

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 28.01.2022

Version number 1

Revision: 28.01.2022

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

1.1 Product identifier

· Trade name: **ISO PMDI 2020**

· CAS Number:

9016-87-9

· Registration number 01-2119457024-46

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

No further relevant information available.

· Application of the substance / the preparation :

Di/poly-isocyanate component for the manufacture of polyurethanes

1.3 Details of the supplier of the safety data sheet

· Manufacturer/Supplier:

TPF Industrie

Lieu dit la Cabane Vieille

13550 NOVES

Tel :(+33)4 28 70 48 10

contact@tpf-industrie.fr

1.4 Emergency telephone number:

France (INRS 24h/24) - Tel : +33 (0)1 45 42 59 59

Ireland - Tel : 00 353 1 8092568 - 00 353 1 8379964 (24h/24) EU Tel: 112

Belgium - Brüssel: +32 070/245 245

UK : Call NHS 999 in a medical emergency. If you urgently need medical help or advice but it's not a life-threatening situation, call 111 (24/7). The NHS 111 number is currently only available in certain areas. If you're outside of these areas, you should call NHS Direct on 0845 4647

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

· Classification according to Regulation (EC) No 1272/2008 :



GHS08 health hazard

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Carc. 2 H351 Suspected of causing cancer.

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.



GHS07

Acute Tox. 4 H332 Harmful if inhaled.

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2 H319 Causes serious eye irritation.

Skin Sens. 1 H317 May cause an allergic skin reaction.

STOT SE 3 H335 May cause respiratory irritation.

2.2 Label elements

· Labelling according to Regulation (EC) No 1272/2008

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

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- **Hazard pictograms**



GHS07 GHS08

- **Signal word** Danger

- **Hazard-determining components of labelling:**

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

- **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.
 P260 Do not breathe dust/fume/gas/mist/vapours/spray.
 P264 Wash thoroughly after handling.
 P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing 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/doctor if you feel unwell.

- **Additional information:**

EUH204 Contains isocyanates. May produce an allergic reaction.
 As from 24 August 2023 adequate training is required before industrial or professional use.

- **2.3 Other hazards**

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

- **3.1 Chemical characterisation: Substances**

- **CAS No. Description**

CAS: 9016-87-9 diphenylmethanediisocyanate, isomeres and homologues

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· Dangerous components:

CAS: 9016-87-9 RTECS: TR 0320000 Reg.nr.: 01-2119457024-46	diphenylmethanediisocyanate, isomeres and homologues ≥50-<75%  Resp. Sens. 1, H334; Carc. 2, H351; STOT RE 2, H373;  Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335 Specific concentration limits: Eye Irrit. 2; H319: C ≥ 5 % Skin Irrit. 2; H315: C ≥ 5 % Resp. Sens. 1; H334: C ≥ 0.1 % STOT SE 3; H335: C ≥ 5 %
CAS: 101-68-8 EINECS: 202-966-0 Index number: 615-005-00-9 RTECS: NQ 9350000 Reg.nr.: 01-2119457014-47-xxxx	4,4'-methylenediphenyl diisocyanate ≥25-<50%  Resp. Sens. 1, H334; Carc. 2, H351; STOT RE 2, H373;  Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335 Specific concentration limits: Eye Irrit. 2; H319: C ≥ 5 % Skin Irrit. 2; H315: C ≥ 5 % Resp. Sens. 1; H334: C ≥ 0.1 % STOT SE 3; H335: C ≥ 5 %
CAS: 5873-54-1 EINECS: 227-534-9 Index number: 615-005-00-9 Reg.nr.: 01-2119480143-45-XXXX	o-(p-isocyanatobenzyl)phenyl isocyanate ≥1-<5%  Resp. Sens. 1, H334; Carc. 2, H351; STOT RE 2, H373;  Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335 Specific concentration limits: Eye Irrit. 2; H319: C ≥ 5 % Skin Irrit. 2; H315: C ≥ 5 % Resp. Sens. 1; H334: C ≥ 0.1 % STOT SE 3; H335: C ≥ 5 %
CAS: 2536-05-2 EINECS: 219-799-4 Index number: 615-005-00-9	2,2'-methylenediphenyl diisocyanate ≥0.1-<1%  Resp. Sens. 1, H334; Carc. 2, H351; STOT RE 2, H373;  Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335 Specific concentration limits: Eye Irrit. 2; H319: C ≥ 5 % Skin Irrit. 2; H315: C ≥ 5 % Resp. Sens. 1; H334: C ≥ 0.1 % STOT SE 3; H335: C ≥ 5 %

