

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

1.1 Product identifier

Trade name: ZZ® 330

This safety data sheet pertains to the following products:
ZZ® 330 Fire Protection Foam
ZZ-Fire Protection Foam 2K NE

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

General use: Di-/poly-isocyanate component to produce polyurethanes. For industrial purposes only.

1.3 Details of the supplier of the safety data sheet

Company name: ZAPP-ZIMMERMANN GmbH

Street/POB-No.: Marconistr. 7-9

Postal Code, city: 50769 Köln

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Department responsible for information:

Lars Volkmer,

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1.4 Emergency telephone number

GIZ-Nord, Göttingen
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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to EC regulation 1272/2008 (CLP)

Skin Irrit. 2; H315	Causes skin irritation.
Eye Irrit. 2; H319	Causes serious eye irritation.
Resp. Sens. 1; H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin Sens. 1; H317	May cause an allergic skin reaction.
Carc. 2; H351	Suspected of causing cancer.
Repr. 2; H361f	Suspected of damaging fertility.
STOT SE 3; H335	May cause respiratory irritation.
STOT RE 2; H373	May cause damage to organs through prolonged or repeated exposure.

2.2 Label elements

Labelling (CLP)



Signal word:

Danger

Hazard statements:	H315 H317 H319 H334 H335 H351 H361f H373	Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation. Suspected of causing cancer. Suspected of damaging fertility. May cause damage to organs through prolonged or repeated exposure.
Precautionary statements:	P201 P260 P280 P284 P304+P340 P305+P351+P338 P308+P313 P342+P311	Obtain special instructions before use. Do not breathe dusts or mists. Wear protective gloves/protective clothing/eye protection. In case of inadequate ventilation wear respiratory protection. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Get medical advice/attention. If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

Special labelling

Text for labelling:	EUH204 Contains Diphenylmethane diisocyanate (isomers, homologues), Melamine As from 24 August 2023 adequate training is required before industrial or professional use.
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2.3 Other hazards

Persons with over-sensitive breath ways (e.g. asthma, chronic bronchitis) are not allowed to use the product due to safety regulations.
Vapours and aerosols are the main dangers to the respiratory tract.
Respiratory symptoms may still occur several hours after overexposure.
Special danger of slipping by leaking/spilling product.

Endocrine disrupting properties, Results of PBT and vPvB assessment:

No data available

SECTION 3: Composition/information on ingredients

3.1 Substances: not applicable

3.2 Mixtures

Hazardous ingredients:

Identifiers	Designation Classification	Content
list no. 618-498-9 CAS 9016-87-9	4,4'-Diphenylmethane diisocyanate (isomers, homologues) 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.	10 - 30 %
EC No. 203-615-4 CAS 108-78-1	Melamine (SVHC) Carc. 2; H351. Repr. 2; H361f. STOT RE 2; H373.	< 10 %
REACH 01-2119456816-28-xxxx EC No. 203-473-3 CAS 107-21-1	Ethylene glycol Acute Tox. 4; H302. STOT RE 2; H373.	< 1 %

Full text of H- and EUH-statements: see section 16.

Additional information: Contains the following substances of very high concern (SVHC) which are included in the Candidate List according to Article 59 of REACH: Melamine (Equivalent level of concern having probable serious effects to human health (Article 57(f) - human health); Equivalent level of concern having probable serious effects to the environment (Article 57(f) - environment))

SECTION 4: First aid measures

4.1 Description of first aid measures

General information:	If medical advice is needed, have product container or label at hand. Take off contaminated clothing and wash it before reuse.
In case of inhalation:	Move victim to fresh air; if necessary, provide artificial respiration or oxygen. Do not allow victim to become chilled. Keep victim warm. Keep victim calm and seek medical attention immediately. If victim is at risk of losing consciousness, position and transport on their side.
Following skin contact:	Immediately clean with water and soap and, if available, apply a generous amount of polyethylene glycol 400. In case of skin reactions, consult a physician.
After eye contact:	Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing. Afterwards, consult an ophthalmologist immediately.
After swallowing:	Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Do not induce vomiting. Seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Causes serious eye irritation. Causes skin irritation. May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause damage to organs through prolonged or repeated exposure. May cause respiratory irritation.

4.3 Indication of any immediate medical attention and special treatment needed

Product causes irritation of respiratory tracts and may possibly increase sensitivity of skin and respiratory tracts. Treatment of the acute irritation or bronchial narrowing is mainly symptomatic. Depending on the scale of exposition, as well as aches and pains resulting, long-term medical care may be required.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:	Foam, extinguishing powder, carbon dioxide In case of large fires: also water spray jet
Extinguishing media which must not be used for safety reasons:	Full water jet

5.2 Special hazards arising from the substance or mixture

May form dangerous gases and vapours in case of fire.
Furthermore, there may develop: Isocyanate vapours, traces of hydrogen cyanide, nitrous fumes, carbon monoxide

5.3 Advice for firefighters

Special protective equipment for firefighters:	Wear a self-contained breathing apparatus and chemical protective clothing.
Additional information:	Heating causes rise in pressure with risk of bursting. Cool endangered containers with water spray and, if possible, remove from danger zone. Remove persons not involved upwind. Do not allow water used to extinguish fire to enter drains, ground or waterways. Fire residuals and contaminated extinguishing water must be disposed of in accordance with the regulations of the local authorities.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid exposure. Do not breathe dusts or mists. Avoid contact with the substance.
 If possible, eliminate leakage. Provide adequate ventilation.
 Wear appropriate protective equipment. Keep unprotected people away.
 Take off contaminated clothing and wash it before reuse.

