

Trade name: Hesse PU Hardener DR 4005

Version: 12 / GB

Revision: 15.12.2021

Replaces Version: 11 / GB

Print date: 18.06.22

## 1. Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

Hesse PU Hardener DR 4005

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

#### Use of the substance/preparation

Surface treatment of wood and other materials

#### Identified Uses

	REACHSET 1000
SU3	Industrial uses: Uses of substances as such or in preparations at industrial sites
ERC4	Industrial use of processing aids in processes and products, not becoming part of articles
ERC5	Industrial use resulting in inclusion into or onto a matrix
PROC7	Industrial spraying
	REACHSET 2001
SU22	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
ERC8a	Wide dispersive indoor use of processing aids in open systems
ERC8c	Wide dispersive indoor use resulting in inclusion into or onto a matrix
PROC11	Non industrial spraying

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

#### Manufacturer

Hesse GmbH & Co. KG  
Warendorfer Strasse 21  
59075 Hamm (Germany)  
Telephone no. +49 (0) 2381 963-00  
Fax no. +49 (0) 2381 963-849  
E-mail address ps@hesse-lignal.de

### 1.4. Emergency telephone number

Germany: +49 (0) 2381 788-612

## 2. Hazards identification

### 2.1. Classification of the substance or mixture

#### Classification (Regulation (EC) No. 1272/2008)

Classification (Regulation (EC) No. 1272/2008)

Flam. Liq. 2	H225
Skin Sens. 1	H317
STOT SE 3	H336

The product is classified and labelled in accordance with Regulation (EC) No 1272/2008  
For explanation of abbreviations see section 16.

### 2.2. Label elements

Trade name: Hesse PU Hardener DR 4005

Version: 12 / GB

Revision: 15.12.2021

Replaces Version: 11 / GB

Print date: 18.06.22

## Labelling according to regulation (EC) No 1272/2008

### Hazard pictograms



### Signal word

Danger

### Hazard statements

H225 Highly flammable liquid and vapour.  
 H317 May cause an allergic skin reaction.  
 H336 May cause drowsiness or dizziness.

### Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
 P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
 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.  
 P333+P313 If skin irritation or rash occurs: Get medical advice/attention.

### Hazardous component(s) to be indicated on label (Regulation (EC) No. 1272/2008)

contains bis(isocyanatomethyl)cyclohexane; polyisocyanate, aliphatic; ethyl acetate; n-butyl acetate

### Supplemental information

EUH066 Repeated exposure may cause skin dryness or cracking.  
 EUH204 Contains isocyanates. May produce an allergic reaction.

### 2.3. Other hazards

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB) (if not listed in Section 3).

## 3. Composition/information on ingredients

### Hazardous ingredients

#### n-butyl acetate

CAS No.	123-86-4		
EINECS no.	204-658-1		
Registration no.	01-2119485493-29		
Concentration	>= 50		%
Classification (Regulation (EC) No. 1272/2008)	Flam. Liq. 3	H226	
	STOT SE 3	H336	Nervous system
		EUH066	

#### polyisocyanate, aliphatic

CAS No. 28182-81-2  
 EINECS no. 500-060-2

Trade name: Hesse PU Hardener DR 4005

Version: 12 / GB

Revision: 15.12.2021

Replaces Version: 11 / GB

Print date: 18.06.22

Registration no.	01-2119485796-17			
Concentration	>= 10	<	20	%
Classification (Regulation (EC) No. 1272/2008)	Acute Tox. 4	H332		Route of exposure: Inhalation exposure
	Skin Sens. 1	H317		
	STOT SE 3	H335		

**ethyl acetate**

CAS No.	141-78-6			
EINECS no.	205-500-4			
Registration no.	01-2119475103-46			
Concentration	>= 1	<	10	%
Classification (Regulation (EC) No. 1272/2008)	Flam. Liq. 2	H225		Nervous system
	Eye Irrit. 2	H319		
	STOT SE 3	H336		
		EUH066		

**n-Hexane**

CAS No.	110-54-3			
EINECS no.	203-777-6			
Registration no.	01-2119474209-33			
Concentration	>= 0,1	<	1	%
Classification (Regulation (EC) No. 1272/2008)	Flam. Liq. 2	H225		
	Repr. 2	H361f		
	Asp. Tox. 1	H304		
	STOT RE 2	H373		
	Skin Irrit. 2	H315		
	STOT SE 3	H336		
	Aquatic Chronic 2	H411		

**bis(isocyanatomethyl)cyclohexane**

CAS No.	42170-25-2			
EINECS no.	255-693-4			
Concentration	>= 0,1	<	0,2	%
Classification (Regulation (EC) No. 1272/2008)	Acute Tox. 2	H330		Route of exposure: Inhalation exposure
	Acute Tox. 4	H302		Route of exposure: Oral exposure
	Skin Irrit. 2	H315		
	Skin Sens. 1	H317		
	Eye Irrit. 2	H319		

**Note**

For explanation of abbreviations see section 16.

**4. First aid measures****4.1. Description of first aid measures**

Trade name: Hesse PU Hardener DR 4005

Version: 12 / GB

Revision: 15.12.2021

Replaces Version: 11 / GB

Print date: 18.06.22

**General information**

In all cases of doubt, or when symptoms persist, seek medical attention. If unconscious place in recovery position and seek medical advice. First aider: Pay attention to self-protection! Remove affected person from danger area, lay him down.

**After inhalation**

In case of accident by inhalation: remove casualty to fresh air and keep at rest. Keep warm, calm and covered up. In all cases of doubt, or when symptoms persist, seek medical attention.

**After skin contact**

Wash off immediately with soap and water. Do NOT use solvents or thinners. Consult a doctor if skin irritation persists.