· SVHC No**SECTION 4: First aid measures****· 4.1 Description of first aid measures****· After inhalation:**

Supply fresh air and to be sure call for a doctor.

In case of unconsciousness place patient in a stable laying down side position for transportation.

· After skin contact: Immediately wash with water and soap and rinse thoroughly.**· After eye contact:**

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

· After swallowing: Do not induce vomiting; call for medical help immediately.

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- **4.2 Most important symptoms and effects, both acute and delayed :**
No further relevant information available.
- **4.3 Indication of any immediate medical attention and special treatment needed :**
No further relevant information available.

SECTION 5: Firefighting measures

- **5.1 Suitable extinguishing agents:** Use fire extinguishing methods suitable to surrounding conditions.
- **5.2 Special hazards arising from the substance or mixture :** No further relevant information available.
- **5.3 Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures :** Not required.
- **6.2 Environmental precautions:**
Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow the product to enter sewers/ surface water or ground water.
- **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **6.4 Reference to other sections :**
See Section 7 for information on safe handling.
See Section 8 for information on personal protective equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling :**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
- **Information about fire - and explosion protection:** No special measures required.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep container tightly sealed.
- **7.3 Specific end use(s) :** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**
- **Additional information about design of technical facilities:** No further data; see section 7.
- **Ingredients with limit values that require monitoring at the workplace:**

CAS: 9016-87-9 diphenylmethanediisocyanate, isomeres and homologues (50-100%)

WEL (Great Britain) Short-term value: 0.07 mg/m³
 Long-term value: 0.02 mg/m³
 Sen; as -NCO

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MAK (Switzerland) Short-term value: 0.02 mg/m³
 Long-term value: 0.02 mg/m³
 SB;als Gesamt-NCO gemessen

CAS: 101-68-8 4,4'-methylenediphenyl diisocyanate (25-<50%)

WEL (Great Britain) Short-term value: 0.07 mg/m³
 Long-term value: 0.02 mg/m³
 Sen; as -NCO

MAK (Switzerland) Short-term value: 0.02 mg/m³
 Long-term value: 0.02 mg/m³
 SB;als Gesamt-NCO gemessen

CAS: 5873-54-1 o-(p-isocyanatobenzyl)phenyl isocyanate (<5%)

WEL (Great Britain) Short-term value: 0.07 mg/m³
 Long-term value: 0.02 mg/m³
 Sen; as -NCO

MAK (Switzerland) Short-term value: 0.02 mg/m³
 Long-term value: 0.02 mg/m³
 SB;als Gesamt-NCO gemessen

CAS: 2536-05-2 2,2'-methylenediphenyl diisocyanate (<1%)

WEL (Great Britain) Short-term value: 0.07 mg/m³
 Long-term value: 0.02 mg/m³
 Sen; as -NCO

MAK (Switzerland) Short-term value: 0.02 mg/m³
 Long-term value: 0.02 mg/m³
 SB;als Gesamt-NCO gemessen

· DNELs**CAS: 101-68-8 4,4'-methylenediphenyl diisocyanate**

Inhalative DNEL Public acute/short-term local effects 0.05 mg/m³
 DNEL Worker acute/short-term local effects 0.1 mg/m³

