

Trade name: Hesse PU DECORATIVE METAL Hardener DR 4008

Version: 30 / GB

Revision: 29.12.2020

Replaces Version: 29 / GB

Print date: 19.07.21

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

1.1. Product identifier

Hesse PU DECORATIVE METAL Hardener DR 4008

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
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. 3	H226
	Eye Dam. 1	H318
	Skin Sens. 1	H317
	STOT SE 3	H335
	Acute Tox. 4	H332
	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.

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2.2. Label elements

Labelling according to regulation (EC) No 1272/2008

Hazard pictograms



Signal word

Danger

Hazard statements

H226	Flammable liquid and vapour.
H318	Causes serious eye damage.
H317	May cause an allergic skin reaction.
H336	May cause drowsiness or dizziness.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.

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.
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.

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

contains	bis(trimethoxysilylpropyl)amine; Hexamethylene-di-isocyanate; n-butyl acetate; hexamethylene diisocyanate, oligomers
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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

hexamethylene diisocyanate, oligomers

CAS No.	28182-81-2		
Registration no.	01-2119485796-17		
Concentration	>= 50		%
Classification (Regulation (EC) No. 1272/2008)	Acute Tox. 4	H332	Route of exposure: Inhalation exposure
	Skin Sens. 1	H317	

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	STOT SE 3	H335	Respiratory tract
n-butyl acetate			
CAS No.	123-86-4		
EINECS no.	204-658-1		
Registration no.	01-2119485493-29		
Concentration	>= 25	< 50	%
Classification (Regulation (EC) No. 1272/2008)			
	Flam. Liq. 3	H226	
	STOT SE 3	H335	Nervous system
		EUH066	
bis(trimethoxysilylpropyl)amine			
CAS No.	82985-35-1		
EINECS no.	280-084-5		
Registration no.	01-2119969956-12		
Concentration	>= 3	< 10	%
Classification (Regulation (EC) No. 1272/2008)			
	Eye Dam. 1	H318	
Hexamethylene-di-isocyanate			
CAS No.	822-06-0		
EINECS no.	212-485-8		
Registration no.	01-2119457571-37		
Concentration	>= 0,1	< 0,2	%
Classification (Regulation (EC) No. 1272/2008)			
	Acute Tox. 4	H302	Route of exposure: Oral exposure
	Acute Tox. 1	H330	Route of exposure: Inhalation exposure
	Eye Irrit. 2	H319	
	STOT SE 3	H335	
	Skin Irrit. 2	H315	
	Resp. Sens. 1	H334	
	Skin Sens. 1	H317	
Concentration limits (Regulation (EC) No. 1272/2008)			
	Resp. Sens. 1	H334	>= 0,5 %
	Skin Sens. 1	H317	>= 0,5 %

Note

For explanation of abbreviations see section 16.

This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57) (if not listed in Section 3).

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

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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. High concentration of vapours may cause irritation to eyes and respiratory system and produce narcotic effects.

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

The product can hydrolyze in contact with body fluids of the gastrointestinal system and form additional methanol. Therefore observe signs/symptoms of a methanol intoxication and keep also the known latent period of several days!

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

Recommended: alcohol resistant foam, CO₂, 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

Fire will produce dense black smoke. In a fire, hazardous decomposition products may be produced. Exposure to decomposition products may cause a health hazard. Vapours can form an explosive mixture with air.

5.3. Advice for firefighters**Special protective equipment for fire-fighting**

In case of combustion evolution of dangerous gases possible. Use self-contained breathing apparatus.

Other information

Do not allow run-off from fire fighting to enter drains or water courses. Cool closed containers exposed to fire with water. 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. In case of gas escape or of entry into waterways, soil or

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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. 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

8.1. Control parameters

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Exposure limit values**n-butyl acetate**

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

n-butyl acetate

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

Other information

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Derived No/Minimal Effect Levels (DNEL/DMEL)**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 ³

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 ³

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 ³

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 ³

Type of value	Derived No Effect Level (DNEL)		
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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	
Duration of exposure	Short-term	
Route of exposure	inhalative	
Mode of action	Systemic effects	
Concentration	300	mg/m ³

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 ³

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 ³

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 ³

hexamethylene diisocyanate, oligomers

Type of value	Derived No Effect Level (DNEL)	
Reference group	Workers (industrial)	
Duration of exposure	Short-term	
Route of exposure	inhalative	
Mode of action	Local effects	
Concentration	0,5	mg/m ³

Hexamethylene-di-isocyanate

Type of value	Derived No Effect Level (DNEL)	
Reference group	Workers (professional)	
Duration of exposure	Short-term	

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Route of exposure	inhalative	
Mode of action	Systemic effects	
Concentration	0,07	mg/m ³

