

SAFETY DATA SHEET

PMS 4 B-komp.

Last changed: 29/05/2013

Replaces date: 18/09/2007

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

1.1. Product identifier

Trade name PMS 4 B-komp.
Substance name Isocyanat beredning

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

RECOMMENDED USES: Professional end uses of MDI, adhesives and sealants
Hardener. Joint sealer
Only for professional use.
Curing agent
Joining agent (joint filler)

Vendor Article No.

Förslag till VIB

1.3. Details of the supplier of the safety data sheet

NATIONAL MANUFACTURER/IMPORTER

Enterprise Zel-Aaren Innovation AB
Address Östra Storgatan 40
Postal code 694 31 Hallsberg
Country Sweden
Email info@zel-aaren.se
Internet http://www.zel-aaren.se/
Tel + 46 8-38 21 82

CONTACT PERSON

Name	Email	Tel	Country
Mats Selme	mats.selme@swedishnet.se	+46 70-628 85 61	Sweden

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

DPD Xn; R20, Xi; R36/37/38, Carc. Cat. 3; R40, R42/43, Xn; R48/20

Classification:

CLP Skin Irrit. 2; H315, Skin Sens. 1; H317, Eye Irrit. 2; H319, Acute Tox. 4; H332, Resp. Sens. 1; H334, Classification: STOT SE 3; H335, Carc. 2; H351, STOT RE 2; H373

Most serious harmful effects:: Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. Harmful if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation. Suspected of causing cancer. May cause damage to organs through prolonged or repeated exposure.

2.2. Label elements



Signal word: Danger

COMPOSITION

Diphenylmethane diisocyanate, isomers and homolog. (30 - 60 %), 4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with butane- 1,3-diol, 2,4'-diisocyanatodiphenylmethane, 2,2'-oxydiethanol and propane-1,2-diol (30 -

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60 %)

H-phrases

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure.

P-phrases

P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P285	In case of inadequate ventilation wear respiratory protection.
P302/352	IF ON SKIN: Wash with plenty of soap and water.
P304/340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305/351/338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P309/311	IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.

SUPPLEMENTAL HAZARD INFORMATION (EU)

Contains isocyanates. See information supplied by the manufacturer.

2.3. Other hazards

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Ingredient name	Reg. no.	EC No.	CAS No.	Conc. (wt%)	DPD-Classification	CLP-classification
Diphenylmethane diisocyanate, isomers and homolog.		-	9016-87-9	30 - 60 %	Xn,R20 - R36/37/38 - R40 - R42/43 - R48/20	Acute Tox. 4 H332 Skin Irrit. 2 H315 Eye Irrit. 2 H319 Resp. Sens. 1 H334 Skin Sens. 1 H317 Carc. 2 H351 STOT SE 3 H335 STOT RE 2 H373
4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with butane- 1,3-diol, 2,4'-diisocyanatodiphenylmethane, 2,2'-oxydiethanol and propane-1,2-diol	01-2119480402-45	500-415-1	158885-29-1	30 - 60 %	Xn,Xi,R20 - R36/37/38 - R40 - R42/43 - R48/20	Acute Tox. 4 H332 Skin Irrit. 2 H315 Eye Irrit. 2 H319 Resp. Sens. 1 H334 Skin Sens. 1 H317 Carc. 2 H351 STOT SE 3 H335 STOT RE 2 H373

Full text of R-, H- and EUH-phrases: see section 16.

The EUH hazard statements mentioned in CLP-classification are only label elements.

INGREDIENT COMMENTS

R-phrases mentioned in section 3 are listed up in section 16 with complete text.

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SECTION 4: First aid measures

4.1. Description of first aid measures

INHALATION

Fresh air and rest. In case of breathing difficulties, properly trained personnel may assist patient by administering oxygen. Give artificial respiration if breathing has stopped. Get medical advice immediately.

INGESTION

DO NOT INDUCE VOMITING! Get medical advice immediately. If the injured is conscious: Rinse the mouth with water.

SKIN

Remove contaminated clothing. (Wash the clothes before re-use) Seek medical advice if symptoms persist. Wash carefully with soap and water or use a suitable skin cleaning agent.

