

Trade name: DESMODUR 44 V 20 L**Product no.:** 5596408**Current version :** 2.0.0, issued: 13.01.2022**Replaced version:** 1.1.0, issued: 26.04.2021**Region:** GB**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier****Trade name****DESMODUR 44 V 20 L**

Substance name diphenylmethanediisocyanate, isomeres and homologues

Identification numbers

CAS no. 9016-87-9

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

Di-/polyisocyanate components for the production of polyurethanes

Uses advised against

Spray applications by final consumers are not supported.

Final consumer uses requiring heating above room temperature prior use, are not supported.

Professional cleaning applications using aprotic polar solvent are not supported.

1.3 Details of the supplier of the safety data sheet**Address**PLIXXENT Holding GmbH
Gasstraße 18
22761 Hamburg
Germany

Telephone no. +49 441 68099 190

e-mail productsafety@plixxent.com

Advice on Safety Data Sheet

sdb_info@umco.de

1.4 Emergency telephone number

In case of transport incidents and other emergencies:

+44 (0) 1235 239 670 (NCEC, National Chemical Emergency Centre)

SECTION 2: Hazards identification**2.1 Classification of the substance or mixture****Classification in accordance with Regulation (EC) No 1272/2008 (CLP)**

Acute Tox. 4; H332

Carc. 2; H351

Eye Irrit. 2; H319

Resp. Sens. 1; H334

Skin Irrit. 2; H315

Skin Sens. 1; H317

STOT RE 2; H373i

STOT SE 3; H335

Classification information

This product is assessed and classified using the methods and criteria below referred to in Article 9 of Regulation (EC) n° 1272/2008:

Physical hazards: determined through assessment data based on the methods or standards referred to in part 2 of Annex I to CLP

Health hazards and environmental hazards: determined through toxicological and ecotoxicological assessment data based on the methods or standards referred to in Part 3 and 4 of Annex I to CLP.

2.2 Label elements**Labelling according to Regulation (EC) No 1272/2008 (CLP Regulation)****Product identifier**

9016-87-9 (diphenylmethanediisocyanate, isomeres and homologues)

Hazard pictograms

GHS07



GHS08

Signal word

Danger

Hazard statement(s)

H315

Causes skin irritation.

H317

May cause an allergic skin reaction.

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H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
H373i	May cause damage to organs through prolonged or repeated exposure if inhaled.

Precautionary statement(s)

P280	Wear protective gloves/protective clothing/eye protection/face protection.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

Supplemental label elements

'As from 24 August 2023 adequate training is required before industrial or professional use'

2.3 Other hazards

In case of respiratory system hypersensitivity (asthma, chronic bronchitis) do not handle this product.

SECTION 3: Composition/information on ingredients**3.1 Substances****Chemical characterization**

Substance name diphenylmethanediisocyanate, isomeres and homologues

Identification numbers

CAS no. 9016-87-9

Components to be mentioned according to Regulation (EU) No. 1907/2006, Annex II, section 3.1

Substance name	Additional information	
CAS / EC / Index / REACH no	Concentration	%
diphenylmethane-4,4'-diisocyanate	component	
101-68-8 202-966-0 615-005-00-9 01-2119457014-47	>= 25.00 - < 50.00	wt%
diphenylmethane-2,4'-diisocyanate	component	
5873-54-1 227-534-9 615-005-00-9 01-2119480143-45	< 5.00	wt%
2,2'-methylene-diphenyl diisocyanate	component	
2536-05-2 219-799-4 615-005-00-9 01-2119927323-43	< 2.50	wt%

Other information

Note	Specific concentration limits	M-factor (acute)	M-factor (chronic)
-	Resp. Sens. 1; H334: C >= 0.1% Eye Irrit. 2; H319: C >= 5% STOT SE 3; H335: C >= 5% Skin Irrit. 2; H315: C >= 5%	-	-

3.2 Mixtures

Not applicable. The product is not a mixture.

