC > 1000 mg/kg - Notes: 14 d

4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate - CAS: 101-68-8

##### a) Aquatic acute toxicity:

Endpoint: LC50 - Species: Fish > 1000 mg/l - Duration h: 96

Endpoint: EC50 - Species: Daphnia > 1000 mg/l - Duration h: 24

Endpoint: EC50 - Species: Algae > 1640 mg/l - Duration h: 72

##### b) Aquatic chronic toxicity:

Endpoint: NOEC - Species: Daphnia > 10 mg/l - Notes: 21 d

##### c) Bacteria toxicity:

Endpoint: EC50 > 100 mg/l - Duration h: 3

##### d) Terrestrial toxicity:

Endpoint: NOEC > 1000 mg/kg - Notes: 14 d

##### e) Plant toxicity:

Endpoint: NOEC > 1000 mg/kg - Notes: 14 d

o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate - CAS: 5873-54-1

##### a) Aquatic acute toxicity:

Endpoint: LC50 - Species: Fish > 1000 mg/l - Duration h: 96

Endpoint: EC50 - Species: Daphnia > 1000 mg/l - Duration h: 24

Endpoint: EC50 - Species: Algae > 1640 mg/l - Duration h: 72

##### b) Aquatic chronic toxicity:

Endpoint: NOEC - Species: Daphnia > 10 mg/l - Notes: 21 d

##### c) Bacteria toxicity:

Endpoint: EC50 > 100 mg/l - Duration h: 3

##### d) Terrestrial toxicity:

Endpoint: NOEC > 1000 mg/kg - Notes: 14 d

##### e) Plant toxicity:

Endpoint: NOEC > 1000 mg/kg - Notes: 14 d

2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate - CAS: 2536-05-2

##### a) Aquatic acute toxicity:

Endpoint: LC50 - Species: Fish > 1000 mg/l - Duration h: 96

Endpoint: EC50 - Species: Daphnia > 1000 mg/l - Duration h: 24

Endpoint: EC50 - Species: Algae > 1640 mg/l - Duration h: 72

##### b) Aquatic chronic toxicity:

Endpoint: NOEC - Species: Daphnia > 10 mg/l - Notes: 21 d

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- c) Bacteria toxicity:  
Endpoint: EC50 > 100 mg/l - Duration h: 3
- d) Terrestrial toxicity:  
Endpoint: NOEC > 1000 mg/kg - Notes: 14 d
- e) Plant toxicity:  
Endpoint: NOEC > 1000 mg/kg - Notes: 14 d
- 12.2. Persistence and degradability  
N.A.
- 12.3. Bioaccumulative potential  
N.A.
- 12.4. Mobility in soil  
N.A.
- 12.5. Results of PBT and vPvB assessment  
vPvB Substances: None - PBT Substances: None
- 12.6. Other adverse effects  
None  
Not available data on the mixture

#### SECTION 13: Disposal considerations

- 13.1. Waste treatment methods  
Recover, if possible. Send to authorised disposal plants or for incineration under controlled conditions. In so doing, comply with the local and national regulations currently in force.  
91/156/EEC, 91/689/EEC, 94/62/EC and subsequent amendments.  
Disposal of not hardened product (EC waste code) : 07 02 08  
The suggested European waste code is just based on the composition of the product.  
According to the specific process or application field a different waste code may be necessary.

#### SECTION 14: Transport information

- 14.1. UN number  
Not classified as dangerous in the meaning of transport regulations.  
UN Number: ==
- 14.2. UN proper shipping name  
N.A.
- 14.3. Transport hazard class(es)  
Rail/Road(RID/ADR): no dangerous good  
ADR-Upper number: NA  
Air (ICAO/IATA): no dangerous good  
Sea (IMO/IMDG): no dangerous good  
N.A.
- 14.4. Packing group  
N.A.
- 14.5. Environmental hazards  
Marine pollutant: No  
N.A.
- 14.6. Special precautions for user  
N.A.
- 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code  
No

