SAFETY DATA SHEET

Based upon Regulation (EC) No 1907/2006, as amended by Regulation (EU) No 2020/878

NOVA POWER GRIP 401 2-K PREPOLYMER

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

1.1. Product identifier

Product name : NOVA POWER GRIP 401 2-K PREPOLYMER
Registration number REACH : Not applicable (mixture)
Product type REACH : Mixture

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

1.2.1 Relevant identified uses

Adhesive

1.2.2 Uses advised against

No uses advised against known

1.3. Details of the supplier of the safety data sheet

Supplier of the safety data sheet

Novatio*
Industrielaan 5B
B-2250 Olen
☎ +32 14 25 76 40
🖷 +32 14 22 02 66
info@novatio.be
*NOVATIO is a registered trademark of Novatech International N.V.

Manufacturer of the product

Novatech International N.V.
Industrielaan 5B
B-2250 Olen
☎ +32 14 85 97 37
🖷 +32 14 85 97 38
info@novatech.be

1.4. Emergency telephone number

24h/24h (Telephone advice: English, French, German, Dutch) :
+32 14 58 45 45 (BIG)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classified as dangerous according to the criteria of Regulation (EC) No 1272/2008

Class	Category	Hazard statements
Carc.	category 2	H351: Suspected of causing cancer.
Resp. Sens.	category 1	H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin Sens.	category 1	H317: May cause an allergic skin reaction.
Acute Tox.	category 4	H332: Harmful if inhaled.
STOT RE	category 2	H373: May cause damage to organs through prolonged or repeated exposure if inhaled.
Skin Irrit.	category 2	H315: Causes skin irritation.
Eye Irrit.	category 2	H319: Causes serious eye irritation.
STOT SE	category 3	H335: May cause respiratory irritation.

2.2. Label elements

Contains: polymethylene polyphenyl isocyanate, conc monomer <0.1%; 4,4'-methylenediphenyl diisocyanate; reaction mass of 4,4'-methylene diphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate / methylene diphenyl diisocyanate; 4,4'-methylenediphenyl diisocyanate, oligomers.

Signal word Danger
H-statements
H351 Suspected of causing cancer.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317 May cause an allergic skin reaction.

H332	Harmful if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure if inhaled.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

P-statements

P280	Wear protective gloves, protective clothing and eye protection/face protection.
P304 + P340	IF INHALED: Remove person to fresh air and keep 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.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P342 + P311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
	As from 24 August 2023 adequate training is required before industrial or professional use.

2.3. Other hazards

Caution! Substance is absorbed through the skin

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name REACH Registration No	CAS No EC No List No	Conc. (C)	Classification according to CLP	Note	Remark	M-factors and ATE
polymethylene polyphenyl isocyanate	9016-87-9 618-498-9	10% ≤C<20%	Carc. 2; H351 Resp. Sens. 1; H334 Skin Sens. 1; H317 Acute Tox. 4; H332 STOT RE 2; H373 Skin Irrit. 2; H315 Eye Irrit. 2; H319 STOT SE 3; H335 Resp. Sens. 1; H334: C≥0.1%, (analogous to Annex VI) Skin Irrit. 2; H315: C≥5%, (analogous to Annex VI) Eye Irrit. 2; H319: C≥5%, (analogous to Annex VI) STOT SE 3; H335: C≥5%, (analogous to Annex VI)	(1)(2)(10)(V)	Constituent	
4,4'-methylenediphenyl diisocyanate 01-2119457014-47	101-68-8 202-966-0	10% ≤C<20%	Carc. 2; H351 Resp. Sens. 1; H334 Skin Sens. 1; H317 Acute Tox. 4; H332 STOT RE 2; H373 Skin Irrit. 2; H315 Eye Irrit. 2; H319 STOT SE 3; H335 Resp. Sens. 1; H334: C≥0.1%, (CLP Annex VI (ATP 1)) Skin Irrit. 2; H315: C≥5%, (CLP Annex VI (ATP 1)) Eye Irrit. 2; H319: C≥5%, (CLP Annex VI (ATP 1)) STOT SE 3; H335: C≥5%, (CLP Annex VI (ATP 1))	(1)(2)(10)	Constituent	

reaction mass of 4,4'-methylene diphenyl diisocyanate and o-(p-isocyanatobenzyl) phenyl isocyanate / methylene diphenyl diisocyanate 01-2119457015-45	905-806-4	1%≤C<10%	Carc. 2; H351 Resp. Sens. 1; H334 Skin Sens. 1; H317 Acute Tox. 4; H332 STOT RE 2; H373 Skin Irrit. 2; H315 Eye Irrit. 2; H319 STOT SE 3; H335 Resp. Sens. 1; H334: C≥0.1%, (ECHA) Skin Irrit. 2; H315: C≥5%, (ECHA) Eye Irrit. 2; H319: C≥5%, (ECHA) STOT SE 3; H335: C≥5%, (ECHA)	(1)(2)(10)	Constituent	
4,4'-methylenediphenyl diisocyanate, oligomers	25686-28-6 500-040-3	1%≤C<10%	Carc. 2; H351 Resp. Sens. 1; H334 Skin Sens. 1; H317 Acute Tox. 4; H332 STOT RE 2; H373 Skin Irrit. 2; H315 Eye Irrit. 2; H319 STOT SE 3; H335	(1)(10)	Constituent	

(1) For H- and EUH-statements in full: see section 16
(2) Substance with a Community workplace exposure limit
(10) Subject to restrictions of Annex XVII of Regulation (EC) No. 1907/2006
(V) Exempted from registration under REACH (Regulation (EC) No 1907/2006, article 2 (9), polymers)
Note: numbers 9xx-xxx-x are provisional list numbers assigned by Echa pending an official EC inventory number

SECTION 4: First aid measures

4.1. Description of first aid measures

General:
Observe (own) safety. If possible, approach victim and check vital functions. In case of injury and/or intoxication, call the European emergency number 112. Treat symptoms starting with most life-threatening injuries and disorders. Keep victim under observation, possibility of delayed symptoms.

After inhalation:
Remove victim into fresh air. In case of respiratory problems, consult a doctor/medical service.

After skin contact:
If possible, wipe up/dry remove chemical. Then rinse/shower immediately with (lukewarm) water. If irritation persists, consult a doctor/medical service.

After eye contact:
Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, consult a doctor/medical service.

After ingestion:
Rinse mouth with water. If you feel unwell, consult a doctor/medical service. Do not wait for symptoms to occur to consult Poison Center.

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

4.2.1 Acute symptoms

After inhalation:
Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes. Headache. FOLLOWING SYMPTOMS MAY APPEAR LATER: Risk of lung oedema.

After skin contact:
Tingling/irritation of the skin.

After eye contact:
Irritation of the eye tissue.

After ingestion:
Irritation of the gastric/intestinal mucosa. Nausea. Vomiting. Diarrhoea.

4.2.2 Delayed symptoms
No effects known.

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

If applicable and available it will be listed below.

