

SAFETY DATA SHEET

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

1.1. Product identifier

Trade name

PU Dark 422

Product no.

422

REACH registration number

Not applicable

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

Relevant identified uses of the substance or mixture

Water resistant D4 for wood, metal, rigid plastic etc.

Uses advised against

-

The full text of any mentioned and identified use categories are given in section 16

1.3. Details of the supplier of the safety data sheet

Company and address

Dana Lim A/S
Københavnsvej 220
DK-4600 Køge
Denmark
phone: +45 56 64 00 70
fax: +45 56 64 00 90

Contact person

Product Safety Department

E-mail

info@danalim.dk

SDS date

2017-08-23

SDS Version

5.0

1.4. Emergency telephone number

Contact The National Poisons Information Service (dial 111, 24 h service). See section 4 "First aid measures".

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Skin Irrit. 2; H315
Skin Sens. 1; H317
Eye Irrit. 2; H319
Acute Tox. 4; H332
Resp. Sens. 1; H334
STOT SE 3; H335
Carc. 2; H351
STOT RE 2; H373
Aquatic Chronic 3; H412
See full text of H-phrases in section 2.2.

2.2. Label elements

▼ Hazard pictogram(s)



Signal word

Danger

Hazard statement(s)

Causes skin irritation. (H315)
 May cause an allergic skin reaction. (H317)
 Causes serious eye irritation. (H319)
 Harmful if inhaled. (H332)
 May cause allergy or asthma symptoms or breathing difficulties if inhaled. (H334)
 May cause respiratory irritation. (H335)
 Suspected of causing cancer. (H351)
 May cause damage to organs through prolonged or repeated exposure. (H373)
 Harmful to aquatic life with long lasting effects. (H412)

Safety statement(s)

General If medical advice is needed, have product container or label at hand. (P101).
 Keep out of reach of children. (P102).
Prevention Use only outdoors or in a well-ventilated area. (P271).
 Wear gloves/eye protection. (P280).
Response IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 (P304+P340).
 If experiencing respiratory symptoms: Call a POISON CENTER/doctor (P342+P311).
Storage -
Disposal -

Identity of the substances primarily responsible for the major health hazards

Prepolymer based on aromatic polyisocyanate, 4,4'-methylenediphenyl diisocyanate, Oligomeric MDI: oligomeric reaction products of formaldehyde with aniline and phosgen, o-(p-isocyanatobenzyl)phenyl isocyanate, 2,2'-methylidiphenyldiisocyanat

2.3. Other hazards

Additional labelling

Persons already sensitised to — Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product. — This product should not be used under conditions of poor ventilation unless a protective mask with an appropriate gas filter (i.e. type A1 according to standard EN 14387) is used. Contains isocyanates. May produce an allergic reaction. (EUH204)

Additional warnings

Tactile warning.

VOC

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SECTION 3: Composition/information on ingredients

3.1/3.2. Substances/Mixtures

NAME: Prepolymer based on aromatic polyisocyanate
 IDENTIFICATION NOS.: CAS-no: 67815-87-6
 CONTENT: 40-60%
 CLP CLASSIFICATION: Resp. Sens. 1, Skin Sens. 1, Aquatic Chronic 3
 H317, H334, H412
 NOTE: P

NAME: 4,4'-methylenediphenyl diisocyanate
 IDENTIFICATION NOS.: CAS-no: 101-68-8 EC-no: 202-966-0 Index-no: 615-005-00-9
 CONTENT: 25-40%
 CLP CLASSIFICATION: Acute Tox. 4, STOT RE 2, STOT SE 3, Skin Irrit. 2, Eye Irrit. 2, Resp. Sens. 1,