**After eye contact**

Remove contact lenses, irrigate copiously with clean, fresh water, holding the eyelids apart for at least 10 minutes and seek immediate medical advice. Take medical treatment.

**After ingestion**

Do not induce vomiting. Take medical treatment.

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

Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases, loss of consciousness. Based on the properties of the isocyanate components and considering toxicological data on similar mixtures, this mixture may cause acute irritation and/or sensitisation of the respiratory system leading to an asthmatic condition, wheeziness and a tightness of the chest.

**4.3. Indication of any immediate medical attention and special treatment needed****Hints for the physician / treatment**

Treat symptomatically.

**5. Firefighting measures****5.1. Extinguishing media****Suitable extinguishing media**

Recommended: alcohol resistant foam, CO<sub>2</sub>, powders, water spray/mist

**Non suitable extinguishing media**

Do not use a solid water stream as it may scatter and spread fire.

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

Vapours can form an explosive mixture with air.

**5.3. Advice for firefighters****Other information**

Standard procedure for chemical fires.

**6. Accidental release measures****6.1. Personal precautions, protective equipment and emergency procedures**

Eliminate all ignition sources if safe to do so. Ensure adequate ventilation. Do not inhale vapours. Do not inhale gases. Do not inhale mist.

**6.2. Environmental precautions**

Do not allow to enter drains or waterways. Do not allow to enter soil, waterways or waste water canal. In

Trade name: Hesse PU Hardener DR 4005

Version: 12 / GB

Revision: 15.12.2021

Replaces Version: 11 / GB

Print date: 18.06.22

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

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

Contain and collect spillage with non-combustible absorbent materials, e.g. sand, earth, vermiculite, diatomaceous earth and place in container for disposal according to local regulations (see section 13). Clean contaminated floors and objects thoroughly with water and detergents, observing environmental regulations. Do NOT use solvents or thinners. Send in suitable containers for recovery or disposal.

### 6.4. Reference to other sections

Refer to protective measures listed in Sections 7 and 8.

## 7. Handling and storage

### 7.1. Precautions for safe handling

#### Advice on safe handling

Prevent the creation of flammable or explosive concentrations of vapour in air and avoid vapour concentration higher than the occupational exposure limits. Keep container tightly closed and dry in a cool, well-ventilated place. Use only with adequate ventilation/personal protection. Ensure adequate ventilation. Provide for sufficient ventilation. This can be achieved by local exhaust or general exhaust air collection. Wear a suitable respirator if the ventilation is not sufficient to keep the solvent vapour concentration below the occupational limit values. Persons with a history of asthma, allergies, chronic or recurrent respiratory disease should not be exposed to any process in which this mixture is used. Avoid contact with skin and eyes. Avoid inhalation of vapour and spray mist. Do not eat, drink or smoke when using this product. Use personal protective clothing. For personal protection see Section 8.

#### Advice on protection against fire and explosion

Vapours can form an explosive mixture with air. Vapours are heavier than air and may spread along floors. In addition, the product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Mixture may charge electrostatically: always use earthing leads when transferring from one container to another. Take measures to prevent the build up of electrostatic charge. Wear shoes with conductive soles. No sparking tools should be used. Fight fire with normal precautions from a reasonable distance.

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

#### Requirements for storage rooms and vessels

Provide solvent-resistant and impermeable floor. Keep only in the original container in a cool, well ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

#### Hints on storage assembly

Keep away from oxidising agents, strongly alkaline and strongly acid materials, amines, alcohols and water.

#### Storage classes

Storage class according to TRGS 510      3                      Flammable liquid

#### Further information on storage conditions

Protect from frost. Protect from heat and direct sunlight. Keep away from sources of ignition - No smoking. Store in accordance with the particular national regulations.

### 7.3. Specific end use(s)

See exposure scenario, if available.

## 8. Exposure controls/personal protection

Trade name: Hesse PU Hardener DR 4005

Version: 12 / GB

Revision: 15.12.2021

Replaces Version: 11 / GB

Print date: 18.06.22

## 8.1. Control parameters

### Exposure limit values

#### ethyl acetate

List	Directive 2017/164 EG			
Value	734	mg/m <sup>3</sup>	200	ppm(V)
Short term exposure limit	1468	mg/m <sup>3</sup>	400	ppm(V)
Status:	02/2017			

#### ethyl acetate

List	EH40			
Value	734	mg/m <sup>3</sup>	200	ppm(V)
Short term exposure limit	1468	mg/m <sup>3</sup>	400	ppm(V)
Status:	01/2020			

#### n-butyl acetate

List	EH40			
Value	724	mg/m <sup>3</sup>	150	ppm(V)
Short term exposure limit	966	mg/m <sup>3</sup>	200	ppm(V)
Status:	01/2020			

#### n-butyl acetate

List	Directive 2017/164 EG			
Value	241	mg/m <sup>3</sup>	50	ppm(V)
Short term exposure limit	723	mg/m <sup>3</sup>	150	ppm(V)
Status:	10/2019			

### Other information

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### Derived No/Minimal Effect Levels (DNEL/DMEL)

#### ethyl acetate

Type of value	Derived No Effect Level (DNEL)		
Reference group	Workers (professional)		
Duration of exposure	Long-term		
Route of exposure	Dermal exposure		
Mode of action	Systemic effects		
Concentration	63		mg/kg/d

Type of value	Derived No Effect Level (DNEL)		
Reference group	Workers (professional)		
Duration of exposure	Long-term		
Route of exposure	inhalative		
Mode of action	Systemic effects		
Concentration	734		mg/m <sup>3</sup>