SECTION 5: Firefighting measures

5.1. Extinguishing media

5.1.1 Suitable extinguishing media:
Small fire: Quick-acting ABC powder extinguisher, Quick-acting BC powder extinguisher, Quick-acting class B foam extinguisher, Quick-acting CO2 extinguisher.
Major fire: Class B foam (not alcohol-resistant).

5.1.2 Unsuitable extinguishing media:

Small fire: Water (quick-acting extinguisher, reel); risk of puddle expansion.

Major fire: Water; risk of puddle expansion.

5.2. Special hazards arising from the substance or mixture

On burning: release of toxic and corrosive gases/vapours (nitrous vapours, carbon monoxide - carbon dioxide). On heating: release of toxic/combustible gases/vapours (hydrogen cyanide, isocyanates). Decomposes on exposure to water (moisture).

5.3. Advice for firefighters

5.3.1 Instructions:

If exposed to fire cool the closed containers by spraying with water. Dilute toxic gases with water spray. Take account of toxic/corrosive precipitation water. Use water moderately and if possible collect or contain it. Take account of environmentally hazardous firefighting water.

5.3.2 Special protective equipment for fire-fighters:

Gloves (EN 374). Face shield (EN 166). Protective clothing (EN 14605 or EN 13034). Heat/fire exposure: self-contained breathing apparatus (EN 136 + EN 137).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

No naked flames. Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.

6.1.1 Protective equipment for non-emergency personnel

See section 8.2

6.1.2 Protective equipment for emergency responders

Gloves (EN 374). Face shield (EN 166). Protective clothing (EN 14605 or EN 13034).

Suitable protective clothing

See section 8.2

6.2. Environmental precautions

Contain released product. Dam up the liquid spill.

6.3. Methods and material for containment and cleaning up

Solid spill: cover with absorbent material. Scoop absorbed substance into closing containers. Carefully collect the spill/leftovers. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

6.4. Reference to other sections

See section 13.

SECTION 7: Handling and storage

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

7.1. Precautions for safe handling

Keep away from naked flames/heat. Gas/vapour heavier than air at 20°C. Observe very strict hygiene - avoid contact. Remove contaminated clothing immediately. Do not discharge the waste into the drain. Keep container tightly closed.

7.2. Conditions for safe storage, including any incompatibilities

7.2.1 Safe storage requirements:

Storage temperature: < 50 °C. Meet the legal requirements. Store at room temperature. Store in a dry area. Keep container in a well-ventilated place. Keep only in the original container. Protect against frost. Keep out of direct sunlight.

7.2.2 Keep away from:

Heat sources, (strong) acids, (strong) bases, oxidizing agents, metals, amines, alcohols, water/moisture.

7.2.3 Suitable packaging material:

No data available

7.2.4 Non suitable packaging material:

Aluminium, copper, iron, zinc.

7.3. Specific end use(s)

If applicable and available, exposure scenarios are attached in annex. See information supplied by the manufacturer.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 Occupational exposure

a) Occupational exposure limit values

If limit values are applicable and available these will be listed below.

Belgium

4,4'-Diisocyanate de diphénylméthane (MDI)	Time-weighted average exposure limit 8 h	0.005 ppm
	Time-weighted average exposure limit 8 h	0.052 mg/m³

France

4,4'-Diisocyanate de diphénylméthane	Time-weighted average exposure limit 8 h (VL: Valeur non réglementaire indicative)	0.01 ppm
	Time-weighted average exposure limit 8 h (VL: Valeur non réglementaire indicative)	0.1 mg/m³
	Short time value (VL: Valeur non réglementaire indicative)	0.02 ppm **(1)**
	Short time value (VL: Valeur non réglementaire indicative)	0.2 mg/m³ **(1)**

(1) Ces VLEP CT s'endendent pour des concentrations mesurées sur une durée de 5 min

Germany

4,4'-Methylendiphenyldiisocyanat	Time-weighted average exposure limit 8 h (TRGS 900)	0.05 mg/m³ **(1)**
	Der Arbeitsplatzgrenzwert gilt in der Regel nur für die Monomeren. Zur Beurteilung von Oligomeren oder Polymeren siehe TRGS 430 „Isocyanate“	
	Summe aus Dampf und Aerosolen.	
	Der Arbeitsplatzgrenzwert gilt in der Regel nur für die Monomeren. Zur Beurteilung von Oligomeren oder Polymeren siehe TRGS 430 „Isocyanate“	
	Summe aus Dampf und Aerosolen.	
pMDI (als MDI berechnet)	Time-weighted average exposure limit 8 h (TRGS 900)	0.05 mg/m³ **(1)**
	Der Arbeitsplatzgrenzwert gilt in der Regel nur für die Monomeren. Zur Beurteilung von Oligomeren oder Polymeren siehe TRGS 430 „Isocyanate“	

(1) Einatembare Fraktion; UF: 1 (I) =2=

Austria

Diphenylmethan-diisocyanat (alle Isomeren): Diphenylmethan-4,4’-diisocyanat Diphenylmethan-2,2’-diisocyanat Diphenylmethan-2,4’-diisocyanat	Tagesmittelwert (MAK)	0.005 ppm
	Tagesmittelwert (MAK)	0.05 mg/m³
	Kurzzeitwert 5(Mow) 8x (MAK)	0.01 ppm
	Kurzzeitwert 5(Mow) 8x (MAK)	0.1 mg/m³

UK

Isocyanates, all (as -NCO) Except methyl isocyanate	Time-weighted average exposure limit 8 h (Workplace exposure limit (EH40/2005))	0.02 mg/m³
	Short time value (Workplace exposure limit (EH40/2005))	0.07 mg/m³

USA (TLV-ACGIH)

Methylene bisphenyl isocyanate	Time-weighted average exposure limit 8 h (TLV - Adopted Value)	0.005 ppm

b) National biological limit values

If limit values are applicable and available these will be listed below.

8.1.2 Sampling methods

Product name	Test	Number
4,4-Methylene Bisphenyl Isocyanate (MDI) (Isocyanates)	NIOSH	5521
4,4'-Methylenebis(phenylisocyanate)	NIOSH	5525
4,4-Methylenediphenyl isocyanate (MDI)	NIOSH	5522
Isocyanates	NIOSH	5521
Isocyanates	NIOSH	5522
Polymeric 4-4’-Methylene Diisocyanate	OSHA	5002

8.1.3 Applicable limit values when using the substance or mixture as intended

If limit values are applicable and available these will be listed below.