According to EC-Regulation 2015/830

NOTE:	Skin Sens. 1, Carc. 2 H315, H317, H319, H332, H334, H335, H351, H373 I
NAME:	Oligomeric MDI: oligomeric reaction products of formaldehyde with aniline and phosgen
IDENTIFICATION NOS.:	CAS-no: 32055-14-4 EC-no: 500-079-6
CONTENT:	10 - <15%
CLP CLASSIFICATION:	Skin Irrit. 2, Skin Sens. 1, Eye Irrit. 2, Acute Tox. 4, Resp. Sens. 1, STOT SE 3, Carc. 2, STOT RE 2 H315, H317, H319, H332, H334, H335, H351, H373
NOTE:	P
NAME:	o-(p-isocyanatobenzyl)phenyl isocyanate
IDENTIFICATION NOS.:	CAS-no: 5873-54-1 EC-no: 227-534-9 Index-no: 615-005-00-9
CONTENT:	5 - <10%
CLP CLASSIFICATION:	Acute Tox. 4, STOT RE 2, STOT SE 3, Skin Irrit. 2, Eye Irrit. 2, Resp. Sens. 1, Skin Sens. 1, Carc. 2 H315, H317, H319, H332, H334, H335, H351, H373
NOTE:	I
NAME:	2,2'-methyldiphenyldiisocyanat
IDENTIFICATION NOS.:	CAS-no: 2536-05-2 EC-no: 219-799-4 Index-no: 615-005-00-9
CONTENT:	0.1 - <0.25%
CLP CLASSIFICATION:	Acute tox. 4, Skin Irrit. 2, Eye Irrit. 2, Resp. Sens. 1, Skin Sens. 1, Carc. 2, STOT SE 3, STOT RE 2 H315, H317, H319, H332, H334, H335, H351, H373
NOTE:	I

(*) See full text of H-phrases in section 16. Occupational exposure limits are listed in section 8, if these are available.
P = Prepolymer isocyanate I = Isocyanate monomer

Other information

ATEmix(inhale, vapour) > 20
ATEmix(inhale, dust/mist) = 1,2 -
ATEmix(inhale, dust/mist) > 20000
ATEmix(dermal) > 2000
ATEmix(oral) > 2000
Eye Cat. 2 Sum = Sum(Ci/S(G)CLi) = 7,52 - 11,28
Skin Cat. 2 Sum = Sum(Ci/S(G)CLi) = 7,52 - 11,28
N chronic (CAT 3) Sum = Sum(Ci/(M(chronic)ⁱ*25)*0.1*10⁴CATi) = 1,696 - 2,544

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

In the case of accident: Contact a doctor or casualty department – take the label or this safety data sheet. The doctor can contact The National Poisons Information Service (dial 111, 24 h service). Contact a doctor if in doubt about the injured person's condition or if the symptoms persist. Never give an unconscious person water or other drink.

Inhalation

Bring the injured person into fresh air. Make sure the injured person is continuously monitored. Prevent shock by keeping the injured person warm and calm. If breathing ceases, give mouth-to-mouth resuscitation. If unconscious, roll the injured person into recovery position. Call an ambulance.

Skin contact

Remove contaminated clothing and shoes immediately. Ensure to wash exposed skin thoroughly with soap and water. Skin cleanser can be used. DO NOT use solvents or thinners.

Eye contact

Remove contact lenses and open eyes widely. Flush eyes with water or saline water(20-30°C) for at least 15 minutes. Seek medical assistance and continue flushing during transport.

Ingestion

In the case of ingestion, contact a doctor immediately and bring the safety data sheet or label. If the person is conscious, give them water. DO NOT try to induce vomiting, unless this is recommended by a doctor. Hold head facing down to prevent vomit returning to the mouth and throat. Prevent shock by keeping the injured person warm and calm. Initiate immediate resuscitation if breathing stops. If unconscious, roll the injured person into recovery position. Call an ambulance.

Burns

Not applicable

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

Sensitisation: This product contains substances, which may trigger allergic reaction upon dermal contact. Manifestation of allergic reactions typically takes place within 12-72 hours after exposure.

Sensitisation: This product contains substances, which may produce an allergic reaction through inhalation. The allergic reaction is typically taking place within an hour subsequent to exposure. The reaction results in an inflammatory reaction to the lungs.

Irritation effects: This product contains substances, which may cause irritation upon exposure to skin, eyes or lungs. Exposure may result in an increased absorption potential of other hazardous substances at the area of exposure.

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

If experiencing respiratory symptoms: Call a POISON CENTER/doctor

Information to medic

Bring this safety data sheet.

SECTION 5: Firefighting measures

▼ **5.1. Extinguishing media**

Recommended: alcohol-resistant foam, carbonic acid, powder, water mist. Waterjets should not be used, since they can spread the fire.