3.3 Other information

Any substances in the candidate list (SVHC) in accordance with REACH regulation (EC) 1907/2006 that may be contained in the product are specified in section 15.

SECTION 4: First aid measures**4.1 Description of first aid measures****General information**

Remove contaminated clothing immediately and dispose of safely.

After inhalation

Remove to fresh air, keep patient warm and at rest. In case of persisting adverse effects consult a physician.

After skin contact

Preferably wash with polyethylene glycol-based cleanser or with plenty of warm water and soap. Consult a doctor if skin irritation persists.

After eye contact

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Remove contact lenses. Rinse eye thoroughly under running water keeping eyelids wide open and protecting the unaffected eye (at least 10 to 15 minutes). Seek medical assistance.

After ingestion

Rinse the mouth thoroughly with water. Do not induce vomiting. Call a doctor immediately.

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

The product irritates the respiratory tract and may trigger sensitisation of the skin and respiratory tract. Treatment of acute irritation or bronchial constriction is primarily symptomatic. Extended medical treatment may be required depending on the degree of exposure and the severity of the symptoms.

4.3 Indication of any immediate medical attention and special treatment needed

No data available.

SECTION 5: Firefighting measures**5.1 Extinguishing media****Suitable extinguishing media**

Carbon dioxide; Foam; Extinguishing powder; Fight larger fires with directed water spray.

Unsuitable extinguishing media

High power water jet

5.2 Special hazards arising from the substance or mixture

In the event of fire, the following can be released: Carbon dioxide (CO₂); Carbon monoxide (CO); Nitrogen oxides (NO_x); Hydrogen cyanide (HCN); In case of fire: danger of pressure build up, which could result in container rupture. Containers at risk from fire should be cooled with water and, if possible, removed from the danger area.

5.3 Advice for firefighters

Use self-contained breathing apparatus. Wear protective clothing. Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures****For non-emergency personnel**

Refer to protective measures listed in sections 7 and 8.

For emergency responders

Personal protective equipment (PPE) - see section 8.

6.2 Environmental precautions

Do not discharge into the drains/surface waters/groundwater. Do not discharge into the subsoil/soil.

6.3 Methods and material for containment and cleaning up

Cover up with damp, liquid absorbing material (e. g. sawdust, chemical binding material based on calcium silicate hydrate, sand). After 1 hour collect in stainless containers for waste material disposal. Do not seal containers (generation of CO₂)! Keep damp and let stand in a secured outdoor location for several days. Dispose according to section 13. Contaminated areas may be cleaned with recommended decontamination agents: - 8-10% sodium carbonate and 2% aqueous liquid soap; - Liquid/yellow soap (potassium soap with ~ 15% anionic surfactants): 20ml; Water: 700ml; Polyethylene glycol (PEG 400): 350ml; - 30% commercial laundry detergent (containing monoethanolamine), 70% water

6.4 Reference to other sections

Information regarding safe handling, see section 7. Information regarding personal protective measures, see section 8. Information regarding waste disposal, see section 13.

SECTION 7: Handling and storage**7.1 Precautions for safe handling****Advice on safe handling**

Risks inherent to handling the product must be minimised by applying the appropriate protective and preventive measures. Working processes should - so far as possible, according to the state of the art - be designed to rule out bodily contact or the release of hazardous substances. Provide good ventilation at the work area (local exhaust ventilation, if necessary).

General protective and hygiene measures

Do not eat, drink or smoke during work time. Keep away from foodstuffs and beverages. Do not inhale vapours. Avoid contact with eyes and skin. Wash hands before breaks and after work. Store work clothing separately. Remove soiled or soaked clothing immediately.

7.2 Conditions for safe storage, including any incompatibilities**Technical measures and storage conditions**

Keep container tightly closed and dry in a cool, well-ventilated place.

Incompatible products

Substances to be avoided, see section 10.