EYES

Flush immediately with plenty of water, also under the eyelids. Get medical advice immediately. Continue to rinse for at least 15 minutes.

GENERAL

By all state of uncertainty, seek medical advice. Show this Material Safety Datasheet to the doctor.

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

Irritating to respiratory system. May cause sensitizing on inhalation. Dust may irritate respiratory system. Irritation of nose, throat and airway. Severe eye irritation. May cause coughing, breathing difficulties and a sense of pressure across the chest. Allergic reactions may develop after inhalation of low concentrations, also several hours after exposure. Irritating to skin. May cause sensitisation by skin contact. If ingested, can be irritating to mucous membranes of the mouth and gastrointestinal tract.

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

Symptoms of poisoning may occur even after several hours. In case of ingestion of the product, keep patient under medical observation for at least 48 hours.

SECTION 5: Firefighting measures

5.1. Extinguishing media

SUITABLE EXTINGUISHING MEDIA:

Fire may be extinguished using powder, foam or carbon dioxide (CO₂).

UNSUITABLE EXTINGUISHING MEDIA

Do not use water if it can be avoided. Reacts with water.

5.2. Special hazards arising from the substance or mixture

Closed container. Explosive when heated. Toxic gases may be formed when in combustion condition.

5.3. Advice for firefighters

Fresh air apparatus may be necessary. Use supplied air respirator if substance is involved in a fire.

OTHER INFORMATION

Containers close to fire should be removed immediately or cooled with water. Prevent release of fire control water to surface water or ground water.

SECTION 6: Accidental release measures

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6.1. Personal precautions, protective equipment and emergency procedures

PERSONAL PRECAUTIONS

See headline no 8 for information about personal protective equipment

FOR NON-EMERGENCY PERSONNEL

Unauthorized persons should be evacuated. Avoid inhaling vapour/aerosol/mist.

6.2. Environmental precautions

Prevent the spillage from reaching watercourses or the sewage system and contaminating the soil and vegetation.

6.3. Methods and material for containment and cleaning up

METHODS AND MATERIAL

Absorb with vermiculite, dry sand or earth and transfer to containers. Shovel into suitable container for disposal. Flush with large amounts of water to clean the area.

6.4. Reference to other sections

OTHER INFORMATION

See headline no 13 for information handling waste and destruction.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

National board of occupational safety and health instruction about work with thermoset plastic shall be followed. Use personal protective equipment as specified in section 8. Do not breath vapours or spray. Avoid contact with skin and eyes.

7.2. Conditions for safe storage, including any incompatibilities

Keep out of reach of children. Store in sealed, original containers in well-ventilated place. Keep the container in a dry place. Store locked up.

7.3. Specific end use(s)

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Ingredient name	CAS No.	Range	ppm	mg/m ³	Year	Remarks
Diphenylmethane diisocyanate, isomers and homolog.	9016-87-9	15 min.		0,07	2011	A
Diphenylmethane diisocyanate, isomers and homolog.	9016-87-9	8 h		0,02	2011	A
4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with butane- 1,3-diol, 2,4'-diisocyanatodiphenylmethane, 2,2'-oxydiethanol and propane-1,2-diol	158885-29-1	15 min.		0,07	2011	A
4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with butane- 1,3-diol, 2,4'-diisocyanatodiphenylmethane, 2,2'-oxydiethanol and propane-1,2-diol	158885-29-1	8 h		0,02	2011	A

R=Toxic for reproduction, H=Skin absorption, K=Carcinogenic, A=Sensitising, T=Upper limit, M=Mutagenic

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ENV.NORM

4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with butane- 1,3-diol, 2,4'-diisocyanatodiphenylmethane, 2,2'-oxydiethanol and propane-1,2-diol

Test type	Value	Exposure scenario
DNEL	50 mg/kg bw/dag	Short term-dermal-workers-systemic
DNEL	0,1 mg/m ³	Short term-inhalation-workers-systemic
DNEL	28,7mg/cm ²	Short term-dermal-workers-lokal
DNEL	0,1 mg/mg ³	Short term-inhalation-workers-lokal
DNEL	0,05 mg/m ³	Long term-inhalation-workers-systemic
DNEL	0,05 mg/m ³	Long term-inhalation-workers-lokal
PNEC	1 mg/kg	Soil
PNEC	1 mg/l	Sewage treatment plant
PNEC	0,1 mg/l	Marine
PNEC	1 mg/l	Fresh water