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

If the product is exposed to high temperatures, e.g. in the event of fire, dangerous catabolic substances are produced. These are: Nitrogen oxides. Carbon oxides. Fire will result in dense black smoke. Exposure to combustion products may harm your health. Fire fighters should wear appropriate protection equipment. Closed containers, which are exposed to fire, should be cooled with water. Do not allow fire-extinguishing water to enter the sewage system and nearby surface waters.

▼ **5.3. Advice for firefighters**

No specific requirements.

SECTION 6: Accidental release measures

▼ **6.1. Personal precautions, protective equipment and emergency procedures**

Avoid inhalation of vapours from spilled material. Avoid direct contact with spilled substances.

▼ **6.2. Environmental precautions**

Avoid discharge to lakes, streams, sewers, etc. In the event of leakage to the surroundings, contact local environmental authorities. It is recommended to install waste collection trays to prevent emissions to the waste water system and surrounding environment.

▼ **6.3. Methods and material for containment and cleaning up**

Use sand, sawdust, earth, vermiculite, diatomaceous earth to contain and collect non-combustible absorbent materials and place in container for disposal, according to local regulations. To the extent possible cleaning is performed with normal cleaning agents. Avoid use of solvents.

▼ **6.4. Reference to other sections**

See section on "Disposal considerations" in regard of handling of waste. See section on 'Exposure controls/personal protection' for protective measures.

SECTION 7: Handling and storage

▼ **7.1. Precautions for safe handling**

Smoking, storage of tobacco, consumption and storage of food or liquids are not allowed in the workrooms. It is recommended to install waste collection trays to prevent emissions to the waste water system and surrounding environment. See section on 'Exposure controls/personal protection' for information on personal protection. Avoid direct contact with the product.

▼ **7.2. Conditions for safe storage, including any incompatibilities**

Always store in containers of the same material as the original container. Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

Storage temperature

Frost free

▼ **7.3. Specific end use(s)**

This product should only be used for applications quoted in section 1.2

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

▼ OEL

No substances are listed in The Control of Substances Hazardous to Health Regulations with an occupational exposure limit.

▼ DNEL / PNEC

DNEL (4,4'-methylenediphenyl diisocyanate): 50 mg/m³ body weight/day

Exposure: Dermal

Duration of Exposure: Short term

Remarks: Systemic

DNEL (4,4'-methylenediphenyl diisocyanate): 28,7 mg/cm²

Exposure: Dermal

Duration of Exposure: Short term

Remarks: Local

DNEL (4,4'-methylenediphenyl diisocyanate): 0,1 mg/m³ air

Exposure: Inhalation

Duration of Exposure: Short term

Remarks: Systemic and local

DNEL (4,4'-methylenediphenyl diisocyanate): 0,05 mg/m³ air

Exposure: Inhalation

Duration of Exposure: Long term

Remarks: Systemic and local

DNEL (o-(p-isocyanatobenzyl)phenyl isocyanate): 50 mg/kg body weight/day

Exposure: Dermal

Duration of Exposure: Short term

Remarks: Systemic

DNEL (o-(p-isocyanatobenzyl)phenyl isocyanate): 28,7 mg/cm³

Exposure: Dermal

Duration of Exposure: Short term

Remarks: Local

DNEL (o-(p-isocyanatobenzyl)phenyl isocyanate): 0,1 mg/m³ air

Exposure: Inhalation

Duration of Exposure: Short term

Remarks: Systemic and local

DNEL (o-(p-isocyanatobenzyl)phenyl isocyanate): 0,05 mg/m³ air

Exposure: Inhalation

Duration of Exposure: Long term

Remarks: Systemic and local

PNEC (4,4'-methylenediphenyl diisocyanate): > 1 mg/l

Exposure: Water

Remarks: Fresh water

PNEC (4,4'-methylenediphenyl diisocyanate): >0,1 mg/l

Exposure: Water

Remarks: See water

PNEC (o-(p-isocyanatobenzyl)phenyl isocyanate): > 1 mg/l

Exposure: Water

Remarks: Freshwater

8.2. Exposure controls

▼ Control is unnecessary if the product is used as intended.

General recommendations

▼ Observe general occupational hygiene standards.

Exposure scenarios

In the event exposure scenarios are appended to the safety data sheet, the operational conditions and risk management measures in these shall be complied with.