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	0,035	mg/m ³

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	0,035	mg/m ³

bis(trimethoxysilylpropyl)amine

Type of value	Derived No Effect Level (DNEL)	
Reference group	Workers (industrial)	
Duration of exposure	Long-term	
Route of exposure	inhalative	
Mode of action	Systemic effects	
Concentration	30,41	mg/m ³

Type of value	Derived No Effect Level (DNEL)	
Reference group	Workers (industrial)	
Duration of exposure	Long-term	
Route of exposure	Dermal exposure	
Mode of action	Systemic effects	
Concentration	4,31	mg/kg/d

Type of value	Derived No Effect Level (DNEL)	
Reference group	Workers (industrial)	
Duration of exposure	Long-term	
Route of exposure	Dermal exposure	
Mode of action	Local effects	
Concentration	4000	mg/cm ²

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	5,36	mg/m ³

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	1,54	mg/kg/d

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Type of value	Derived No Effect Level (DNEL)	
Reference group	Consumer	
Duration of exposure	Long-term	
Route of exposure	Dermal exposure	
Mode of action	Local effects	
Concentration	2000	mg/cm ²
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	1,54	mg/kg/d
Type of value	Derived No Effect Level (DNEL)	
Reference group	Workers (industrial)	
Duration of exposure	Long-term	
Route of exposure	Dermal exposure	
Mode of action	Local effects	
Concentration	4000	mg/cm ²

Predicted No Effect Concentration (PNEC)

n-butyl acetate

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	
Concentration	0,0903	mg/kg

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hexamethylene diisocyanate, oligomers

Type of value	PNEC	
Type	Freshwater	
Concentration	0,127	mg/l
Type of value	PNEC	
Type	marine water	
Concentration	0,0127	mg/l
Type of value	PNEC	
Type	saltwater sediment	
Concentration	266700	mg/kg
Type of value	PNEC	
Type	Soil	
Concentration	53182	mg/kg
Type of value	PNEC	
Type	Sewage treatment plant (STP)	
Concentration	38,28	mg/l

Hexamethylene-di-isocyanate

Type of value	PNEC	
Type	Freshwater	
Concentration	> 0,0774	mg/l
Type of value	PNEC	
Type	Saltwater	
Concentration	> 0,00774	mg/l
Type of value	PNEC	
Type	Fresh water sediment	
Concentration	> 0,01334	mg/kg
Type of value	PNEC	
Type	saltwater sediment	
Concentration	> 0,001334	mg/l
Type of value	PNEC	
Type	Soil	
Concentration	> 0,0026	mg/kg
Type of value	PNEC	
Type	Sewage treatment plant (STP)	
Concentration	8,42	mg/l

bis(trimethoxysilylpropyl)amine

Type of value	PNEC	
Type	Freshwater	
Concentration	0,2	mg/l

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Type of value	PNEC		
Type	marine water		
Concentration	0,02	mg/l	
Type of value	PNEC		
Type	Freshwater		
Conditions	sporadic release		
Concentration	2,0	mg/l	
Type of value	PNEC		
Type	Fresh water sediment		
Concentration	0,72	mg/kg	
Type of value	PNEC		
Type	saltwater sediment		
Concentration	0,072	mg/kg	
Type of value	PNEC		
Type	Soil		
Concentration	0,026	mg/kg	
Type of value	PNEC		
Type	Sewage treatment plant (STP)		
Concentration	22	mg/l	

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.

Multilayer gloves made from

Appropriate Material Fluorinated rubber / butyl-rubber

Material thickness >= 0,7 mm

Breakthrough time >= 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.

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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**

Form	liquid		
Colour	colourless		
Odour	solvent-like		
Odour threshold			
Remarks	not determined		
Melting point			
Remarks	not determined		
Freezing point			
Remarks	not determined		
Initial boiling point and boiling range			
Remarks	not determined		
Flash point			
Value	27		°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. 1,016		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		

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Decomposition temperature

Remarks not determined

Viscosity

Remarks not determined

Efflux time

Value	25	to	30	s
Temperature	20	°C		
Method	DIN 53211 4 mm			

Explosive properties

evaluation not determined

Oxidising properties

Remarks not determined

9.2. Other information**Non-volatile content**

Value	62,5	%
Method	calculated value	

Other information

This information is not available.

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. Reacts with water or moisture and generates: methanol, siloxane gel.

10.6. Hazardous decomposition productsCarbon monoxide and carbon dioxide, nitrous oxides (NO_x), dense black smoke, No decomposition if used as prescribed.**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)**Hexamethylene-di-isocyanate**

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Species	rat	
LD50	746	mg/kg
Method	OECD 401	

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	2,9983	mg/l
Administration/Form	Dust/Mist	
Method	calculated value (Regulation (EC) No. 1272/2008)	
Remarks	The classification criteria are met.	