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7.3 Specific end use(s)

No data available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values

No	Substance name	CAS no.	EC no.
1	diphenylmethanediisocyanate, isomeres and homologues	9016-87-9	
List of approved workplace exposure limits (WELs) / EH40			
Isocyanates, all (as -NCO) Exept methyl isocyanate			
	WEL short-term (15 min reference period)	0.07	mg/m ³
	WEL long-term (8-hr TWA reference period)	0.02	mg/m ³
	Comments	Sen	
2	diphenylmethane-4,4'-diisocyanate	101-68-8	202-966-0
List of approved workplace exposure limits (WELs) / EH40			
Isocyanates, all (as -NCO) Exept methyl isocyanate			
	WEL short-term (15 min reference period)	0.07	mg/m ³
	WEL long-term (8-hr TWA reference period)	0.02	mg/m ³
	Comments	Sen	
3	phenyl-isocyanate	103-71-9	203-137-6
List of approved workplace exposure limits (WELs) / EH40			
Isocyanates, all (as -NCO) Exept methyl isocyanate			
	WEL short-term (15 min reference period)	0.07	mg/m ³
	WEL long-term (8-hr TWA reference period)	0.02	mg/m ³
	Comments	Sen	
4	2,2'-methylenediphenyl diisocyanate	2536-05-2	219-799-4
List of approved workplace exposure limits (WELs) / EH40			
Isocyanates, all (as -NCO) Exept methyl isocyanate			
	WEL short-term (15 min reference period)	0.07	mg/m ³
	WEL long-term (8-hr TWA reference period)	0.02	mg/m ³
	Comments	Sen	

DNEL, DMEL and PNEC values

DNEL values (worker)

No	Substance name			CAS / EC no	
	Route of exposure	Exposure time	Effect	Value	
1	diphenylmethane-4,4'-diisocyanate			101-68-8 202-966-0	
	inhalative	Long term (chronic)	local	0.05	mg/m ³
	inhalative	Short term (acut)	local	0.1	mg/m ³
2	diphenylmethane-2,4'-diisocyanate			5873-54-1 227-534-9	
	inhalative	Long term (chronic)	local	0.05	mg/m ³
	inhalative	Short term (acut)	local	0.1	mg/m ³
3	2,2'-methylenediphenyl diisocyanate			2536-05-2 219-799-4	
	inhalative	Short term (acut)	local	0.1	mg/m ³
	inhalative	Long term (chronic)	local	0.05	mg/m ³

DNEL value (consumer)

No	Substance name			CAS / EC no	
	Route of exposure	Exposure time	Effect	Value	
1	diphenylmethane-4,4'-diisocyanate			101-68-8 202-966-0	
	inhalative	Long term (chronic)	local	0.025	mg/m ³
	inhalative	Short term (acut)	local	0.05	mg/m ³
2	diphenylmethane-2,4'-diisocyanate			5873-54-1 227-534-9	
	inhalative	Long term (chronic)	local	0.025	mg/m ³
	inhalative	Short term (acut)	local	0.05	mg/m ³
3	2,2'-methylenediphenyl diisocyanate			2536-05-2 219-799-4	
	inhalative	Short term (acut)	local	0.05	mg/m ³
	inhalative	Long term (chronic)	local	0.025	mg/m ³

PNEC values

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No	Substance name		CAS / EC no	
	ecological compartment	Type	Value	
1	diphenylmethane-4,4'-diisocyanate		101-68-8 202-966-0	
	water	fresh water	1	mg/L
	water	marine water	0.1	mg/L
	soil	-	1	mg/kg dry weight
	sewage treatment plant	-	1	mg/L
2	diphenylmethane-2,4'-diisocyanate		5873-54-1 227-534-9	
	water	marine water	0.1	mg/L
	water	Aqua intermittent	10	mg/L
	soil	-	1	mg/kg dry weight
	sewage treatment plant	-	1	mg/L
3	2,2'-methylenediphenyl diisocyanate		2536-05-2 219-799-4	
	water	fresh water	1	mg/L
	water	marine water	0.1	mg/L
	sewage treatment plant	-	1	mg/L
	secondary poisoning	-	1	mg/kg dry weight

8.2 Exposure controls

Appropriate engineering controls

Ensure adequate ventilation, local exhaust at the work station if necessary.