· PNECs**CAS: 101-68-8 4,4'-methylenediphenyl diisocyanate**

PNEC STP 1.01 mg/L
 PNEC aqua (fresh water) 1 mg/L
 PNEC aqua (marine water) 0.11 mg/L
 PNEC soil 1.01 mg/kg

· Ingredients with biological limit values:**CAS: 101-68-8 4,4'-methylenediphenyl diisocyanate (25-<50%)**

BMGV (Great Britain) 1 µmol creatinine/mol
 Medium: urine
 Sampling time: At the end of the period od exposure
 Parameter: isocyanate-derived diamine

BAT (Switzerland) 10 µg/g Kreatinin
 Medium: U
 Sampling time: b
 Parameter: 4.4'-Diaminodiphenylmethan

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CAS: 5873-54-1 o-(p-isocyanatobenzyl)phenyl isocyanate (<5%)

BMGV (Great Britain) 1 µmol creatinine/mol

Medium: urine

Sampling time: At the end of the period of exposure

Parameter: isocyanate-derived diamine

CAS: 2536-05-2 2,2'-methylenediphenyl diisocyanate (<1%)

BMGV (Great Britain) 1 µmol creatinine/mol

Medium: urine

Sampling time: At the end of the period of exposure

Parameter: isocyanate-derived diamine

Additional information:

The most current valid lists have been used as a basis for the production of this document.

8.2 Exposure controls**Personal protective equipment:****General protective and hygienic measures:**

Keep away from food, beverages and petfood.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Respiratory protection:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

Filter A/P2

Protection of hands:

Protective gloves

EN 374

Gloves material :Recommended thickness of the material: ≥ 0.35 mm

Butyl rubber, BR

Penetration time of glove material

For the mixture of chemicals mentioned below the penetration time has to be at least 60 minutes (Permeation according to EN 16523-1:2015: Level 3).

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection:

Tightly sealed goggles

EN 166

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· **Body protection:**

Protective work clothing

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**· **General Information**· **Appearance:**

· Form:	Liquid
· Colour:	Brown
· Odour:	Rancid
· Odour threshold:	Not determined.

· **pH-value:** Mixture is non-polar/aprotic.· **Change in condition**

· Melting point/freezing point:	<0 °C
· Initial boiling point and boiling range:	>300 °C

· **Flash point:** 226 °C· **Flammability (solid, gas):** Not applicable.· **Ignition temperature:** >500 °C· **Decomposition temperature:** Not determined.· **Auto-ignition temperature:** Not determined.· **Explosive properties:** Product does not present an explosion hazard.· **Explosion limits:**

· Lower:	Not determined.
· Upper:	Not determined.

· **Vapour pressure at 20 °C:** <0.00001 hPa· **Density at 20 °C:** 1.238 g/cm³· **Relative density :** Not determined.· **Vapour density :** Not determined.· **Evaporation rate :** Not determined.· **Solubility in / Miscibility with water:**

Not miscible or difficult to mix.

· **Segregation coefficient (n-octanol/water):** Not determined.· **Viscosity:**

· Dynamic at 20 °C:	≥200 mPas
· Kinematic:	Not determined.

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COV (CH) : 0.00 %

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· **9.2 Other information :** No further relevant information available.

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:** To avoid thermal decomposition do not overheat.
- **10.3 Possibility of hazardous reactions :**
 - Reacts with amines.
 - Reacts with alcohols.
 - Reacts with water.
 - Spontaneous polymerisation can be caused in unstabilised product e.g. by ambient heat.
- **10.4 Conditions to avoid :** Avoid heat, flames and other ignition sources
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** Carbon monoxide and carbon dioxide

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity**
 - Harmful if inhaled.
- **LD/LC50 values relevant for classification:**

CAS: 9016-87-9 diphenylmethanediisocyanate, isomeres and homologues

Oral LD50 >15,000 mg/kg (rat)
 Dermal LD50 >9,000 mg/kg (rabbit)
 Inhalative LC50/4 h 490 mg/l (rat)