8.1.4 Threshold values

DNEL/DMEL - Workers

4,4'-methylenediphenyl diisocyanate

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term local effects inhalation	0.05 mg/m³	
	Acute local effects inhalation	0.1 mg/m³	

reaction mass of 4,4'-methylene diphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate / methylene diphenyl diisocyanate

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term local effects inhalation	0.05 mg/m³	
	Acute local effects inhalation	0.1 mg/m³	

4,4'-methylenediphenyl diisocyanate, oligomers

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term local effects inhalation	0.05 mg/m³	
	Acute local effects inhalation	0.1 mg/m³	

DNEL/DMEL - General population

4,4'-methylenediphenyl diisocyanate

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term local effects inhalation	0.025 mg/m³	
	Acute local effects inhalation	0.05 mg/m³	

reaction mass of 4,4'-methylene diphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate / methylene diphenyl diisocyanate

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term local effects inhalation	0.025 mg/m³	
	Acute local effects inhalation	0.05 mg/m³	

4,4'-methylenediphenyl diisocyanate, oligomers

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term local effects inhalation	0.025 mg/m³	
	Acute local effects inhalation	0.05 mg/m³	

PNEC

4,4'-methylenediphenyl diisocyanate

Compartments	Value	Remark
Fresh water	3.7 µg/l	
Marine water	0.37 µg/l	
Fresh water (intermittent releases)	37 µg/l	
Fresh water sediment	11.7 mg/kg sediment dw	
Marine water sediment	1.17 mg/kg sediment dw	
Soil	2.33 mg/kg soil dw	

reaction mass of 4,4'-methylene diphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate / methylene diphenyl diisocyanate

Compartments	Value	Remark
Fresh water	3.7 µg/l	
Marine water	0.37 µg/l	
Fresh water (intermittent releases)	37 µg/l	
Fresh water sediment	11.7 mg/kg sediment dw	
Marine water sediment	1.17 mg/kg sediment dw	
Soil	2.33 mg/kg soil dw	

4,4'-methylenediphenyl diisocyanate, oligomers

Compartments	Value	Remark
Fresh water	1 mg/l	
Marine water	0.1 mg/l	
Fresh water (intermittent releases)	10 mg/l	
STP	1 mg/l	
Soil	1 mg/kg soil dw	

8.1.5 Control banding

If applicable and available it will be listed below.

8.2. Exposure controls

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

8.2.1 Appropriate engineering controls

Keep away from naked flames/heat. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.

8.2.2 Individual protection measures, such as personal protective equipment

Observe very strict hygiene - avoid contact. Do not eat, drink or smoke during work.

a) Respiratory protection:

Full face mask with filter type A at conc. in air > exposure limit.

b) Hand protection:

Protective gloves against chemicals (EN 374), Change gloves frequently.

Materials	Measured breakthrough time	Thickness	Protection index	Remark
butyl rubber	> 480 minutes	> 0.5 mm	Class 6	
nitrile rubber	> 480 minutes	> 0.5 mm	Class 6	

c) Eye protection:

Face shield (EN 166).

d) Skin protection:

Protective clothing (EN 14605 or EN 13034).

8.2.3 Environmental exposure controls:

See sections 6.2, 6.3 and 13

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical form	Paste
Viscosity	Viscous
Colour	Black
Odour	Mild odour
Odour threshold	No data available in the literature
Melting point	No data available in the literature
Boiling point	> 200 °C
Flammability	Not classified as flammable
Explosion limits	No data available in the literature
Flash point	203 °C
Auto-ignition temperature	No data available in the literature
Decomposition temperature	No data available in the literature
pH	Not applicable (non-soluble in water)
Kinematic viscosity	No data available in the literature
Dynamic viscosity	20000 mPa.s ; 20 °C
Solubility	Water ; insoluble
Log Kow	Not applicable (mixture)
Vapour pressure	< 0.013 hPa ; 25 °C
Absolute density	1280 kg/m³ ; 20 °C
Relative density	1.28 ; 20 °C
Relative vapour density	> 1
Particle size	Not applicable (liquid)

9.2. Other information

Evaporation rate	< 1 ; Butyl acetate

SECTION 10: Stability and reactivity

10.1. Reactivity

Heating increases the fire hazard.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Decomposes on exposure to water (moisture).

10.4. Conditions to avoid

Precautionary measures

Keep away from naked flames/heat.

10.5. Incompatible materials

(strong) acids, (strong) bases, oxidizing agents, metals, amines, alcohols, water/moisture.

10.6. Hazardous decomposition products

On heating: release of toxic/combustible gases/vapours (hydrogen cyanide, isocyanates). On burning: release of toxic and corrosive gases/vapours (nitrous vapours, carbon monoxide - carbon dioxide).

SECTION 11: Toxicological information

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

11.1.1 Test results

Acute toxicity

NOVA POWER GRIP 401 2-K PREPOLYMER

No (test)data on the mixture available

Classification is based on the relevant ingredients

polymethylene polyphenyl isocyanate

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50		> 10000 mg/kg		Rat	Literature study	
Dermal	LD50		> 5000 mg/kg		Rabbit	Literature study	
Inhalation			category 4			Literature study	

4,4'-methylenediphenyl diisocyanate

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50		> 2000 mg/kg bw		Rat (male / female)	Read-across	
Dermal	LD50	Equivalent to OECD 402	> 9400 mg/kg bw	24 h	Rabbit (male / female)	Read-across	
Inhalation (dust)	LD50	Equivalent to OECD 403	0.42 mg/l	4 h	Rat (male / female)	Experimental value	
Inhalation (dust)			category 4			Annex VI	

reaction mass of 4,4'-methylene diphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate / methylene diphenyl diisocyanate

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50		> 2000 mg/kg bw		Rat (male / female)	Experimental value	
Dermal	LD50	Equivalent to OECD 402	> 9400 mg/kg bw	24 h	Rabbit (male / female)	Read-across	
Inhalation (aerosol)	LC50	OECD 403	0.37 mg/l - 0.56 mg/l	4 h	Rat (male / female)	Experimental value	
Inhalation (aerosol)			category 4			Literature study	

4,4'-methylenediphenyl diisocyanate, oligomers

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50	OECD 425	> 5000 mg/kg bw		Rat (female)	Experimental value	
Dermal	LD50	Equivalent to OECD 402	> 9400 mg/kg bw	24 h	Rabbit (male / female)	Read-across	
Inhalation (aerosol)			category 4			Literature study	
Inhalation (aerosol)	LC50	Equivalent to OECD 403	0.49 mg/l air	4 h	Rat (male / female)	Read-across	

Conclusion

Harmful if inhaled.
Not classified as acute toxic in contact with skin
Not classified as acute toxic if swallowed

Corrosion/irritation

NOVA POWER GRIP 401 2-K PREPOLYMER

No (test)data on the mixture available

Classification is based on the relevant ingredients

polymethylene polyphenyl isocyanate

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Irritating; category 2					Literature study	
Skin	Irritating; category 2					Literature study	
Inhalation	Irritating; STOT SE cat.3					Literature study	

4,4'-methylenediphenyl diisocyanate

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Irritating	OECD 405		24; 48; 72 hours	Rabbit	Experimental value	Single treatment
Eye	Irritating	Human observation			Human	Weight of evidence	
Skin	Irritating	OECD 404	4 h	24; 48; 72 hours	Rabbit	Experimental value	
Inhalation	Irritating	Human observation			Human	Experimental value	

reaction mass of 4,4'-methylene diphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate / methylene diphenyl diisocyanate

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Not irritating	OECD 405	24 h	24; 48; 72 hours	Rabbit	Experimental value	Single treatment with rinsing
Eye	Irritating	Human observation			Human	Weight of evidence	
Skin	Irritating	OECD 404	4 h	24; 48; 72 hours	Rabbit	Experimental value	
Inhalation	Irritating	Human observation			Human	Weight of evidence	

4,4'-methylenediphenyl diisocyanate, oligomers

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Irritating; category 2					Literature study	
Eye	Not irritating	OECD 405	24 h	24; 48; 72 hours	Rabbit	Read-across	
Skin	Irritating	OECD 404	4 h	24; 48; 72 hours	Rabbit	Experimental value	
Inhalation	Irritating; STOT SE cat.3					Literature study	

Conclusion

Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.