Type of value	Derived No Effect Level (DNEL)		
Reference group	Workers (professional)		
Duration of exposure	Long-term		
Route of exposure	inhalative		
Mode of action	Local effects		
Concentration	734		mg/m <sup>3</sup>

Type of value	Derived No Effect Level (DNEL)		
Reference group	Workers (professional)		

Trade name: Hesse PU Hardener DR 4005

Version: 12 / GB

Revision: 15.12.2021

Replaces Version: 11 / GB

Print date: 18.06.22

Duration of exposure	Short-term	
Route of exposure	inhalative	
Mode of action	Local effects	
Concentration	1468	mg/m <sup>3</sup>
Type of value	Derived No Effect Level (DNEL)	
Reference group	Workers (professional)	
Duration of exposure	Short-term	
Route of exposure	inhalative	
Mode of action	Systemic effects	
Concentration	1468	mg/m <sup>3</sup>
Type of value	Derived No Effect Level (DNEL)	
Reference group	Consumer	
Duration of exposure	Short-term	
Route of exposure	inhalative	
Mode of action	Systemic effects	
Concentration	734	mg/m <sup>3</sup>
Type of value	Derived No Effect Level (DNEL)	
Reference group	Consumer	
Duration of exposure	Short-term	
Route of exposure	inhalative	
Mode of action	Local effects	
Concentration	734	mg/m <sup>3</sup>
Type of value	Derived No Effect Level (DNEL)	
Reference group	Consumer	
Duration of exposure	Long-term	
Route of exposure	Dermal exposure	
Mode of action	Systemic effects	
Concentration	37	mg/kg/d
Type of value	Derived No Effect Level (DNEL)	
Reference group	Consumer	
Duration of exposure	Long-term	
Route of exposure	inhalative	
Mode of action	Systemic effects	
Concentration	367	mg/m <sup>3</sup>
Type of value	Derived No Effect Level (DNEL)	
Reference group	Consumer	
Duration of exposure	Long-term	
Route of exposure	Oral exposure	
Mode of action	Systemic effects	
Concentration	4,5	mg/kg/d
Type of value	Derived No Effect Level (DNEL)	
Reference group	Consumer	
Duration of exposure	Long-term	
Route of exposure	inhalative	
Mode of action	Local effects	
Concentration	367	mg/m <sup>3</sup>

Trade name: Hesse PU Hardener DR 4005

Version: 12 / GB

Revision: 15.12.2021

Replaces Version: 11 / GB

Print date: 18.06.22

**n-butyl acetate**

Type of value	Derived No Effect Level (DNEL)	
Reference group	Workers (professional)	
Duration of exposure	Long-term	
Route of exposure	Dermal exposure	
Mode of action	Systemic effects	
Concentration	11	mg/kg/d

Type of value	Derived No Effect Level (DNEL)	
Reference group	Workers (professional)	
Duration of exposure	Short-term	
Route of exposure	inhalative	
Mode of action	Systemic effects	
Concentration	600	mg/m <sup>3</sup>

Type of value	Derived No Effect Level (DNEL)	
Reference group	Workers (professional)	
Duration of exposure	Short-term	
Route of exposure	inhalative	
Mode of action	Local effects	
Concentration	600	mg/m <sup>3</sup>

Type of value	Derived No Effect Level (DNEL)	
Reference group	Workers (professional)	
Duration of exposure	Long-term	
Route of exposure	inhalative	
Mode of action	Local effects	
Concentration	300	mg/m <sup>3</sup>

Type of value	Derived No Effect Level (DNEL)	
Reference group	Workers (professional)	
Duration of exposure	Long-term	
Route of exposure	inhalative	
Mode of action	Systemic effects	
Concentration	300	mg/m <sup>3</sup>

Type of value	Derived No Effect Level (DNEL)	
Reference group	Consumer	
Duration of exposure	Long-term	
Route of exposure	Dermal exposure	
Mode of action	Systemic effects	
Concentration	6	mg/kg/d

Type of value	Derived No Effect Level (DNEL)	
Reference group	Consumer	
Duration of exposure	Long-term	
Route of exposure	Oral exposure	
Mode of action	Systemic effects	
Concentration	2	mg/kg/d

Type of value	Derived No Effect Level (DNEL)	
Reference group	Consumer	



Trade name: Hesse PU Hardener DR 4005

Version: 12 / GB

Revision: 15.12.2021

Replaces Version: 11 / GB

Print date: 18.06.22

Duration of exposure	Short-term	
Route of exposure	inhalative	
Mode of action	Systemic effects	
Concentration	300	mg/m <sup>3</sup>

Type of value	Derived No Effect Level (DNEL)	
Reference group	Consumer	
Duration of exposure	Short-term	
Route of exposure	inhalative	
Mode of action	Local effects	
Concentration	300	mg/m <sup>3</sup>

Type of value	Derived No Effect Level (DNEL)	
Reference group	Consumer	
Duration of exposure	Long-term	
Route of exposure	inhalative	
Mode of action	Systemic effects	
Concentration	35,7	mg/m <sup>3</sup>

Type of value	Derived No Effect Level (DNEL)	
Reference group	Consumer	
Duration of exposure	Long-term	
Route of exposure	inhalative	
Mode of action	Local effects	
Concentration	35,7	mg/m <sup>3</sup>

Type of value	Derived No Effect Level (DNEL)	
Reference group	Consumer	
Duration of exposure	Short term	
Route of exposure	oral	
Mode of action	Specific effects	
Concentration	2	mg/kg/d

Type of value	Derived No Effect Level (DNEL)	
Reference group	Consumer	
Duration of exposure	Short term	
Route of exposure	Dermal exposure	
Mode of action	Specific effects	
Concentration	6	mg/kg/d