Personal protective equipment

Respiratory protection

If workplace exposure limits are exceeded, a respiration protection approved for this particular job must be worn. In case of aerosol, vapour and mist formation, take appropriate measures for breathing protection in the event workplace threshold values are not specified. In case of insufficient ventilation and during spray application respiratory protection necessary. Use fresh air mask; Respiratory protection mask with combination filter A/P2.

Eye / face protection

Safety glasses with side protection shield (EN 166)

Hand protection

Sufficient protection is given wearing suitable protective gloves checked according to i.e. EN 374, in the event of risk of skin contact with the product. Check in any case suitability of protective glove for the specific workplace conditions (e.g. mechanical resistance, product compatibility, antistatic properties). Adhere to the manufacturer's instructions and information relating to the use, storage, care and replacement of protective gloves. Replace immediately protective gloves if worn or damaged. In case of longer-term contact:

Appropriate Material	Polychloroprene		
Material thickness	>=	0.5	mm
Breakthrough time	>=	480	min
Appropriate Material	nitrile rubber		
Material thickness	>=	0.35	mm
Breakthrough time	>=	480	min
Appropriate Material	butyl rubber		
Material thickness	>=	0.5	mm
Breakthrough time	>=	480	min
Appropriate Material	fluorinated rubber		
Material thickness	>=	0.4	mm
Breakthrough time	>=	480	min

Other

Chemical-resistant work clothes.

Environmental exposure controls

No data available.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

State of aggregation
liquid
Form/Colour
liquid
brown
Odour
musty
pH value
No data available

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Boiling point / boiling range			
Value	>	300	°C
Melting point/freezing point			
No data available			
Decomposition temperature			
No data available			
Pour point			
Value	<	0	°C
Flash point			
Value	=	226	°C
Ignition temperature			
Value	>	500	°C
Flammability			
No data available			
Lower explosion limit			
No data available			
Upper explosion limit			
No data available			
Vapour pressure			
Value		1	hPa
Reference temperature		20	°C
Value		12	hPa
Reference temperature		50	°C
Value		17	hPa
Reference temperature		55	°C
Relative vapour density			
No data available			
Relative density			
No data available			
Density			
Value		1.238	g/cm ³
Reference temperature		20	°C
Solubility			
No data available			
Partition coefficient n-octanol/water (log value)			
No	Substance name	CAS no.	EC no.
1	diphenylmethane-4,4'-diisocyanate	101-68-8	202-966-0
	log Pow		4.51
	Reference temperature		20 °C
	Method	OECD 117	
	Source	ECHA	
2	diphenylmethane-2,4'-diisocyanate	5873-54-1	227-534-9
	log Pow		4.51
	Reference temperature		22 °C
	with reference to	pH 7	
	Method	OECD 117	
	Source	ECHA	
Viscosity			
Value	>=	200	mPa*s
Reference temperature		20	°C
Type		dynamic	
Particle characteristics			
No data available			

9.2 Other information

Other information

No data available.

SECTION 10: Stability and reactivity

10.1 Reactivity

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No data available.

10.2 Chemical stabilityRelease of carbon dioxide (CO₂) starting from a polymerisation temperature of approximately 200°C.**10.3 Possibility of hazardous reactions**

Exothermic reactions are possible in the event of contact with incompatible substances.

10.4 Conditions to avoid

No data available.

10.5 Incompatible materialsAmines; Alcohols; Formation of CO₂ upon contact with water, development of overpressure in closed containers is possible. Bursting hazard; Aprotic polar solvents (see section 11).**10.6 Hazardous decomposition products**

None if stored, handled and transported properly.