#### SECTION 15: Regulatory information

- 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture  
Dir. 98/24/EC (Risks related to chemical agents at work)  
Dir. 2000/39/EC (Occupational exposure limit values)

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Regulation (EC) n. 1907/2006 (REACH)  
Regulation (EC) n. 1272/2008 (CLP)  
Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013  
Regulation (EU) 2015/830  
Regulation (EU) n. 286/2011 (ATP 2 CLP)  
Regulation (EU) n. 618/2012 (ATP 3 CLP)  
Regulation (EU) n. 487/2013 (ATP 4 CLP)  
Regulation (EU) n. 944/2013 (ATP 5 CLP)

Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:

Restrictions related to the product:

Restriction 3

Restrictions related to the substances contained:

Restriction 56

REACH Regulation (1907/2006) – All. XVII: N.A.

Legislative Decree no. 81 of the 9th of April 2008 Title XI "Dangerous substances - Chapter I - Protection against chemical agents"

Directive 2000/39/CE and s.m.i. (Professional threshold limit)

Legislative Decree no. 152 of the 3rd of April 2006 and subsequent modifications and additions. (Environmental regulations)

Directive 105/2003/CE (Seveso III): N.A.

ADR Agreement – IMDG Code – IATA Regulation

VOC (2004/42/EC) : N.A. g/l

Provisions related to directive EU 2012/18 (Seveso III):

N.A.

15.2. Chemical safety assessment

No

#### SECTION 16: Other information

Text of phrases referred to under heading 3:

H332 Harmful if inhaled.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

H315 Causes skin irritation.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H317 May cause an allergic skin reaction.

H373 May cause damage to organs through prolonged or repeated exposure.

H351 Suspected of causing cancer.

H373 May cause damage to organs through prolonged or repeated exposure if inhaled.

Paragraphs modified from the previous revision:

SECTION 2: Hazards identification

SECTION 3: Composition/information on ingredients

SECTION 5: Firefighting measures

SECTION 6: Accidental release measures

SECTION 8: Exposure controls/personal protection

SECTION 11: Toxicological information

SECTION 12: Ecological information

SECTION 16: Other information

This document was prepared by a competent person who has received appropriate training.

Main bibliographic sources:

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NIOSH - Registry of toxic effects of chemical substances

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre,  
Commission of the European Communities

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.

It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

This MSDS cancels and replaces any preceding release.

ADR:	European Agreement concerning the International Carriage of Dangerous Goods by Road.
CAS:	Chemical Abstracts Service (division of the American Chemical Society).
CLP:	Classification, Labeling, Packaging.
DNEL:	Derived No Effect Level.
EINECS:	European Inventory of Existing Commercial Chemical Substances.
GefStoffVO:	Ordinance on Hazardous Substances, Germany.
GHS:	Globally Harmonized System of Classification and Labeling of Chemicals.
IATA:	International Air Transport Association.
IATA-DGR:	Dangerous Goods Regulation by the "International Air Transport Association" (IATA).
ICAO:	International Civil Aviation Organization.
ICAO-TI:	Technical Instructions by the "International Civil Aviation Organization" (ICAO).
IMDG:	International Maritime Code for Dangerous Goods.
INCI:	International Nomenclature of Cosmetic Ingredients.
KSt:	Explosion coefficient.
LC50:	Lethal concentration, for 50 percent of test population.
LD50:	Lethal dose, for 50 percent of test population.
LTE:	Long-term exposure.
PNEC:	Predicted No Effect Concentration.
RID:	Regulation Concerning the International Transport of Dangerous Goods by Rail.
STE:	Short-term exposure.
STEL:	Short Term Exposure limit.
STOT:	Specific Target Organ Toxicity.
TLV:	Threshold Limiting Value.
TWATLV:	Threshold Limit Value for the Time Weighted Average 8 hour day. (ACGIH Standard).
OEL:	Substance with a Union workplace exposure limit.
VLE:	Threshold Limiting Value.
WGK:	German Water Hazard Class.
TSCA:	United States Toxic Substances Control Act Inventory
DSL:	DSL - Canadian Domestic Substances List
N.A.:	Not available