Type of value	Derived No Effect Level (DNEL)	
Reference group	Worker	
Duration of exposure	Short term	
Route of exposure	Dermal exposure	
Mode of action	Specific effects	
Concentration	11	mg/kg/d

**Predicted No Effect Concentration (PNEC)**

**ethyl acetate**

Type of value	PNEC	
Type	Saltwater	
Concentration	0,026	mg/l

Trade name: Hesse PU Hardener DR 4005

Version: 12 / GB

Revision: 15.12.2021

Replaces Version: 11 / GB

Print date: 18.06.22

Type of value	PNEC		
Type	Freshwater		
Concentration	0,26		mg/l
Type of value	PNEC		
Type	Soil		
Concentration	0,24		mg/kg
Type of value	PNEC		
Type	Sewage treatment plant (STP)		
Concentration	650		mg/l
Type of value	PNEC		
Type	saltwater sediment		
Concentration	0,125		mg/kg
Type of value	PNEC		
Type	Fresh water sediment		
Concentration	1,25		mg/kg
Type of value	PNEC		
Conditions	sporadic release		
Concentration	1,65		mg/l
<b>n-butyl acetate</b>			
Type of value	PNEC		
Type	Freshwater		
Concentration	0,18		mg/l
Type of value	PNEC		
Type	Saltwater		
Concentration	0,018		mg/l
Type of value	PNEC		
Type	Sewage treatment plant (STP)		
Concentration	35,6		mg/l
Type of value	PNEC		
Type	Water		
Conditions	sporadic release		
Concentration	0,36		mg/l
Type of value	PNEC		
Type	Fresh water sediment		
Concentration	0,981		mg/kg
Type of value	PNEC		
Type	saltwater sediment		
Concentration	0,0981		mg/l
Type of value	PNEC		
Type	Soil		

Trade name: Hesse PU Hardener DR 4005

Version: 12 / GB

Revision: 15.12.2021

Replaces Version: 11 / GB

Print date: 18.06.22

Concentration	0,0903	mg/kg
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## 8.2. Exposure controls

### Exposure controls

Users are advised to consider national Occupational Exposure Limits or other equivalent values. Provide for sufficient ventilation. This can be achieved by local exhaust or general exhaust air collection. Wear a suitable respirator if the ventilation is not sufficient to keep the solvent vapour concentration below the occupational limit values.

### Respiratory protection

Avoid inhalation of vapour and spray mist. Use breathing apparatus if exposed to vapours/dust/aerosol. Recommended Filter type: Respiratory protection mask with combination filter A/P2

### Hand protection

Protective gloves complying with EN 374.

Glove material

Multilayer gloves made from

Appropriate Material Fluorinated rubber / butyl-rubber

Material thickness  $\geq$  0,7 mm

Breakthrough time  $\geq$  30 min

This recommendation is valid only for the product named in this safety data sheet supplied by us, and only for the indicated intended use purposes.

For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

The instructions and information provided by the glove manufacturer on use, storage, maintenance and replacement must be followed.

The breakthrough time must be greater than the end use time of the product.

Gloves should be replaced regularly and if there is any sign of damage to the glove material.

The performance or effectiveness of the glove may be reduced by physical/ chemical damage and poor maintenance.

### Eye protection

Wear eye glasses with side protection according to EN 166.

### Body protection

Wear suitable protective clothing. Remove contaminated clothing and wash it before reuse. Wash hands before breaks and after work.

## 9. Physical and chemical properties

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

<b>Form</b>	liquid
<b>Colour</b>	colourless
<b>Odour</b>	solvent-like

#### Odour threshold

Remarks	not determined
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#### Melting point

Remarks	not determined
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#### Freezing point

Remarks	not determined
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#### Initial boiling point and boiling range

Trade name: Hesse PU Hardener DR 4005

Version: 12 / GB

Revision: 15.12.2021

Replaces Version: 11 / GB

Print date: 18.06.22

Value 68,7 to 128 °C

**Flash point**

Value 15 °C

**Evaporation rate**

Remarks not determined

**Flammability (solid, gas)**

not determined

**Upper/lower flammability or explosive limits**

Remarks not determined

**Vapour pressure**

Remarks not determined

**Vapour density**

Remarks not determined

**Density**Value appr. 0,987 kg/l  
Temperature 20 °C**Solubility in water**

Remarks not determined

**Solubility(ies)**

Remarks not determined

**Partition coefficient: n-octanol/water**

Remarks not determined

**Ignition temperature**

Remarks not determined

**Decomposition temperature**

Remarks not determined

**Viscosity**

Remarks not determined

**Efflux time**Value 27 to 33 s  
Temperature 20 °C  
Method DIN EN ISO 2431 - 3 mm**Explosive properties**

evaluation not determined

**Oxidising properties**

Remarks not determined

**9.2. Other information****Non-volatile content**Value 42,2 %  
Method calculated value**Other information**

This information is not available.

Trade name: Hesse PU Hardener DR 4005

Version: 12 / GB

Revision: 15.12.2021

Replaces Version: 11 / GB

Print date: 18.06.22

## 10. Stability and reactivity

### 10.1. Reactivity

Stable under recommended storage and handling conditions (see section 7).

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

To avoid thermal decomposition, do not overheat.

### 10.4. Conditions to avoid

Isolate from sources of heat, sparks and open flame.

### 10.5. Incompatible materials

Keep away from oxidising agents, strongly alkaline and strongly acid materials in order to avoid exothermic reactions. Uncontrolled exothermic reactions occur with amines and alcohols. The product reacts slowly with water resulting in evolution of carbon dioxide. Gaseous decomposition products cause pressure to build up in tightly sealed vessels. Precautions should be taken to minimise exposure to atmospheric humidity or water: CO<sub>2</sub> will be formed which in closed containers can result in pressurisation.