SECTION 11: Toxicological information**11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**

Acute oral toxicity			
No	Substance name	CAS no.	EC no.
1	diphenylmethane-4,4'-diisocyanate	101-68-8	202-966-0
LD50	>	2000	mg/kg bodyweight
Species	rat		
Source	ECHA / Read across		

Acute dermal toxicity			
No	Substance name	CAS no.	EC no.
1	diphenylmethane-4,4'-diisocyanate	101-68-8	202-966-0
LD50	>	9400	mg/kg bodyweight
Species	rabbit		
Method	OECD 402		
Source	ECHA / Read across		

Acute inhalational toxicity			
No	Substance name	CAS no.	EC no.
1	diphenylmethanediisocyanate, isomeres and homologues	9016-87-9	-
LC50	>	1.5	mg/l
State of aggregation	Dust/mist		
Source	supplier		

Skin corrosion/irritation			
No	Substance name	CAS no.	EC no.
1	diphenylmethane-4,4'-diisocyanate	101-68-8	202-966-0
Method	OECD 404		
Source	ECHA / Read across		
Evaluation	irritant		

Serious eye damage/irritation			
No data available			

Respiratory or skin sensitisation			
No data available			

Germ cell mutagenicity			
No	Substance name	CAS no.	EC no.
1	diphenylmethane-2,4'-diisocyanate	5873-54-1	227-534-9
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		

Reproduction toxicity			
No data available			

Carcinogenicity			
No data available			

STOT - single exposure			
No data available			

STOT - repeated exposure			
No data available			

Aspiration hazard			
No data available			

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11.2 Information on other hazards**Endocrine disrupting properties**

No data available.

Other information

Industrial cleaning with aprotic polar solvents (meeting the IUPAC definition) may lead to formation of (hazardous) primary aromatic amines (> 0.1%). Primary aromatic amines are chemicals that are regarded as potentially carcinogenic for humans based on animal testing. Some of these chemicals are known human carcinogens.

SECTION 12: Ecological information**12.1 Toxicity**

Toxicity to fish (acute)
No data available
Toxicity to fish (chronic)
No data available
Toxicity to Daphnia (acute)
No data available
Toxicity to Daphnia (chronic)
No data available
Toxicity to algae (acute)
No data available
Toxicity to algae (chronic)
No data available
Bacteria toxicity
No data available

12.2 Persistence and degradability

No data available.

12.3 Bioaccumulative potential

Bioconcentration factor (BCF)			
No	Substance name	CAS no.	EC no.
1	diphenylmethane-2,4'-diisocyanate	5873-54-1	227-534-9
BCF		92	- 200
Method		OECD 305 E	
Source		ECHA	
Partition coefficient n-octanol/water (log value)			
No	Substance name	CAS no.	EC no.
1	diphenylmethane-4,4'-diisocyanate	101-68-8	202-966-0
log Pow			4.51
Reference temperature			20 °C
Method		OECD 117	
Source		ECHA	
2	diphenylmethane-2,4'-diisocyanate	5873-54-1	227-534-9
log Pow			4.51
Reference temperature			22 °C
with reference to		pH 7	
Method		OECD 117	
Source		ECHA	

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

No data available.

12.6 Endocrine disrupting properties

No data available.

12.7 Other adverse effects

Other adverse effects
Isocyanate reacts with water at the interface forming CO ₂ and a solid insoluble product with high melting point (polyurea). This reaction is accelerated by surfactants (e.g. detergents) or by water-soluble solvents. Previous experience shows that polyurea is inert and non-degradable.

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SECTION 13: Disposal considerations**13.1 Waste treatment methods****Product**

Disposal of the product should be carried out in accordance with all applicable regulations following consultation with the responsible local authority and the disposal company in an authorised and suitable disposal facility. Allocation of a waste code number, according to the European Waste Catalogue, should be carried out in agreement with the regional waste disposal company.

Packaging

Residues must be removed from packaging and when emptied completely disposed of in accordance with the regulations for waste removal. Incompletely emptied packaging must be disposed of in the form of disposal specified by the regional disposer.