Respiratory or skin sensitisation

NOVA POWER GRIP 401 2-K PREPOLYMER

No (test)data on the mixture available

Classification is based on the relevant ingredients

polymethylene polyphenyl isocyanate

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Skin	Sensitizing; category 1					Literature study	
Inhalation	Sensitizing; category 1					Literature study	

4,4'-methylenediphenyl diisocyanate

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Skin	Sensitizing	Equivalent to OECD 406			Guinea pig (male / female)	Experimental value	
Skin	Sensitizing	Patch test			Human	Experimental value	
Inhalation	Sensitizing				Guinea pig (female)	Experimental value	

reaction mass of 4,4'-methylene diphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate / methylene diphenyl diisocyanate

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Dermal	Sensitizing	Equivalent to OECD 406			Guinea pig (male / female)	Experimental value	
Skin	Sensitizing; category 1					Literature study	
Inhalation	Sensitizing	OECD GD-39			Guinea pig	Experimental value	

4,4'-methylenediphenyl diisocyanate, oligomers

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Skin	Sensitizing	OECD 406			Guinea pig (male / female)	Experimental value	
Inhalation	Sensitizing	OECD GD-39			Rat (male)	Experimental value	

Conclusion

May cause an allergic skin reaction.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Specific target organ toxicity

NOVA POWER GRIP 401 2-K PREPOLYMER

No (test)data on the mixture available

Classification is based on the relevant ingredients

polymethylene polyphenyl isocyanate

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Inhalation			STOT RE cat.2				Literature study	

4,4'-methylenediphenyl diisocyanate

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Inhalation (aerosol)	LOAEC	EPA OPPTS 870.3200	0.23 mg/m³ air	Respiratory tract (impairment/ degeneration)	104 weeks (6h / day, 5 days / week)	Rat (female)	Experimental value	

reaction mass of 4,4'-methylene diphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate / methylene diphenyl diisocyanate

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Inhalation (aerosol)	NOAEC	Equivalent to OECD 453	0.2 mg/m³ air	No effect		Rat (male / female)	Read-across	
Inhalation (aerosol)	LOAEC	Equivalent to OECD 453	1 mg/m³ air	Histopathology		Rat (male / female)	Read-across	

4,4'-methylenediphenyl diisocyanate, oligomers

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Inhalation (aerosol)	NOAEC	Equivalent to OECD 453	0.2 mg/m³	Respiratory tract (no effect)	104 weeks (6h / day, 5 days / week)	Rat (male / female)	Read-across	
Inhalation (aerosol)	LOAEC	Equivalent to OECD 453	1 mg/m³	Respiratory tract (histopathology)	104 weeks (6h / day, 5 days / week)	Rat (male / female)	Read-across	

Conclusion

May cause damage to organs through prolonged or repeated exposure if inhaled.
Not classified as sub-chronically toxic in contact with skin
Not classified as sub-chronically toxic if swallowed

Mutagenicity (in vitro)

NOVA POWER GRIP 401 2-K PREPOLYMER

No (test)data on the mixture available
Judgement is based on the relevant ingredients

4,4'-methylenediphenyl diisocyanate

Result	Method	Test substrate	Effect	Value determination	Remark
Negative with metabolic activation, negative without metabolic activation	EU Method B.13/14	Bacteria (S.typhimurium)	No effect	Experimental value	

reaction mass of 4,4'-methylene diphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate / methylene diphenyl diisocyanate

Result	Method	Test substrate	Effect	Value determination	Remark
Negative with metabolic activation, negative without metabolic activation	EU Method B.13/14	Bacteria (S.typhimurium)		Experimental value	

4,4'-methylenediphenyl diisocyanate, oligomers

Result	Method	Test substrate	Effect	Value determination	Remark
Negative with metabolic activation, negative without metabolic activation	OECD 471	Bacteria (S.typhimurium)	No effect	Experimental value	

Mutagenicity (in vivo)

NOVA POWER GRIP 401 2-K PREPOLYMER

No (test)data on the mixture available
Judgement is based on the relevant ingredients

4,4'-methylenediphenyl diisocyanate

Result	Method	Exposure time	Test substrate	Organ/Effect	Value determination	Remark
Negative (Inhalation (dust))	OECD 474	3 weeks (1h / day, 1 day / week)	Rat (male)	No effect	Experimental value	

reaction mass of 4,4'-methylene diphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate / methylene diphenyl diisocyanate

Result	Method	Exposure time	Test substrate	Organ/Effect	Value determination	Remark
Negative (Inhalation (aerosol))	OECD 474	3 week(s)	Rat (male)	No effect	Read-across	

4,4'-methylenediphenyl diisocyanate, oligomers

Result	Method	Exposure time	Test substrate	Organ/Effect	Value determination	Remark
Negative (Inhalation (aerosol))	OECD 489	6 h	Rat (male)	No effect	Experimental value	Single exposure

Conclusion

Not classified for mutagenic or genotoxic toxicity

Carcinogenicity

NOVA POWER GRIP 401 2-K PREPOLYMER

No (test)data on the mixture available
Classification is based on the relevant ingredients

polymethylene polyphenyl isocyanate

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Unknown			category 2				Literature study	

4,4'-methylenediphenyl diisocyanate

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Inhalation (aerosol)	NOAEC	Carcinogenic toxicity study	0.7 mg/m³ air	No carcinogenic effect	104 weeks (5 days / week)	Rat (female)	Experimental value	

reaction mass of 4,4'-methylene diphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate / methylene diphenyl diisocyanate

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Inhalation (aerosol)	NOAEC	Equivalent to OECD 453	1 mg/m³ air	No carcinogenic effect	2 year(s) (6h / day, 5 days / week)	Rat (male / female)	Read-across	
Inhalation (aerosol)	LOAEC	Equivalent to OECD 453	6 mg/m³ air	Carcinogenicity		Rat (male / female)	Read-across	

4,4'-methylenediphenyl diisocyanate, oligomers

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Inhalation (aerosol)	NOAEC	Equivalent to OECD 453	1 mg/m³ air	Respiratory tract (no carcinogenic effect)	104 weeks (6h / day, 5 days / week)	Rat (male / female)	Read-across	
Inhalation (aerosol)	LOAEC	Equivalent to OECD 453	6 mg/m³ air	Respiratory tract (tumor formation)	104 weeks (6h / day, 5 days / week)	Rat (male / female)	Read-across	

Conclusion

Suspected of causing cancer.