▼ Exposure limits

Occupational exposure limits have not been defined for the substances in this product.

▼ Appropriate technical measures

Exhaust air that contains the substances shall not be recirculated. Apply standard precautions during use of the product. Avoid inhalation of gas or dust.

▼ Hygiene measures

In between use of the product and at the end of the working day all exposed areas of the body must be washed thoroughly. Always wash hands, forearms and face.

▼ Measures to avoid environmental exposure

Keep containment materials near the workplace. If possible, collect spillage during work.

Individual protection measures, such as personal protective equipment



Generally

Use only CE marked protective equipment.

Respiratory Equipment

Recommended: A. Class 1 (low capacity). Brown

Skin protection

Dedicated work clothing should be worn. Wear a protective suit in the event of prolonged periods of work with the product.

Hand protection

Recommended: Nitrile rubber. Discard immediately after use
Material thickness: Undgå at sprede forureningen. mm.

Eye protection

Wear safety glasses with side shields.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Form	Liquid
Colour	Deep brown
Odour	Characteristic
Odour threshold (ppm)	No data available.
pH	No data available.
Viscosity (40°C)	5400 mPa*s
Density (g/cm ³)	1,15

Phase changes

Melting point (°C)	No data available.
Boiling point (°C)	368
Vapour pressure (25°C)	12 mmHg
Decomposition temperature (°C)	No data available.
Evaporation rate (n-butylacetate = 100)	No data available.

Data on fire and explosion hazards

Flash point (°C)	250
Ignition (°C)	No data available.
Auto flammability (°C)	No data available.
Explosion limits (% v/v)	No data available.
Explosive properties	No data available.

Solubility

Solubility in water	Insoluble
n-octanol/water coefficient	No data available.

9.2. Other information

Solubility in fat (g/L)	No data available.
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SECTION 10: Stability and reactivity

10.1. Reactivity

No data available

10.2. Chemical stability

Curing time 24.

10.3. Possibility of hazardous reactions

Nothing special

10.4. Conditions to avoid

According to EC-Regulation 2015/830

Do not expose to any forms of heat (e.g. solar radiation). May lead to excess pressure.

▼ **10.5. Incompatible materials**

Strong acids, strong bases, strong oxidizing agents, and strong reducing agents.

10.6. Hazardous decomposition products

The product is not degraded when used as specified in section 1.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

Substance	Species	Test	Route of exposure	Result
4,4'-methylenediphenyl diisocyanate...	Rabbit	LD50	Dermal	>9400 mg/kg
4,4'-methylenediphenyl diisocyanate...	Rat	LD50	Inhalation	0,368 mg/l (dust)
4,4'-methylenediphenyl diisocyanate...	Rat	LD50	Oral	>2000 mg/kg
4,4'-methylenediphenyl diisocyanate...	Rat	LD50	Oral	> 5.000 mg/kg
Prepolymer based on aromatic p...				

▼ **Skin corrosion/irritation**

Causes skin irritation.

Serious eye damage/irritation

Causes serious eye irritation.

▼ **Respiratory or skin sensitisation**

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

Data on substance: 4,4'-methylenediphenyl diisocyanate
Organism: Guinea pig
Result: Positive

Data on substance: Prepolymer based on aromatic polyisocyanate
Organism: Guinea pig

Data on substance: 4,4'-methylenediphenyl diisocyanate
Test: Mouse local lymphnode assay
Organism: Mouse
Result: Positive

Data on substance: Prepolymer based on aromatic polyisocyanate

Germ cell mutagenicity

No data available.

Carcinogenicity

Suspected of causing cancer.

Data on substance: 4,4'-methylenediphenyl diisocyanate
Test: OECD TG 453
Organism: Rat
Result: Tumors in highest dosis group

Reproductive toxicity

Data on substance: 4,4'-methylenediphenyl diisocyanate
Test: OECD TG 414
Organism: Rat
Result: No teratogene effects observed

STOT-single exposure

May cause respiratory irritation.

▼ **STOT-repeated exposure**

May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard

No data available.

▼ **Long term effects**

Carcinogenic effects: This product contains substances considered or proven to be carcinogenic. The carcinogenic effects may be triggered subsequent to exposure through inhalation, skin contact or ingestion.
 Irritation effects: This product contains substances, which may cause irritation upon exposure to skin, eyes or lungs. Exposure may result in an increased absorption potential of other hazardous substances at the area of exposure.