### 10.6. Hazardous decomposition products

Carbon monoxide and carbon dioxide, nitrous oxides (NO<sub>x</sub>), dense black smoke, hydrocyanic acid, Stable under recommended storage and handling conditions (see section 7).

## 11. Toxicological information

### 11.1. Information on toxicological effects

#### Acute oral toxicity

Method	Calculation method (Regulation (EC) No. 1272/2008)
Remarks	Based on available data, the classification criteria are not met.

#### Acute oral toxicity (Components)

##### bis(isocyanatomethyl)cyclohexane

ATE	500	mg/kg
Method	conversion value	

#### Acute dermal toxicity

Method	Calculation method (Regulation (EC) No. 1272/2008)
Remarks	Based on available data, the classification criteria are not met.

#### Acute inhalational toxicity

ATE	6,2162	mg/l
Administration/Form	Dust/Mist	
Method	calculated value (Regulation (EC) No. 1272/2008)	
Remarks	Based on available data, the classification criteria are not met.	

#### Acute inhalative toxicity (Components)

##### polyisocyanate, aliphatic

ATE	1,5	mg/l
Duration of exposure	4	h
Administration/Form	Dust/Mist	
Method	conversion value	

Trade name: Hesse PU Hardener DR 4005

Version: 12 / GB

Revision: 15.12.2021

Replaces Version: 11 / GB

Print date: 18.06.22

**bis(isocyanatomethyl)cyclohexane**

ATE	0,05	mg/l
Duration of exposure	4	h
Administration/Form	Dust/Mist	
Method	conversion value	

**Skin corrosion/irritation**

Method	Calculation method (Regulation (EC) No. 1272/2008)
Remarks	Based on available data, the classification criteria are not met.

**Skin corrosion/irritation (Components)****n-Hexane**

Species	rabbit
Duration of exposure	24 h
Observation Period	72 h
evaluation	Irritating to skin.

**bis(isocyanatomethyl)cyclohexane**

evaluation	Irritating to skin.
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**Serious eye damage/irritation**

Method	Calculation method (Regulation (EC) No. 1272/2008)
Remarks	Based on available data, the classification criteria are not met.

**Serious eye damage/irritation (Components)****ethyl acetate**

Species	rabbit
Observation Period	24 h
evaluation	Irritating to eyes.
Source	2 (reliable with restrictions)

**bis(isocyanatomethyl)cyclohexane**

evaluation	Irritating to eyes.
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**Sensitization**

evaluation	May cause sensitization by skin contact.
Method	Calculation method (Regulation (EC) No. 1272/2008)
Remarks	The classification criteria are met.

**Sensitization (Components)****polyisocyanate, aliphatic**

evaluation	May cause sensitization by skin contact.
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**bis(isocyanatomethyl)cyclohexane**

evaluation	May cause sensitization by skin contact.
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**Mutagenicity**

Method	Calculation method (Regulation (EC) No. 1272/2008)
Remarks	Based on available data, the classification criteria are not met.

**Reproductive toxicity**

Method	Calculation method (Regulation (EC) No. 1272/2008)
Remarks	Based on available data, the classification criteria are not met.

**Reproduction toxicity (Components)****n-Hexane**

evaluation	Reproductive toxicity, Category 2
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**Carcinogenicity**

Trade name: Hesse PU Hardener DR 4005

Version: 12 / GB

Revision: 15.12.2021

Replaces Version: 11 / GB

Print date: 18.06.22

Method Calculation method (Regulation (EC) No. 1272/2008)  
 Remarks Based on available data, the classification criteria are not met.

**Specific Target Organ Toxicity (STOT)****Single exposure**

Method Calculation method (Regulation (EC) No. 1272/2008)  
 Remarks The classification criteria are met.  
 evaluation May cause drowsiness or dizziness.

**Repeated exposure**

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

**Specific Target Organ Toxicity (STOT) (Components)****ethyl acetate****Specific target organ toxicity - single exposure**

Remarks Organs: Nervous system  
 Possible narcotic effects (drowsiness, dizziness).

**n-butyl acetate****Specific target organ toxicity - repeated exposure**

Remarks Organs: Nervous system  
 Possible narcotic effects (drowsiness, dizziness).

**n-Hexane****Specific target organ toxicity - repeated exposure**

Remarks May cause damage to organs through prolonged or repeated exposure:

**n-Hexane****Specific target organ toxicity - single exposure**

Remarks Organs: Nervous system  
 Possible narcotic effects (drowsiness, dizziness).

**polyisocyanate, aliphatic****Specific target organ toxicity - single exposure**

evaluation May cause respiratory irritation.  
 Organs: Respiratory tract

**Aspiration hazard**

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

**Other information**

No toxicological data are available.

**12. Ecological information****12.1. Toxicity****General information**

For this subsection there is no ecotoxicological data available on the product as such.

**Fish toxicity (Components)****polyisocyanate, aliphatic**

Species	zebra fish (Brachydanio rerio)	
LC50	> 100	mg/l
Duration of exposure	= 96	h

**Daphnia toxicity (Components)**

Trade name: Hesse PU Hardener DR 4005

Version: 12 / GB

Revision: 15.12.2021

Replaces Version: 11 / GB

Print date: 18.06.22

**polyisocyanate, aliphatic**

Species	Daphnia magna (Water flea)		
EC50	>	100	mg/l

**n-Hexane**

Species	Daphnia magna (Water flea)		
EC50		2,1	mg/l
Duration of exposure	48	h	

**Algae toxicity (Components)****polyisocyanate, aliphatic**

EC50	>	100	mg/l
Duration of exposure	=	72	h

**12.2. Persistence and degradability****General information**

For this subsection there is no ecotoxicological data available on the product as such.