Reproductive toxicity

NOVA POWER GRIP 401 2-K PREPOLYMER

No (test)data on the mixture available

Judgement is based on the relevant ingredients

4,4'-methylenediphenyl diisocyanate

Category	Parameter	Method	Value	Exposure time	Species	Effect	Value determination	Remark
Developmental toxicity (Inhalation (aerosol))	NOAEC	Equivalent to OECD 414	3 mg/m³ air	10 days (gestation, daily)	Rat	Foetus (no effect)	Experimental value	
Developmental toxicity (Inhalation (aerosol))	LOAEC	Equivalent to OECD 414	9 mg/kg bw/day	10 days (gestation, daily)	Rat	Foetus (minor skeletal variations)	Experimental value	
Maternal toxicity (Inhalation (aerosol))	LOAEC	Equivalent to OECD 414	≤ 9 mg/m³ air	10 days (gestation, daily)	Rat	Body weight, organ weight	Experimental value	
Effects on fertility (Inhalation (vapours))	NOAEC	Equivalent to OECD 416	0.3 ppm		Rat (male / female)	No effect	Experimental value	

reaction mass of 4,4'-methylene diphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate / methylene diphenyl diisocyanate

Category	Parameter	Method	Value	Exposure time	Species	Effect	Value determination	Remark
Developmental toxicity (Inhalation (aerosol))	NOAEC	OECD 414	4 mg/m³ air	10 days (gestation, daily)	Rat	No effect	Read-across	
Maternal toxicity (Inhalation (aerosol))	NOAEC	OECD 414	4 mg/m³ air	10 days (gestation, daily)	Rat	No effect	Read-across	
Effects on fertility (Inhalation (vapours))	NOAEC	Equivalent to OECD 416	0.3 ppm		Rat (male / female)	No effect	Experimental value	

4,4'-methylenediphenyl diisocyanate, oligomers

Category	Parameter	Method	Value	Exposure time	Species	Effect	Value determination	Remark
Developmental toxicity (Inhalation (aerosol))	NOAEL	OECD 414	4 mg/m³ air	10 days (6h / day)	Rat	Foetus (no effect)	Read-across	
Maternal toxicity (Inhalation (aerosol))	NOAEL	OECD 414	4 mg/m³ air	10 days (6h / day)	Rat	General (no effect)	Read-across	
Effects on fertility (Inhalation (vapours))	NOEL	OECD 422	2.03 mg/kg bw/day	28 weeks (6h / day, 7 days / week) - 50 weeks (6h / day, 7 days / week)	Rat (male / female)	No effect	Read-across	

Conclusion

Not classified for reprotoxic or developmental toxicity

Aspiration hazard

NOVA POWER GRIP 401 2-K PREPOLYMER

Judgement is based on the relevant ingredients
Not classified for aspiration toxicity

Toxicity other effects

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No (test)data on the mixture available

Chronic effects from short and long-term exposure

NOVA POWER GRIP 401 2-K PREPOLYMER

Skin rash/inflammation. Respiratory difficulties.

11.2. Information on other hazards

No evidence of endocrine disrupting properties

SECTION 12: Ecological information

12.1. Toxicity

NOVA POWER GRIP 401 2-K PREPOLYMER

No (test)data on the mixture available
Judgement of the mixture is based on the relevant ingredients

polymethylene polyphenyl isocyanate

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity other aquatic organisms	LC50		> 1000 mg/l	96 h				Literature study
Toxicity aquatic micro-organisms	EC50	OECD 209	> 100 mg/l		Activated sludge			Literature study

4,4'-methylenediphenyl diisocyanate

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LL50	OECD 203	> 100 mg/l	96 h	Danio rerio	Semi-static system	Fresh water	Experimental value; Nominal concentration
Acute toxicity crustacea	EL50	EU Method C.2	9 mg/l	48 h	Daphnia magna	Semi-static system	Fresh water	Experimental value; Locomotor effect
Toxicity algae and other aquatic plants	EL50	OECD 201	> 100 mg/l	72 h	Desmodesmus subspicatus	Static system	Fresh water	Experimental value; Growth rate
	NOELR	OECD 201	≥ 100 mg/l	72 h	Desmodesmus subspicatus	Static system	Fresh water	Experimental value; Growth rate
Long-term toxicity aquatic crustacea	NOEC		≥ 10 mg/l	21 day(s)	Daphnia sp.			Read-across; Reproduction
Toxicity aquatic micro-organisms	NOEC	OECD 209	250 mg/l	180 minutes	Activated sludge	Static system	Fresh water	Experimental value; Nominal concentration

reaction mass of 4,4'-methylene diphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate / methylene diphenyl diisocyanate

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50	OECD 203	> 1000 mg/l	96 h	Danio rerio	Static system	Fresh water	Read-across; Nominal concentration
Acute toxicity crustacea	EC50	OECD 202	> 1000 mg/l	24 h	Daphnia magna	Static system	Fresh water	Read-across; Nominal concentration
Toxicity algae and other aquatic plants	ErC50	OECD 201	> 1640 mg/l	3 day(s)	Desmodesmus subspicatus	Static system	Fresh water	Read-across; Nominal concentration
	NOELR	OECD 201	1640 mg/l	3 day(s)	Desmodesmus subspicatus	Static system	Fresh water	Read-across; Growth rate
Long-term toxicity aquatic crustacea	NOEC	OECD 211	≥ 10 mg/l	21 day(s)	Daphnia magna	Semi-static system	Fresh water	Read-across; Nominal concentration

4,4'-methylenediphenyl diisocyanate, oligomers

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50	OECD 203	> 1000 mg/l	96 h	Danio rerio	Static system	Fresh water	Read-across; Nominal concentration
Acute toxicity crustacea	EC50	OECD 202	> 1000 mg/l	24 h	Daphnia magna	Static system	Fresh water	Read-across; Nominal concentration
Toxicity algae and other aquatic plants	ErC50	OECD 201	> 1640 mg/l	3 day(s)	Desmodesmus subspicatus	Static system	Fresh water	Read-across; GLP
	NOELR	OECD 201	1640 mg/l	3 day(s)	Desmodesmus subspicatus	Static system	Fresh water	Read-across; Growth rate
Long-term toxicity fish								Data waiving
Long-term toxicity aquatic crustacea	NOEC	OECD 211	≥ 10 mg/l	21 day(s)	Daphnia magna	Semi-static system	Fresh water	Read-across; Nominal concentration

Conclusion

Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008

12.2. Persistence and degradability

polymethylene polyphenyl isocyanate

Biodegradation water

Method	Value	Duration	Value determination
OECD 302C	< 60 %		Experimental value

4,4'-methylenediphenyl diisocyanate

Biodegradation water

Method	Value	Duration	Value determination
OECD 301F	0 %; Oxygen consumption	28 day(s)	Experimental value

Half-life water (t1/2 water)