SECTION 12: Ecological information

12.1. Toxicity

Substance	Species	Test	Duration	Result
No data available.				

▼ 12.2. Persistence and degradability

Substance	Biodegradability	Test	Result
4,4'-methylenediphenyl diisocy...	No	No data available	No data available

12.3. Bioaccumulative potential

Substance	Potential bioaccumulation	LogPow	BCF
4,4'-methylenediphenyl diisocy...	No	No data available	No data available

12.4. Mobility in soil

No data available

▼ 12.5. Results of PBT and vPvB assessment

This mixture/product does not contain any substances considered to meet the criteria classifying them as PBT and/or vPvB.

▼ 12.6. Other adverse effects

This product contains substances, which due to poor biodegradability, may cause adverse long-term effects to the aquatic environment,

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product is covered by the regulations on hazardous waste.

▼ Waste

EWC code	waste isocyanates
08 05 01	

Specific labelling

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▼ Contaminated packing

Contaminated packaging must be disposed of similarly to the product.

SECTION 14: Transport information

14.1 – 14.4

Not dangerous goods according to ADR, IATA and IMDG.

▼ ADR/RID

14.1. UN number	-
14.2. UN proper shipping name	-
14.3. Transport hazard class(es)	-
14.4. Packing group	-
Notes	-
Tunnel restriction code	-

▼ IMDG

UN-no.	-
Proper Shipping Name	-
Class	-
PG*	-
EmS	-

According to EC-Regulation 2015/830

MP**	-
Hazardous constituent	-
▼ IATA/ICAO	
UN-no.	-
Proper Shipping Name	-
Class	-
PG*	-

14.5. Environmental hazards

-

14.6. Special precautions for user

-

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

No data available

(*) Packing group

(**) Marine pollutant

SECTION 15: Regulatory information

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

▼ Restrictions for application

People under the age of 18 shall not be exposed to this product cf. Council Directive 94/33/EC of 22 June 1994 on the protection of young people at work.

Pregnant women and women breastfeeding must not be exposed to this product. The risk, and possible technical precautions or design of the workplace needed to eliminate exposure, must be considered.

▼ Demands for specific education

Use of this product requires dedicated training in work with polyurethane and epoxy products.

Additional information

Sources

Council Directive 92/85/EEC on the introduction of measures to encourage improvements in the safety and health at work of pregnant workers and workers who have recently given birth or are breastfeeding.

Council Directive 94/33/EC of 22 June 1994 on the protection of young people at work.

Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (CLP).

EC regulation 1907/2006 (REACH).

15.2. Chemical safety assessment

No

SECTION 16: Other information

▼ Full text of H-phrases as mentioned in section 3

H315 - Causes skin irritation.

H317 - May cause an allergic skin reaction.

H319 - Causes serious eye irritation.

H332 - Harmful if inhaled.

H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H335 - May cause respiratory irritation.

H351 - Suspected of causing cancer.

H373 - May cause damage to organs through prolonged or repeated exposure α .

H412 - Harmful to aquatic life with long lasting effects.

The full text of identified uses as mentioned in section 1

-

Additional label elements

-

Other

In accordance with Regulation (EC) No. 1272/2008 (CLP) the evaluation of the classification of the mixture is based on:

The classification of the mixture in regard of physical hazards has been based on experimental data.

The classification of the mixture in regard of health hazards are in accordance with the calculation methods given by Regulation (EC) No. 1272/2008 (CLP)

The classification of the mixture in regard of environmental hazards are in accordance with the calculation methods given by Regulation (EC) No. 1272/2008 (CLP)

It is recommended to hand over this safety data sheet to the actual user of the product. Information in this safety data sheet cannot be used as a product specification.

The information in this safety data sheet applies only to this specific product (mentioned in section 1) and is not necessarily correct for use with other chemicals/products.

A change (in proportion to the last essential change (first cipher in SDS version, see section 1)) is marked with a blue triangle.

The safety data sheet is validated by

Robert Pedersen

Date of last essential change

(First cipher in SDS version)

2015-12-18

Date of last minor change

(Last cipher in SDS version)

2015-12-18