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

Oral LD50 2,200 mg/kg (mouse)
 >2,000 mg/kg (rat)
 Dermal LD50 >9,400 mg/kg (Oryctolagus sp)
 Inhalative LC50/4 h 2.24 mg/l (rat)

CAS: 5873-54-1 o-(p-isocyanatobenzyl)phenyl isocyanate

Oral LD50 >2,000 mg/kg (rat)
 Dermal LD50 >9,400 mg/kg (Oryctolagus sp)
 Inhalative LC50/4 h 1.5 mg/l (rat)

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

Inhalative LC50/4 h 1.5 mg/l (ATE)

- **Primary irritant effect:**
- **On the skin:**
 - Causes skin irritation.
- **On the eyes:**
 - Causes serious eye irritation.
- **Respiratory or skin sensitization**
 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 - May cause an allergic skin reaction.

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- **Additional toxicological information:**
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity**
Suspected of causing cancer.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure**
May cause respiratory irritation.
- **STOT-repeated exposure**
May cause damage to organs through prolonged or repeated exposure.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:**

CAS: 9016-87-9 diphenylmethanediisocyanate, isomeres and homologues

LC50 96h >1,000 mg/l (fish)

NOEC >10 mg/l (daphnia)

EC50 72h >1,640 mg/l (Algae)

EC50 24h >1,000 mg/l (daphnia)

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

LC50 96h >1,000 mg/l (fish)

CAS: 5873-54-1 o-(p-isocyanatobenzyl)phenyl isocyanate

LC50 96h >1,000 mg/l (fish)

EC50 72h >1,640 mg/l (Algae)

- **12.2 Persistence and degradability** : No further relevant information available.
- **12.3 Bioaccumulative potential** : No further relevant information available.
- **12.4 Mobility in soil** : No further relevant information available.

- **Additional ecological information:**

- **General notes:**

Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water.

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

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

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

- **12.6 Other adverse effects** : No further relevant information available.

SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation :**



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

- **European waste catalogue**

HP4 Irritant - skin irritation and eye damage

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HP5 Specific Target Organ Toxicity (STOT)/Aspiration Toxicity

HP7 Carcinogenic

HP13 Sensitising

- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

- **14.1 UN-Number**
- **ADR, IMDG, IATA** Not classified as hazardous for transport
- **14.2 UN proper shipping name**
- **ADR, IMDG, IATA** Not classified as hazardous for transport
- **14.3 Transport hazard class(es)**
- **ADR, ADN, IMDG, IATA**
- **Class** Not classified as hazardous for transport
- **14.4 Packing group**
- **ADR, IMDG, IATA** Not classified as hazardous for transport
- **14.5 Environmental hazards:** Not applicable.
- **14.6 Special precautions for user** Not applicable.
- **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code** Not applicable.
- **UN "Model Regulation":** Not classified as hazardous for transport

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** Substance is not listed.
- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3, 56a, 56b, 56c, 74
- **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**
None of the ingredients is listed.
- **REGULATION (EU) 2019/1148**
- **Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**
None of the ingredients is listed.
- **Annex II - REPORTABLE EXPLOSIVES PRECURSORS**
- None of the ingredients is listed.
- **Regulation (EC) No 273/2004 on drug precursors**
- None of the ingredients is listed.
- **Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**
None of the ingredients is listed.
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Relevant phrases

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

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

H335 May cause respiratory irritation.

H351 Suspected of causing cancer.

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

· Abbreviations and acronyms:

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOCV: Lenkungsabgabe auf flüchtigen organischen Verbindungen, Schweiz (Swiss Ordinance on volatile organic compounds)

DNEL: Derived No-Effect Level (REACH)

PNEC: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

Acute Tox. 4: Acute toxicity – Category 4

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

Resp. Sens. 1: Respiratory sensitisation – Category 1

Skin Sens. 1: Skin sensitisation – Category 1

Carc. 2: Carcinogenicity – Category 2

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2