OTHER INFORMATION REGARDING LIMIT VALUES AND MONITORING

Contains substances for which hygienic threshold values are stipulated. A= The substance is sensitizing.
http://www.av.se/dokument/afs/afs2005_17.pdf / <http://www.av.se/dokument/inenglish/legislations/eng0517.pdf>
 2) The ceiling limit value refers to a five-minute period. 22) The same limit value, expressed in ppm, shall also be applied to diisocyanates for which no limit values have been defined. The same applies to diisocyanates in dust or mist form (aerosol) including prepolymerised diisocyanates (adducts). The corresponding value expressed in mg/m³ differs from one substance to another.

8.2. Exposure controls

EXPOSURE SCENARIOS

See enclosed exposure scenarios for further information.

APPROPRIATE ENGINEERING CONTROLS

The work place and work methods shall be organised in such ways that direct contact with the product be prevented. Anybody with a disposition to allergic reactions should not work with the product. Use mechanical ventilation in case of handling which causes formation of vapours.

EYE PROTECTION

Use tight-fitting protective goggles.

SKIN PROTECTION

Use clean fitted protective clothing (disposable clothing)

HAND PROTECTION

Use protective gloves of: Neoprene rubber. Butyl rubber. Polyvinyl chloride (PVC). Polyethylene. Gloves must conform to EN 374.

RESPIRATORY PROTECTION

Wear suitable respiratory protection. Respirator with combined gas/particle filter (A/P3).

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

STATE	Liquid.
COLOUR	Amber.
ODOUR	Slight. Stuffy.
SOLUBILITY	Soluble in organic acids (most)
SOLUBILITY IN WATER	Insoluble in water. Reacts

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Parameter	Value/unit	Method/reference	Observation
pH (concentrate)	No data		
pH (solution for use)	No data		
Melting point	No data		
Freezing point	No data		
Initial boiling point and boiling range	> 300 °C		
Flash point	~ 205 °C		
Evaporation rate	No data		
Flammability (solid, gas)	No data		
Flammability limits	No data		
Explosion limits	No data		
Vapour pressure	No data		
Vapour density	No data		
Relative density	No data		
Partition coefficient	No data		
Auto-ignition temperature	> 600 °C		
Decomposition temperature	No data		
Viscosity	125 - 225 mPas	25°C	

9.2. Other information

Parameter	Value/unit	Method/reference	Observation
Density	~ 1220 kg/m ³		

Note no.	Comments

SECTION 10: Stability and reactivity

10.1. Reactivity

10.2. Chemical stability

Stable under recommended storage and handling conditions.

10.3. Possibility of hazardous reactions

10.4. Conditions to avoid

Avoid high temperatures and direct sunlight. Avoid contact with water, alcohols, amines and other materials that may react with isocyanates.

10.5. Incompatible materials

Exothermic reaction with amines and alcohol. CO₂-development in contact with water. Risk of explosion if moisture penetrates into closed container. Alkalis. Acids.

10.6. Hazardous decomposition products

None known if handled normally.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

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Route of exposure	Exposure time	Value/unit	Result	Species	Source	Test method
LC50 (Inhalation)	4h	0,49 g/m ³				Respirable aerosol < 5 microns

Diphenylmethane diisocyanate, isomers and homolog.						
Route of exposure	Exposure time	Value/unit	Result	Species	Source	Test method
LD50 (Dermal)		> 9400 mg/kg				
LD50 (Oral)		> 10000 mg/kg				

4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with butane- 1,3-diol, 2,4'-diisocyanatodiphenylmethane, 2,2'-oxydiethanol and propane-1,2-diol						
Route of exposure	Exposure time	Value/unit	Result	Species	Source	Test method
Inhalation	90d	0,001 g/m ³	NOEC			OECD 413 - Subchronic toxicity
LD50 (Dermal)		> 9400 mg/kg				
LD50 (Oral)		> 5000 mg/kg				

Acute toxicity - oral

Irritation in the mouth, throat and stomach - intestinal canal.