Method	Value	Primary degradation/mineralisation	Value determination
OECD 111	5 minutes - 8 minutes; GLP	Primary degradation	Experimental value

reaction mass of 4,4'-methylene diphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate / methylene diphenyl diisocyanate

Biodegradation water

Method	Value	Duration	Value determination
OECD 302C	0 %; Oxygen consumption	28 day(s)	Read-across

4,4'-methylenediphenyl diisocyanate, oligomers

Biodegradation water

Method	Value	Duration	Value determination
OECD 302C	0 %	28 day(s)	Read-across

Conclusion

Water

Contains non readily biodegradable component(s)

12.3. Bioaccumulative potential

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Log Kow

Method	Remark	Value	Temperature	Value determination
	Not applicable (mixture)			

polymethylene polyphenyl isocyanate

BCF fishes

Parameter	Method	Value	Duration	Species	Value determination
BCF	BCFBAF v3.01	268 l/kg; Fresh weight			Estimated value

Log Kow

Method	Remark	Value	Temperature	Value determination
KOWWIN		10		Calculated

4,4'-methylenediphenyl diisocyanate

BCF fishes

Parameter	Method	Value	Duration	Species	Value determination
BCF	OECD 305	92 - 200; GLP	28 day(s)	Cyprinus carpio	Experimental value

Log Kow

Method	Remark	Value	Temperature	Value determination
OECD 117		4.5	22 °C	Experimental value

reaction mass of 4,4'-methylene diphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate / methylene diphenyl diisocyanate

BCF fishes

Parameter	Method	Value	Duration	Species	Value determination
BCF	OECD 305	92 - 200; GLP	28 day(s)	Cyprinus carpio	Experimental value

Log Kow

Method	Remark	Value	Temperature	Value determination
OECD 117		4.5	22 °C	Experimental value

4,4'-methylenediphenyl diisocyanate, oligomers

BCF fishes

Parameter	Method	Value	Duration	Species	Value determination
BCF	OECD 305	92 - 200; GLP	28 day(s)	Cyprinus carpio	Experimental value

Log Kow

Method	Remark	Value	Temperature	Value determination
		8.56		Estimated value

Conclusion

Does not contain bioaccumulative component(s)

12.4. Mobility in soil

polymethylene polyphenyl isocyanate

(log) Koc

Parameter	Method	Value	Value determination
log Koc	SRC PCKOCWIN v2.0	9.1 - 11	Calculated value

Percent distribution

Method	Fraction air	Fraction biota	Fraction sediment	Fraction soil	Fraction water	Value determination
Fugacity Model Level III	0.039 %		64 %	34 %	1.3 %	Calculated value

4,4'-methylenediphenyl diisocyanate

(log) Koc

Parameter	Method	Value	Value determination
log Koc	SRC PCKOCWIN v2.0	4.5 - 5.5	Calculated value

Percent distribution

Method	Fraction air	Fraction biota	Fraction sediment	Fraction soil	Fraction water	Value determination
Fugacity Model Level III	0.31 %		56 %	39 %	4.7 %	Calculated value

reaction mass of 4,4'-methylene diphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate / methylene diphenyl diisocyanate

(log) Koc

Parameter	Method	Value	Value determination
log Koc		4.5	Read-across

4,4'-methylenediphenyl diisocyanate, oligomers

(log) Koc

Parameter	Method	Value	Value determination
Koc		8200	Estimated value
log Koc		3.9	Calculated value

Conclusion

Contains component(s) that adsorb(s) into the soil

12.5. Results of PBT and vPvB assessment

Does not contain component(s) that meet(s) the criteria of PBT and/or vPvB as listed in Annex XIII of Regulation (EC) No 1907/2006.

12.6. Endocrine disrupting properties

No evidence of endocrine disrupting properties

12.7. Other adverse effects

NOVA POWER GRIP 401 2-K PREPOLYMER

Greenhouse gases

None of the known components is included in the list of fluorinated greenhouse gases (Regulation (EU) No 2024/573)

Ozone-depleting potential (ODP)

Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009)

Groundwater

Groundwater pollutant

polymethylene polyphenyl isocyanate

Greenhouse gases

Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 2024/573)

4,4'-methylenediphenyl diisocyanate

Greenhouse gases

Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 2024/573)

reaction mass of 4,4'-methylene diphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate / methylene diphenyl diisocyanate

Groundwater

Groundwater pollutant

SECTION 13: Disposal considerations

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

13.1. Waste treatment methods

13.1.1 Provisions relating to waste

European Union

Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.
Waste material code (Directive 2008/98/EC, Decision 2000/0532/EC).
08 05 01* (wastes not otherwise specified in 08: waste isocyanates). Depending on branch of industry and production process, also other waste codes may be applicable.

13.1.2 Disposal methods

Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Do not discharge into drains or the environment. Dispose of at authorized waste collection point.

13.1.3 Packaging/Container

European Union

Waste material code packaging (Directive 2008/98/EC).
15 01 10* (packaging containing residues of or contaminated by dangerous substances).

SECTION 14: Transport information

Road (ADR), Rail (RID), Inland waterways (ADN), Sea (IMDG/IMSBC), Air (ICAO-TI/IATA-DGR)

14.1. UN number or ID number

Transport	Not subject

14.2. UN proper shipping name

14.3. Transport hazard class(es)

Hazard identification number	
Class	
Classification code	

14.4. Packing group

Packing group	
Labels	

14.5. Environmental hazards

Environmentally hazardous substance mark	no

14.6. Special precautions for user

Special provisions	
Limited quantities	

14.7. Maritime transport in bulk according to IMO instruments

Annex II of MARPOL 73/78	Not applicable, based on available data

SECTION 15: Regulatory information

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

European legislation:

VOC content Directive 2010/75/EU

VOC content	Remark
0 %	

Directive 2012/18/EU (Seveso III)

Not subject to registration according to Directive 2012/18/EU (Seveso III)

REACH Annex XVII - Restriction

Contains component(s) subject to restrictions of Annex XVII of Regulation (EC) No 1907/2006: restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles.

	Designation of the substance, of the group of substances or of the mixture	Conditions of restriction
· polymethylene polyphenyl isocyanate · reaction mass of 4,4'-methylene diphenyl diisocyanate and o-(p-isocyanatobenzyl) phenyl isocyanate / methylene diphenyl diisocyanate · 4,4'-methylenediphenyl diisocyanate, oligomers	Liquid substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: (a) hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F; (b) hazard classes 3.1 to 3.6, 3.7 adverse	1. Shall not be used in: — ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays, — tricks and jokes, — games for one or more participants, or any article intended to be used as such, even with ornamental aspects, 2. Articles not complying with paragraph 1 shall not be placed on the market. 3. Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, if they:

	effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10; (c) hazard class 4.1; (d) hazard class 5.1.	— can be used as fuel in decorative oil lamps for supply to the general public, and, — present an aspiration hazard and are labelled with H304, 4. Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted by the European Committee for Standardisation (CEN). 5. Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of dangerous substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met: a) lamp oils, labelled with H304, intended for supply to the general public are visibly, legibly and indelibly marked as follows: “Keep lamps filled with this liquid out of the reach of children”; and, by 1 December 2010, “Just a sip of lamp oil — or even sucking the wick of lamps — may lead to life- threatening lung damage”; b) grill lighter fluids, labelled with H304, intended for supply to the general public are legibly and indelibly marked by 1 December 2010 as follows: “Just a sip of grill lighter may lead to life threatening lung damage”; c) lamp oils and grill lighters, labelled with H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.
· 4,4'-methylenediphenyl diisocyanate	Methylenediphenyl diisocyanate (MDI) including the following specific isomers: 4,4’-Methylenediphenyl diisocyanate; 2,4’-Methylenediphenyl diisocyanate; 2,2’-Methylenediphenyl diisocyanate	1. Shall not be placed on the market after 27 December 2010, as a constituent of mixtures in concentrations equal to or greater than 0,1 % by weight of MDI for supply to the general public, unless suppliers shall ensure before the placing on the market that the packaging: (a) contains protective gloves which comply with the requirements of Council Directive 89/686/EEC; (b) is marked visibly, legibly and indelibly as follows, and without prejudice to other Community legislation concerning the classification, packaging and labelling of substances and mixtures: “— Persons already sensitised to diisocyanates may develop allergic reactions when using this product. — Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product. — This product should not be used under conditions of poor ventilation unless a protective mask with an appropriate gas filter (i.e. type A1 according to standard EN 14387) is used. 2. By way of derogation, paragraph 1(a) shall not apply to hot melt adhesives.
· 4,4'-methylenediphenyl diisocyanate · reaction mass of 4,4'-methylene diphenyl diisocyanate and o-(p-isocyanatobenzyl) phenyl isocyanate / methylene diphenyl diisocyanate · 4,4'-methylenediphenyl diisocyanate, oligomers	Diisocyanates, O = C=N-R-N = C=O, with R an aliphatic or aromatic hydrocarbon unit of unspecified length	1. Shall not be used as substances on their own, as a constituent in other substances or in mixtures for industrial and professional use(s) after 24 August 2023, unless: (a) the concentration of diisocyanates individually and in combination is less than 0,1 % by weight, or (b) the employer or self-employed ensures that industrial or professional user(s) have successfully completed training on the safe use of diisocyanates prior to the use of the substance(s) or mixture(s). 2. Shall not be placed on the market as substances on their own, as a constituent in other substances or in mixtures for industrial and professional use(s) after 24 February 2022, unless: (a) the concentration of diisocyanates individually and in combination is less than 0,1 % by weight, or (b) the supplier ensures that the recipient of the substance(s) or mixture(s) is provided with information on the requirements referred to in point (b) of paragraph 1 and the following statement is placed on the packaging, in a manner that is visibly distinct from the rest of the label information: “As from 24 August 2023 adequate training is required before industrial or professional use”. 3. For the purpose of this entry “industrial and professional user(s)” means any worker or self-employed worker handling diisocyanates on their own, as a constituent in other substances or in mixtures for industrial and professional use(s) or supervising these tasks. 4. The training referred to in point (b) of paragraph 1 shall include the instructions for the control of dermal and inhalation exposure to diisocyanates at the workplace without prejudice to any national occupational exposure limit value or other appropriate risk management measures at national level. Such training shall be conducted by an expert on occupational safety and health with competence acquired by relevant vocational training. That training shall cover as a minimum: (a) the training elements in point (a) of paragraph 5 for all industrial and professional use(s). (b) the training elements in points (a) and (b) of paragraph 5 for the following uses: — handling open mixtures at ambient temperature (including foam tunnels); — spraying in a ventilated booth; — application by roller; — application by brush; — application by dipping and pouring; — mechanical post treatment (e.g. cutting) of not fully cured articles which are not warm anymore; — cleaning and waste; — any other uses with similar exposure through the dermal and/or inhalation route; (c) the training elements in points (a), (b) and (c) of paragraph 5 for the following uses: — handling incompletely cured articles (e.g. freshly cured, still warm); — foundry applications; — maintenance and repair that needs access to equipment; — open handling of warm or hot formulations (> 45 °C); — spraying in open air, with limited or only natural ventilation (includes large industry working halls) and spraying with high energy (e.g. foams, elastomers); — and any other uses with similar exposure through the dermal and/or inhalation route. 5. Training elements: (a) general training, including on-line training, on: — chemistry of diisocyanates; — toxicity hazards (including acute toxicity);

			— exposure to diisocyanates; — occupational exposure limit values; — how sensitisation can develop; — odour as indication of hazard; — importance of volatility for risk; — viscosity, temperature, and molecular weight of diisocyanates; — personal hygiene; — personal protective equipment needed, including practical instructions for its correct use and its limitations; — risk of dermal contact and inhalation exposure; — risk in relation to application process used; — skin and inhalation protection scheme; — ventilation; — cleaning, leakages, maintenance; — discarding empty packaging; — protection of bystanders; — identification of critical handling stages; — specific national code systems (if applicable); — behaviour-based safety; — certification or documented proof that training has been successfully completed (b) intermediate level training, including on-line training, on: — additional behaviour-based aspects; — maintenance; — management of change; — evaluation of existing safety instructions; — risk in relation to application process used; — certification or documented proof that training has been successfully completed (c) advanced training, including on-line training, on: — any additional certification needed for the specific uses covered; — spraying outside a spraying booth; — open handling of hot or warm formulations (> 45 °C); — certification or documented proof that training has been successfully completed 6. The training shall comply with the provisions set by the Member State in which the industrial or professional user(s) operate. Member States may implement or continue to apply their own national requirements for the use of the substance(s) or mixture(s), as long as the minimum requirements set out in paragraphs 4 and 5 are met. 7. The supplier referred to in point (b) of paragraph 2 shall ensure that the recipient is provided with training material and courses pursuant to paragraphs 4 and 5 in the official language(s) of the Member State(s) where the substance(s) or mixture(s) are supplied. The training shall take into consideration the specificity of the products supplied, including composition, packaging, and design. 8. The employer or self-employed shall document the successful completion of the training referred to in paragraphs 4 and 5. The training shall be renewed at least every five years. 9. Member States shall include in their reports pursuant to Article 117(1) the following information: (a) any established training requirements and other risk management measures related to the industrial and professional uses of diisocyanates foreseen in national law; (b) the number of cases of reported and recognised occupational asthma and occupational respiratory and dermal diseases in relation to diisocyanates; (c) national exposure limits for diisocyanates, if there are any; (d) information about enforcement activities related to this restriction. 10. This restriction shall apply without prejudice to other Union legislation on the protection of safety and health of workers at the workplace.
	· 4,4'-methylenediphenyl diisocyanate	Substances falling within one or more of the following points: (a) substances classified as any of the following in Part 3 of Annex VI to Regulation (EC) No 1272/2008: — carcinogen category 1A, 1B or 2, or germ cell mutagen category 1A, 1B or 2, but excluding any such substances classified due to effects only following exposure by inhalation — reproductive toxicant category 1A, 1B or 2 but excluding any such substances classified due to effects only following exposure by inhalation — skin sensitiser category 1, 1A or 1B — skin corrosive category 1, 1A, 1B or 1C or skin irritant category 2 — serious eye damage category 1 or eye irritant category 2 (b) substances listed in Annex II to Regulation (EC) No 1223/2009 of the European Parliament and of the Council (c) substances listed in Annex IV to Regulation (EC) No 1223/2009 for which a condition is specified in at least one of the columns g, h and i of the table in that Annex (d) substances listed in Appendix 13 to this Annex. The ancillary requirements in paragraphs 7 and 8 of column 2 of this entry apply to all mixtures for use for tattooing purposes,	Mixtures for tattooing purposes are subject to the restrictions of Regulation (EU) 2020/2081

	whether or not they contain a substance falling within points (a) to (d) of this column of this entry.	