**Ready degradability (Components)**

polyisocyanate, aliphatic

**12.3. Bioaccumulative potential****General information**

For this subsection there is no ecotoxicological data available on the product as such.

**Partition coefficient: n-octanol/water**

Remarks	not determined
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**12.4. Mobility in soil****General information**

For this subsection there is no ecotoxicological data available on the product as such.

**Mobility in soil**

no data available

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

For this subsection there is no ecotoxicological data available on the product as such.

**12.6. Other adverse effects****General information**

For this subsection there is no ecotoxicological data available on the product as such.

**General information / ecology**

For this subsection there is no ecotoxicological data available on the product as such.

**13. Disposal considerations****13.1. Waste treatment methods****Disposal recommendations for the product**

EWC waste code	080111 - waste paint and varnish containing organic solvents or other dangerous substances
EWC waste code	200127 - paint, inks, adhesives and resins containing dangerous substances



Trade name: Hesse PU Hardener DR 4005

Version: 12 / GB

Revision: 15.12.2021

Replaces Version: 11 / GB

Print date: 18.06.22

Where possible recycling is preferred to disposal or incineration.  
Do not allow to enter drains or waterways.

**modified product**

EWC waste code 080115 - aqueous sludges containing paint or varnish containing organic solvents or other dangerous substances  
EWC waste code 080113 - sludges from paint or varnish containing organic solvents or other dangerous substances

**Dried residues**




EWC waste code 080112 - waste lacquers and waste paint except those falling under 080111

**Disposal recommendations for packaging**

EWC waste code 150110 - packaging containing residues of or contaminated by dangerous substances

Completely emptied packagings can be given for recycling.

**14. Transport information**

	Land transport ADR/RID	Marine transport IMDG/GGVSee	Air transport ICAO/IATA
Tunnel restriction code	D/E		
14.1. UN number	1263	1263	1263
14.2. UN proper shipping name	PAINT	PAINT	PAINT
14.3. Transport hazard class(es)	3	3	3
Label			
14.4. Packing group	II	II	II
Special provision	640D		
Limited Quantity	5 l		
Transport category	2		

**15. Regulatory information**

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

**VOC**

VOC (EU) 57,9 % 571 g/l

Trade name: Hesse PU Hardener DR 4005

Version: 12 / GB

Revision: 15.12.2021

Replaces Version: 11 / GB

Print date: 18.06.22

### Other information

All components are contained in the TSCA inventory or exempted.  
 All components are contained in the AICS inventory.  
 All components are contained in the DSL or NDSL inventory.  
 All components are contained in the IECSC inventory.  
 All components are contained in the ENCS inventory.  
 All components are contained in the ECL inventory.

### 15.2. Chemical safety assessment

For this substance / mixture a chemical safety assessment was not carried out.

### 16. Other information

#### Hazard statements listed in Chapter 3

EUH066	Repeated exposure may cause skin dryness or cracking.
H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H361f	Suspected of damaging fertility.
H373	May cause damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.

#### CLP categories listed in Chapter 3

Acute Tox. 2	Acute toxicity, Category 2
Acute Tox. 4	Acute toxicity, Category 4
Aquatic Chronic 2	Hazardous to the aquatic environment, chronic, Category 2
Asp. Tox. 1	Aspiration hazard, Category 1
Eye Irrit. 2	Eye irritation, Category 2
Flam. Liq. 2	Flammable liquid, Category 2
Flam. Liq. 3	Flammable liquid, Category 3
Repr. 2	Reproductive toxicity, Category 2
Skin Irrit. 2	Skin irritation, Category 2
Skin Sens. 1	Skin sensitization, Category 1
STOT RE 2	Specific target organ toxicity - repeated exposure, Category 2
STOT SE 3	Specific target organ toxicity - single exposure, Category 3

#### Abbreviations

ADR - Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
 RID - Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)  
 IMDG - International Maritime Code for Dangerous Goods  
 IATA - International Air Transport Association  
 IATA-DGR - Dangerous Goods Regulations by the "International Air Transport Association" (IATA)  
 ICAO-TI - Technical Instructions by the "International Civil Aviation Organization" (ICAO)  
 GHS - Globally Harmonized System of Classification and Labelling of Chemicals

Trade name: Hesse PU Hardener DR 4005

Version: 12 / GB

Revision: 15.12.2021

Replaces Version: 11 / GB

Print date: 18.06.22

EINECS - European Inventory of Existing Commercial Chemical Substances  
 CAS - Chemical Abstracts Service (division of the American Chemical Society)  
 GefStoffV - Gefahrstoffverordnung (Ordinance on Hazardous Substances, Germany)  
 LOAEL - Lowest Observed Adverse Effect Level  
 LOEL - Lowest Observed Effect Level  
 NOAEL - No Observed Adverse Effect Level  
 NOEC - No Observed Effect Concentration  
 NOEL - No Observed Effect Level  
 OECD - Organisation for Economic Cooperation and Development  
 VOC - Volatile Organic Compounds

Changes since the last version are highlighted in the margin (\*\*\*) . This version replaces all previous versions.

This safety datasheet only contains information relating to safety and does not replace any product information or product specification.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification.

The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

The information contained herein is based on the present state of our knowledge and does therefore not guarantee certain properties.