Acute toxicity - inhalation

Irritating to respiratory system. Products containing isocyanates may give rise to acute irritation, breathing difficulties similar to asthma, such as shortness of breath, rasping breathing, pressure on the chest and shortness of breath. The problems may be delayed. May be harmful by inhalation. Inhalation of very high contents over an extended period may cause lung irritation, with burning pain, pressure across the chest, coughing and breathing difficulties.

Skin corrosion/irritation

Irritating to skin.

Serious eye damage/eye irritation

Vapour or spray in the eyes may cause irritation and smarting. Severe eye irritation.

Respiratory sensitisation or skin sensitisation

Risk of allergic reaction, with breathing difficulties of asthma type. May cause sensitisation by skin contact. May cause sensitizing on inhalation.

Carcinogenic properties

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Diphenylmethane diisocyanate, isomers and homolog.						
Route of exposure	Exposure time	Value/unit	Result	Species	Source	Test method
Inhalation		0,0002 g/m ³	NOEC			OECD 453 - Chronic toxicity/ Carcinogenicity

4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with butane- 1,3-diol, 2,4'-diisocyanatodiphenylmethane, 2,2'-oxydiethanol and propane-1,2-diol						
Route of exposure	Exposure time	Value/unit	Result	Species	Source	Test method
Inhalation		0,0002 g/m ³	NOEC			OECD 453 - Chronic toxicity/ Carcinogenicity

At a two years' inhalation study on rats (respirable aerosol from the polymere MDI-PMDI) higher frequency of lung cancer was indicated in the group with the highest concentrations (6.0 mgPMDI/m³).

Reproductive toxicity

Diphenylmethane diisocyanate, isomers and homolog.						
Route of exposure	Exposure time	Value/unit	Result	Species	Source	Test method
		0,012 g/m ³	NOAEL			OECD 414 Prenatal Developmental Toxicity Study

4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with butane- 1,3-diol, 2,4'-diisocyanatodiphenylmethane, 2,2'-oxydiethanol and propane-1,2-diol						
Route of exposure	Exposure time	Value/unit	Result	Species	Source	Test method
		0,012 g/m ³	NOAEL			OECD 414 Prenatal Developmental Toxicity Study

Single STOT exposure

Inhalation of vapours may cause irritation in the respiratory tract.

Repeated STOT exposure

May cause damage to organs through prolonged or repeated exposure. May cause damage to olfactory and respiratory organs.

SECTION 12: Ecological information

12.1. Toxicity

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Route of exposure	Exposure time	Value/unit	Result	Species	Source	Test method
EC50 ()	3h	> 100 mg/l		Bacterium		OECD 209

Diphenylmethane diisocyanate, isomers and homolog.						
Route of exposure	Exposure time	Value/unit	Result	Species	Source	Test method
NOEC	72h	1640 mg/l		Algae		OECD 201
NOEC	21d	> 10 mg/l		Daphnia		OECD 211
EC50 (Acute algae)	72h	> 1640 mg/l				OECD 201
EC50 (Acute Daphnia)	24h	> 1000 mg/l				OECD 202
LC50 (Acute fish)	96h	> 1000 mg/l				OECD 203

4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with butane- 1,3-diol, 2,4'-diisocyanatodiphenylmethane, 2,2'-oxydiethanol and propane-1,2-diol						
Route of exposure	Exposure time	Value/unit	Result	Species	Source	Test method
NOEC	21d	> 10 mg/l		Daphnia		OECD 211
EC50 ()	3h	> 100 mg/l		Bacterium		OECD 209
EC50 (Acute algae)	72h	> 1640 mg/l				OECD 201
EC50 (Acute Daphnia)	24h	> 1000 mg/l				OECD 202
LC50 (Acute fish)	96h	> 1000 mg/l				OECD 203

12.2. Persistence and degradability

Diphenylmethane diisocyanate, isomers and homolog.						
Route of exposure	Exposure time	Value/unit	Result	Species	Source	Test method
	28d		0 %			OECD 302C

4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with butane- 1,3-diol, 2,4'-diisocyanatodiphenylmethane, 2,2'-oxydiethanol and propane-1,2-diol						
Route of exposure	Exposure time	Value/unit	Result	Species	Source	Test method
	28d		0 %			OECD 302C

Reacts with water. Reaction products are not biodegradable.