National legislation Belgium

NOVA POWER GRIP 401 2-K PREPOLYMER

No data available

National legislation The Netherlands

NOVA POWER GRIP 401 2-K PREPOLYMER

Waterbezwaarlijkheid	A (4); Algemene Beoordelingsmethodiek (ABM)

National legislation France

NOVA POWER GRIP 401 2-K PREPOLYMER

No data available

4,4'-methylenediphenyl diisocyanate

Catégorie cancérogène	4,4'-Diisocyanate de diphénylméthane; C2

National legislation Germany

NOVA POWER GRIP 401 2-K PREPOLYMER

WGK	1; Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen (AwSV) - 18. April 2017

polymethylene polyphenyl isocyanate

TA-Luft	5.2.5/I
TRGS900 - Risiko der Fruchtschädigung	pMDI (als MDI berechnet); Y; Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes nicht befürchtet zu werden
TRGS905 - Krebserzeugend	Techn. ("Polymeres") MDI (pMDI) (in Form atembarer Aerosole, A-Fraktion); 2
TRGS905 - Erbgutverändernd	Techn. ("Polymeres") MDI (pMDI) (in Form atembarer Aerosole, A-Fraktion); -
TRGS905 - Fruchtbarkeitsgefährdend	Techn. ("Polymeres") MDI (pMDI) (in Form atembarer Aerosole, A-Fraktion); -
TRGS905 - Fruchtschädigend	Techn. ("Polymeres") MDI (pMDI) (in Form atembarer Aerosole, A-Fraktion); -
Hautresorptive Stoffe	pMDI (als MDI berechnet); H; Hautresorptiv

4,4'-methylenediphenyl diisocyanate

TA-Luft	5.2.5/I
TRGS900 - Risiko der Fruchtschädigung	4,4'-Methylendiphenyldiisocyanat; Y; Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes nicht befürchtet zu werden
Sensibilisierende Stoffe	4,4'-Methylendiphenyldiisocyanat; Sh; Hautsensibilisierende Stoffe
Hautresorptive Stoffe	4,4'-Methylendiphenyldiisocyanat; H; Hautresorptiv

reaction mass of 4,4'-methylene diphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate / methylene diphenyl diisocyanate

TA-Luft	5.2.5/I

4,4'-methylenediphenyl diisocyanate, oligomers

TA-Luft	5.2.5/I

National legislation Austria

NOVA POWER GRIP 401 2-K PREPOLYMER

No data available

4,4'-methylenediphenyl diisocyanate

Krebserzeugend	Diphenylmethan-diisocyanat (alle Isomeren):Diphenylmethan-4,4’-diisocyanat Diphenylmethan-2,2’-diisocyanat Diphenylmethan-2,4’-diisocyanat; III B
Gefahr der Sensibilisierung der Haut	Diphenylmethan-diisocyanat (alle Isomeren):Diphenylmethan-4,4’-diisocyanat Diphenylmethan-2,2’-diisocyanat Diphenylmethan-2,4’-diisocyanat; Sh
Gefahr der Sensibilisierung der Atemwege	Diphenylmethan-diisocyanat (alle Isomeren):Diphenylmethan-4,4’-diisocyanat Diphenylmethan-2,2’-diisocyanat Diphenylmethan-2,4’-diisocyanat; Sa

National legislation United Kingdom

NOVA POWER GRIP 401 2-K PREPOLYMER

No data available

polymethylene polyphenyl isocyanate

Skin Sensitisation	Isocyanates, all (as -NCO) Except methyl isocyanate; Sen
Respiratory sensitisation	Isocyanates, all (as -NCO) Except methyl isocyanate; Sen

4,4'-methylenediphenyl diisocyanate

Skin Sensitisation	Isocyanates, all (as -NCO) Except methyl isocyanate; Sen
Respiratory sensitisation	Isocyanates, all (as -NCO) Except methyl isocyanate; Sen

reaction mass of 4,4'-methylene diphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate / methylene diphenyl diisocyanate

Skin Sensitisation	Isocyanates, all (as -NCO) Except methyl isocyanate; Sen
Respiratory sensitisation	Isocyanates, all (as -NCO) Except methyl isocyanate; Sen

Other relevant data

NOVA POWER GRIP 401 2-K PREPOLYMER

No data available

polymethylene polyphenyl isocyanate

IARC - classification	3; Polymethylene polyphenyl isocyanate

4,4'-methylenediphenyl diisocyanate

IARC - classification	3; 4,4'-methylenediphenyl diisocyanate and polymeric 4,4'-methylenediphenyl diisocyanate

15.2. Chemical safety assessment

No chemical safety assessment is required for a mixture.
reaction mass of 4,4'-methylene diphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate / methylene diphenyl diisocyanate

A chemical safety assessment has been performed.

SECTION 16: Other information

Full text of any H- and EUH-statements referred to under section 3:

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 (respiratory system) through prolonged or repeated exposure if inhaled.
H373 May cause damage to organs through prolonged or repeated exposure if inhaled.

(*)	INTERNAL CLASSIFICATION BY BIG
ADI	Acceptable daily intake
AOEL	Acceptable operator exposure level
ATE	Acute Toxicity Estimate
BCF	Bioconcentration Factor
BEI	Biological Exposure Indices
CLP (EU-GHS)	Classification, labelling and packaging (Globally Harmonised System in Europe)
DMEL	Derived Minimal Effect Level
DNEL	Derived No Effect Level
EC10	Effect Concentration 10 %
EC50	Effect Concentration 50 %
ErC50	EC50 in terms of reduction of growth rate
GLP	Good Laboratory Practice
LC0	Lethal Concentration 0 %
LC50	Lethal Concentration 50 %
LD50	Lethal Dose 50 %
LOAEC/LOAEL	Lowest Observed Adverse Effect Concentration/Lowest Observed Adverse Effect Level
NOAEC/NOAEL	No Observed Adverse Effect Concentration/No Observed Adverse Effect Level
NOEC/NOEL	No Observed Effect Concentration/No Observed Effect Level
OECD	Organisation for Economic Co-operation and Development
PBT	Persistent, Bioaccumulative & Toxic
PNEC	Predicted No Effect Concentration
STP	Sludge Treatment Process
vPvB	very Persistent & very Bioaccumulative