## **Annex to the extended Safety Data Sheet (eSDS)**

### **Short title of the exposure scenario**

ES001 - Industrial applications: industrial spraying (inside)

### **Use of the substance/preparation**

Surface treatment of wood and other materials

### **Use**

SU3	Industrial uses: Uses of substances as such or in preparations at industrial sites
ERC4	Industrial use of processing aids in processes and products, not becoming part of articles
ERC5	Industrial use resulting in inclusion into or onto a matrix
PROC7	Industrial spraying

## **Contributing exposure scenario controlling environmental exposure**

### **Use**

ERC4	Industrial use of processing aids in processes and products, not becoming part of articles
ERC5	Industrial use resulting in inclusion into or onto a matrix

### **Physical form**

liquid

### **Maximum amount used per time or activity**

Emission days per site: <= 300

### **Other relevant operational conditions**

Use: Room temperature

Drying and through-curing takes place at ambient temperature or at higher temperatures.

Where possible recycling is preferred to disposal or incineration.

Do not allow to enter soil, waterways or waste water canal.

Dispose of rinse water in accordance with local and national regulations.

Trade name: Hesse PU Hardener DR 4005

Version: 12 / GB

Revision: 15.12.2021

Replaces Version: 11 / GB

Print date: 18.06.22

**Waste water**

Do not discharge into the drains/surface waters/groundwater. Spray cabin waters are to be conducted after mechanical pretreatment into a wastewater treatment facility.

**Exhaust air**

Keep container closed. Avoid release to the environment.

**Soil**

Floors should be impervious, resistant to liquids and easy to clean.

**Disposal recommendations for the product**

EWC waste code	080111 - waste paint and varnish containing organic solvents or other dangerous substances 200127 - paint, inks, adhesives and resins containing dangerous substances
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Where possible recycling is preferred to disposal or incineration.  
Do not allow to enter drains or waterways.

**modified product**

EWC waste code	080115 - aqueous sludges containing paint or varnish containing organic solvents or other dangerous substances 080113 - sludges from paint or varnish containing organic solvents or other dangerous substances
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**Dried residues**

EWC waste code	080112 - waste lacquers and waste paint except those falling under 080111
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**Disposal recommendations for packaging**

EWC waste code	150110 - packaging containing residues of or contaminated by dangerous substances
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Completely emptied packagings can be given for recycling.

**Contributing exposure scenario controlling worker exposure**

**Use**

SU3 PROC7	Industrial uses: Uses of substances as such or in preparations at industrial sites Industrial spraying
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**Physical form**

liquid

**Maximum amount used per time or activity**

Duration of exposure	<= 8	h/d
Frequency of exposure	<= 220	d/a

**Other relevant operational conditions**

Use: Room temperature  
Drying and through-curing takes place at ambient temperature or at higher temperatures.  
Read attached instructions before use.

**Product substance and product safety related measures**

Mainly used in closed systems. Apply technical measures to comply with the occupational exposure limits. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. Provide for sufficient ventilation. This can be achieved by local exhaust or general exhaust air collection. Wear a suitable respirator if the ventilation is not sufficient to keep the solvent vapour concentration below the occupational limit values.

**Respiratory protection**

Trade name: Hesse PU Hardener DR 4005

Version: 12 / GB

Revision: 15.12.2021

Replaces Version: 11 / GB

Print date: 18.06.22

Avoid inhalation of vapour and spray mist. Use breathing apparatus if exposed to vapours/dust/aerosol.  
Recommended Filter type: Respiratory protection mask with combination filter A/P2

### Hand protection

Protective gloves complying with EN 374.

Glove material

Multilayer gloves made from

Appropriate Material Fluorinated rubber / butyl-rubber

Material thickness  $\geq$  0,7

Breakthrough time  $\geq$  30

This recommendation is valid only for the product named in this safety data sheet supplied by us, and only for the indicated intended use purposes.

For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

The instructions and information provided by the glove manufacturer on use, storage, maintenance and replacement must be followed.

The breakthrough time must be greater than the end use time of the product.

Gloves should be replaced regularly and if there is any sign of damage to the glove material.

The performance or effectiveness of the glove may be reduced by physical/ chemical damage and poor maintenance.

### Eye protection

Wear eye glasses with side protection according to EN 166.

### Body protection

Wear suitable protective clothing. Remove contaminated clothing and wash it before reuse. Wash hands before breaks and after work.

## Exposure estimation and reference to its source

### Workers (industrial)

PROC	PROC7
Assessment method	inhalation, long-term - local and systemic
	Indoor use
Exposure assessment	60,5 mg/m <sup>3</sup>
Exposure assessment (method)	ECETOC TRA
Risk characterisation ratio (RCR)	0,126
Lead substance	n-butyl acetate

### Workers (industrial)

PROC	PROC10
Assessment method	inhalation, long-term - systemic
	Indoor use
Exposure assessment	242 mg/m <sup>3</sup>
Exposure assessment (method)	ECETOC TRA
Risk characterisation ratio (RCR)	0,504
Lead substance	n-butyl acetate

### Workers (industrial)

PROC	PROC10
Assessment method	inhalation, long-term - systemic
	Outdoor use
Exposure assessment	242 mg/m <sup>3</sup>
Exposure assessment (method)	ECETOC TRA
Risk characterisation ratio (RCR)	0,504
Lead substance	n-butyl acetate

Trade name: Hesse PU Hardener DR 4005

Version: 12 / GB

Revision: 15.12.2021

Replaces Version: 11 / GB

Print date: 18.06.22

**Workers (industrial)**

PROC	PROC13
Assessment method	inhalation, long-term - systemic
	Indoor use
Exposure assessment	242 mg/m <sup>3</sup>
Exposure assessment (method)	ECETOC TRA
Risk characterisation ratio (RCR)	0,504
Lead substance	n-butyl acetate

**Workers (industrial)**

PROC	PROC13
Assessment method	inhalation, long-term - systemic
	Outdoor use
Exposure assessment	242 mg/m <sup>3</sup>
Exposure assessment (method)	ECETOC TRA
Risk characterisation ratio (RCR)	0,504
Lead substance	n-butyl acetate

**Information on estimated exposure and downstream-user guidance****Guidance for Downstream Users**

The downstream user can evaluate whether he operates within the conditions set in the exposure scenario on the basis of the information supplied. This evaluation can be conducted by an expert or using the risk assessment tools recommended by ECHA.