12.3. Bioaccumulative potential

Diphenylmethane diisocyanate, isomers and homolog.						
Route of exposure	Exposure time	Value/unit	Result	Species	Source	Test method
BCF		200				

4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with butane- 1,3-diol, 2,4'-diisocyanatodiphenylmethane, 2,2'-oxydiethanol and propane-1,2-diol						
Route of exposure	Exposure time	Value/unit	Result	Species	Source	Test method
BCF		200				
Log Pow		5,61				

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12.4. Mobility in soil

12.5. Results of PBT and vPvB assessment

12.6. Other adverse effects

SECTION 13: Disposal considerations

13.1. Waste treatment methods

GENERAL REGULATIONS

Dump or destroy in accordance with official recommendations and applicable legislation. Unhardened product must be treated as dangerous waste. Hardener residue may be mixed with Comp. A in an open container. After curing the product is not classified as harmful waste.

CATEGORY OF WASTE

For waste disposal within the EU, use the EWC code most suitable for each individual occasion. EWC codes are principally divided according to industry. EWC code is only a suggestion, final consumer selects a suitable EWC code. 08 05 01 Isocyanate waste.

SECTION 14: Transport information

Classified as Dangerous Goods: **No**

Land transport (ADR/RID)

14.1. UN number	Not applicable	14.4. Packing group	Not applicable
14.2. UN proper shipping name	Not applicable	14.5. Environmental hazards	Not applicable
14.3. Transport hazard class(es)	Not applicable		
Hazard label(s)	Not applicable		
Hazard identification number	Not applicable	Tunnel restriction code	Not applicable

Inland water ways transport (ADN)

14.1. UN number	Not applicable	14.4. Packing group	Not applicable
14.2. UN proper shipping name	Not applicable	14.5. Environmental hazards	Not applicable
14.3. Transport hazard class(es)	Not applicable		
Hazard label(s)	Not applicable		
Environmental hazard in tank vessels	Not applicable		

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Sea transport (IMDG)			
14.1. UN number	Not applicable	14.4. Packing group	Not applicable
14.2. UN proper shipping name	Not applicable	14.5. Environmental hazards	Not applicable
14.3. Transport hazard class(es)	Not applicable		
Hazard label(s)	Not applicable		
Sub Risk:	Not applicable		
IMDG Code segregation group	Not applicable		
Marine pollutant	Not applicable		
Substance name(s) on marine pollutant	Not applicable		
EMS:	Not applicable		

Air transport (ICAO-TI / IATA-DGR)			
14.1. UN number	Not applicable	14.4. Packing group	Not applicable
14.2. UN proper shipping name	Not applicable		
14.3. Transport hazard class(es)	Not applicable		
Hazard label(s)	Not applicable		

OTHER INFORMATION

Not considered as dangerous goods under UN, IMO, ADR/RID or IATA/ICAO regulations.

SECTION 15: Regulatory information

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

15.2. Chemical safety assessment

SECTION 16: Other information

ISSUED: 29/05/2013

VENDOR NOTES

Information given in this safety data sheet is in accordance with our information on the last revision date.

Only for professional use.

LIST OF RELEVANT R-PHRASES	
R20	Harmful by inhalation.
R36/37/38	Irritating to eyes, respiratory system and skin.
R40	Limited evidence of a carcinogenic effect.
R42/43	May cause sensitisation by inhalation and skin contact.
R48/20	Harmful: danger of serious damage to health by prolonged exposure through inhalation.

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LIST OF RELEVANT H-STATEMENTS

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure.

TRAINING ADVICE

When thermoset plastic products are professional used the prescription according thermoset plastic shall be followed.
<http://www.av.se/dokument/inenglish/legislations/eng0518.pdf>