SECTION 14: Transport information**14.1 Transport ADR/RID/ADN**

The product is not subject to ADR/RID/ADN regulations.

14.2 Transport IMDG

The product is not subject to IMDG regulations.

14.3 Transport ICAO-TI / IATA

The product is not subject to ICAO-TI / IATA regulations.

14.4 Other information

No data available.

14.5 Environmental hazards

Information on environmental hazards, if relevant, please see 14.1 - 14.3.

14.6 Special precautions for user

No data available.

14.7 Maritime transport in bulk according to IMO instruments

Not relevant

SECTION 15: Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****EU regulations****Regulation (EC) No 1907/2006 (REACH) Annex XIV (List of substances subject to authorisation)**

In accordance with the REACH regulation (EC) 1907/2006, the product does not contain any substances that are considered as subject to listing in annex XIV, inventory of substances requiring authorisation.

REACH candidate list of substances of very high concern (SVHC) for authorisation

In accordance with article 57 and article 59 of the Reach regulation (EC) 1907/2006, this substance is not considered as subject to listing in annex XIV, inventory of substances requiring authorisation ("Authorization list").

Regulation (EC) No 1907/2006 (REACH) Annex XVII: RESTRICTIONS ON THE MANUFACTURE, PLACING ON THE MARKET AND USE OF CERTAIN DANGEROUS SUBSTANCES, MIXTURES AND ARTICLES

The product is considered being subject to REACH regulation (EC) 1907/2006 annex XVII.

No 3

The substance is considered being subject to REACH regulation (EC) 1907/2006 annex XVII.

No	Substance name	CAS no.	EC no.	No
1	2,2'-methylenediphenyl diisocyanate	2536-05-2	219-799-4	56, 74
2	diphenylmethane-2,4'-diisocyanate	5873-54-1	227-534-9	56, 74
3	diphenylmethane-4,4'-diisocyanate	101-68-8	202-966-0	56, 74
4	diphenylmethanediisocyanate, isomeres and homologues	9016-87-9	-	56, 74

Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances

This substance is not subject to Part 1 or 2 of Annex I

15.2 Chemical safety assessment

A chemical safety assessment has not been carried out.

SECTION 16: Other information**Further information**

ISOPA directives for safe loading/unloading, transport and storage of TDI and MDI. See ISOPA website: www.isopa.org (Product Stewardship „Walk the Talk“).

Safety precautions for handling freshly molded polyurethane parts:

Depending on the production parameters, any uncovered surfaces of freshly molded polyurethane parts using this raw material may contain traces of substances (e. g. starting and reaction products, catalysts, release agents) with hazardous characteristics. Skin contact

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with traces of these substances must be avoided. Therefore, during demolding or other handling of fresh molded parts, protective gloves tested according to DIN-EN 374 (e. g. nitrile rubber $\geq 0,35$ mm thick, breakthrough time ≥ 480 min, or according to recommendations from glove makers thinner gloves that need to be changed in compliance with breakthrough times more frequently) must be used. Depending on formulation and processing conditions, the requirements may be different from handling of the pure substances. Closed protective clothing is required for the protection of other areas of skin.

Sources of key data used to compile the data sheet:

Regulation (EC) No 1907/2006 (REACH), 1272/2008 (CLP) as amended in each case.

Directives 2000/39/EC, 2006/15/EC, 2009/161/EU, (EU) 2017/164.

National Threshold Limit Values of the corresponding countries as amended in each case.

Transport regulations according to ADR, RID, IMDG, IATA as amended in each case.

The data sources used to determine physical, toxic and ecotoxic data, are indicated directly in the corresponding section.

Creation of the safety data sheet

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This information is based on our present knowledge and experience.

The safety data sheet describes products with a view to safety requirements.

It does not however, constitute a guarantee for any specific product properties and shall not establish a legally valid contractual relationship.

Alterations/supplements:

Alterations to the previous edition are marked in the left-hand margin.

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