**Annex to the extended Safety Data Sheet (eSDS)****Short title of the exposure scenario**

ES003 - Professional uses: Non industrial spraying (inside)

**Use of the substance/preparation**

Surface treatment of wood and other materials

**Use**

SU22	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
ERC8a	Wide dispersive indoor use of processing aids in open systems
ERC8c	Wide dispersive indoor use resulting in inclusion into or onto a matrix
PROC11	Non industrial spraying

**Contributing exposure scenario controlling environmental exposure****Use**

ERC8a	Wide dispersive indoor use of processing aids in open systems
ERC8c	Wide dispersive indoor use resulting in inclusion into or onto a matrix

**Physical form**

liquid

**Maximum amount used per time or activity**

Emission days per site: &lt;= 250

**Other relevant operational conditions**

Use: Room temperature  
 Drying and through-curing takes place at ambient temperature or at higher temperatures.  
 Volatile organic substances will volatilise into the atmospheric air inside.  
 Where possible recycling is preferred to disposal or incineration.

Trade name: Hesse PU Hardener DR 4005

Version: 12 / GB

Revision: 15.12.2021

Replaces Version: 11 / GB

Print date: 18.06.22

Do not allow to enter soil, waterways or waste water canal.  
 Dispose of rinse water in accordance with local and national regulations.

**Waste water**

Do not discharge into the drains/surface waters/groundwater. Spray cabin waters are to be conducted after mechanical pretreatment into a wastewater treatment facility.

**Exhaust air**

Keep container closed. Avoid release to the environment.

**Soil**

Floors should be impervious, resistant to liquids and easy to clean.

**Disposal recommendations for the product**

EWC waste code 080111 - waste paint and varnish containing organic solvents or other dangerous substances  
 200127 - paint, inks, adhesives and resins containing dangerous substances

Where possible recycling is preferred to disposal or incineration.  
 Do not allow to enter drains or waterways.

**modified product**

EWC waste code 080115 - aqueous sludges containing paint or varnish containing organic solvents or other dangerous substances  
 080113 - sludges from paint or varnish containing organic solvents or other dangerous substances

**Dried residues**

EWC waste code 080112 - waste lacquers and waste paint except those falling under 080111

**Disposal recommendations for packaging**

EWC waste code 150110 - packaging containing residues of or contaminated by dangerous substances

Completely emptied packagings can be given for recycling.

**Contributing exposure scenario controlling worker exposure (professional)****Short title of the exposure scenario**

Substance number:CES006

**Use**

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

PROC11 Non industrial spraying

**Physical form**

liquid

**Maximum amount used per time or activity**

Duration of exposure	<=	8	h/d
Frequency of exposure	<=	220	d/a

**Other relevant operational conditions**

Use: Room temperature  
 Drying and through-curing takes place at ambient temperature or at higher temperatures.  
 Volatile organic substances will volatilise into the atmospheric air inside.  
 Read attached instructions before use.

**Product substance and product safety related measures**

Trade name: Hesse PU Hardener DR 4005

Version: 12 / GB

Revision: 15.12.2021

Replaces Version: 11 / GB

Print date: 18.06.22

Apply technical measures to comply with the occupational exposure limits. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. Provide for sufficient ventilation. This can be achieved by local exhaust or general exhaust air collection. Wear a suitable respirator if the ventilation is not sufficient to keep the solvent vapour concentration below the occupational limit values.

### Respiratory protection

Avoid inhalation of vapour and spray mist. Use breathing apparatus if exposed to vapours/dust/aerosol.

Recommended Filter type: Respiratory protection mask with combination filter A/P2

### Hand protection

Protective gloves complying with EN 374.

Glove material

Multilayer gloves made from

Appropriate Material Fluorinated rubber / butyl-rubber

Material thickness  $\geq$  0,7

Breakthrough time  $\geq$  30

This recommendation is valid only for the product named in this safety data sheet supplied by us, and only for the indicated intended use purposes.

For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

The instructions and information provided by the glove manufacturer on use, storage, maintenance and replacement must be followed.

The breakthrough time must be greater than the end use time of the product.

Gloves should be replaced regularly and if there is any sign of damage to the glove material.

The performance or effectiveness of the glove may be reduced by physical/ chemical damage and poor maintenance.

### Eye protection

Wear eye glasses with side protection according to EN 166.

### Body protection

Wear suitable protective clothing. Remove contaminated clothing and wash it before reuse. Wash hands before breaks and after work.

## Exposure estimation and reference to its source

### Workers (professional)

SU	SU22
PROC	PROC11
Assessment method	Long-term inhalative
Exposure assessment	242 mg/m <sup>3</sup>
Exposure assessment (method)	ECETOC TRA
Risk characterisation ratio (RCR)	0,504
Lead substance	n-butyl acetate

## Information on estimated exposure and downstream-user guidance

### Guidance for Downstream Users

The downstream user can evaluate whether he operates within the conditions set in the exposure scenario on the basis of the information supplied. This evaluation can be conducted by an expert or using the risk assessment tools recommended by ECHA.