Acute inhalative toxicity (Components)**hexamethylene diisocyanate, oligomers**

Species	rat	
LC50	2,18	mg/l
Duration of exposure	4	h
Administration/Form	Dust/Mist	
Remarks	Mist	

Hexamethylene-di-isocyanate

Species	rat	
LC50	0,015	mg/l
Duration of exposure	4	h
Administration/Form	Dust/Mist	

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)**Hexamethylene-di-isocyanate**

Species	rabbit
evaluation	Severe skin irritation

Serious eye damage/irritation

evaluation	corrosive
Method	Calculation method (Regulation (EC) No. 1272/2008)
Remarks	The classification criteria are met.

Serious eye damage/irritation (Components)**Hexamethylene-di-isocyanate**

Species	rabbit
evaluation	Severe eye irritation

bis(trimethoxysilylpropyl)amine

Species	rabbit
Observation Period	21 d

Sensitization

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

Sensitization (Components)**hexamethylene diisocyanate, oligomers**

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evaluation	May cause sensitization by skin contact.
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Hexamethylene-di-isocyanate

Species	guinea pig
evaluation	May cause sensitization by skin contact.
Method	OECD Test Guideline 406

Hexamethylene-di-isocyanate

Route of exposure	inhalative
Species	guinea pig
evaluation	May cause sensitization by inhalation.

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.

Carcinogenicity

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 respiratory irritation.
evaluation	May cause drowsiness or dizziness.

Repeated exposure

Remarks	Based on available data, the classification criteria are not met.
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Specific Target Organ Toxicity (STOT) (Components)**n-butyl acetate****Specific target organ toxicity - repeated exposure**

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

Remarks	May cause respiratory irritation.
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Hexamethylene-di-isocyanate**Specific target organ toxicity - single exposure**

evaluation	May cause respiratory irritation. Organs: Respiratory tract
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Aspiration hazard

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

Remarks	No toxicological data are available.
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12. Ecological information**12.1. Toxicity****General information**

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

Daphnia toxicity (Components)

hexamethylene diisocyanate, oligomers

Species	Daphnia magna (Water flea)		
EC50	127		mg/l
Duration of exposure	48	h	

12.2. Persistence and degradability

General information

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

Biodegradability (Components)

bis(trimethoxysilylpropyl)amine

Value	17	%
evaluation	Not readily biodegradable.	

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

Where possible recycling is preferred to disposal or incineration.

Do not allow to enter drains or waterways.

modified product

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EWC waste code 080113 - sludges from paint or varnish containing organic solvents or other dangerous substances
 EWC waste code 080115 - aqueous sludges containing 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	III	III	III
Limited Quantity	5 l		
Transport category	3		

15. Regulatory information

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

VOC

VOC (EU) 37,5 % 381 g/l

Other information

All components are contained in the TSCA inventory or exempted.
 All components are contained in the PICCS inventory.
 All components are contained in the DSL inventory.
 All components are contained in the IECSC inventory.
 All components are contained in the ECL inventory.

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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.
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.

CLP categories listed in Chapter 3

Acute Tox. 1	Acute toxicity, Category 1
Acute Tox. 4	Acute toxicity, Category 4
Eye Dam. 1	Serious eye damage, Category 1
Eye Irrit. 2	Eye irritation, Category 2
Flam. Liq. 3	Flammable liquid, Category 3
Resp. Sens. 1	Respiratory sensitization, Category 1
Skin Irrit. 2	Skin irritation, Category 2
Skin Sens. 1	Skin sensitization, Category 1
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
 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.

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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.

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 080113 - sludges from paint or varnish containing organic solvents or other dangerous substances
080115 - aqueous sludges containing 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**Use**

SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
PROC7 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.
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

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.
Multilayer gloves made from
Appropriate Material Fluorinated rubber / butyl-rubber
Material thickness >= 0,7
Breakthrough time >= 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.

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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 ³
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 ³
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 ³
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
	Indoor use
Exposure assessment	242 mg/m ³
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 ³
Exposure assessment (method)	ECETOC TRA
Risk characterisation ratio (RCR)	0,504

Trade name: Hesse PU DECORATIVE METAL Hardener DR 4008

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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: <= 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.
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

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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	080113 - sludges from paint or varnish containing organic solvents or other dangerous substances
	080115 - aqueous sludges containing 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
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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 (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

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.

Multilayer gloves made from

Appropriate Material	Fluorinated rubber / butyl-rubber
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Material thickness	>= 0,7
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Breakthrough time	>= 30
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This recommendation is valid only for the product named in this safety data sheet supplied by us, and

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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 ³
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.