6.2 Environmental precautions

Do not allow to penetrate into soil, waterbodies or drains.
 If necessary notify appropriate authorities.

6.3 Methods and material for containment and cleaning up

Take up mechanically, placing in appropriate containers for disposal. Final cleaning.

Additional information: Special danger of slipping by leaking/spilling product.

6.4 Reference to other sections

Refer additionally to section 8 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advices on safe handling: Avoid exposure - obtain special instructions before use.
 Provide adequate ventilation, and local exhaust as needed.
 Airflow should move away from persons.
 The effectiveness of the facilities must be checked at regular intervals.
 Avoid contact with skin and eyes. Wear appropriate protective equipment.
 Do not breathe dusts or mists. Have eye wash bottle or eye rinse ready at work place.
 Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.
 Take off contaminated clothing and wash it before reuse.

Precautions against fire and explosion:
 Keep away from heat.
 When handling larger quantities, take precautionary measures against electrostatic charging.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storerooms and containers:
 Keep containers tightly closed and at a temperature between 5 °C and 30 °C. Keep in a cool, well-ventilated place. Keep container dry. Protect from humidity and water.

Do not allow the product to enter the ground.

Hints on joint storage: Keep away from food and drinks.

Do not store together with: amines, alcohols, Water
 Further details: Use caution when opening containers under pressure.

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values:

CAS No.	Designation	Type	Limit value
107-21-1	Ethylene glycol	Europe: IOELV: STEL	104 mg/m ³ ; 40 ppm (may be absorbed through the skin)
		Europe: IOELV: TWA	52 mg/m ³ ; 20 ppm (may be absorbed through the skin)

8.2 Exposure controls

Provide good ventilation and/or an exhaust system in the work area.

Personal protection equipment

Occupational exposure controls

Respiratory protection:	Respiratory protection must be worn whenever the WEL levels have been exceeded. Use combination filter type A2-P2 according to EN 14387.
Hand protection:	Protective gloves according to EN 374. Glove material: Nitrile rubber - NBR, ≥ 0.35 mm Butyl caoutchouc (butyl rubber) - IIR, ≥ 0.5 mm Fluororubber (Viton) - FKM, ≥ 0.4 mm polyvinyl chloride - PVC, ≥ 0.5 mm Observe glove manufacturer's instructions concerning penetrability and breakthrough time.
Eye protection:	Tightly sealed goggles according to EN ISO 16321-1:2022.
Body protection:	Wear suitable protective clothing.
General protection and hygiene measures:	Avoid exposure - obtain special instructions before use. Avoid contact with the substance. Do not breathe dusts or mists. Wash hands before breaks and after work. Take off immediately all contaminated clothing. Keep away from food, drink and animal feedingstuffs. Have eye wash bottle or eye rinse ready at work place. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Take off contaminated clothing and wash it before reuse.

Environmental exposure controls

Refer to "6.2 Environmental precautions".

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state at 20 °C and 101.3 kPa	liquid
Colour:	red brown
Odour:	characteristic
Odour threshold:	No data available
Melting point/freezing point:	not determined
Initial boiling point and boiling range:	not determined
Flammability:	not determined
Upper/lower flammability or explosive limits:	LEL (Lower Explosion Limit): not applicable UEL (Upper Explosive Limit): not applicable
Flash point/flash point range:	not applicable
Decomposition temperature:	No data available
pH:	not applicable
Viscosity, dynamic:	not relevant
Water solubility:	practically insoluble
Partition coefficient: n-octanol/water:	not determined
Vapour pressure:	at 25 °C: ≤ 0.00001 kPa
Density:	approx. 1.3 g/mL
Vapour density:	No data available
Particle characteristics:	Not applicable

9.2 Other information

Explosive properties:	No data available
Oxidizing characteristics:	no
Auto-ignition temperature:	not applicable
Bulk density:	not applicable
Evaporation rate:	No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Refer to subsection "Possibility of hazardous reactions".

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Violent reaction with amines and alcohols.
Contact with water liberates carbon dioxide.
Heating causes rise in pressure with risk of bursting.

10.4 Conditions to avoid

Protect from moisture contamination. Protect from direct sunlight. Protect from frost. Keep away from heat sources, sparks and open flames.

10.5 Incompatible materials

Amines, alcohols, water

10.6 Hazardous decomposition products

	No decomposition when used properly.
Thermal decomposition:	No data available

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Toxicological effects: The statements are derived from the properties of the single components. No toxicological data is available for the product as such.

Acute toxicity (oral): Based on available data, the classification criteria are not met.

Acute toxicity (dermal): Based on available data, the classification criteria are not met.

Acute toxicity (inhalative): Based on available data, the classification criteria are not met.

Skin corrosion/irritation: Skin Irrit. 2; H315 = Causes skin irritation.

Serious eye damage/irritation: Eye Irrit. 2; H319 = Causes serious eye irritation.

Sensitisation to the respiratory tract: Resp. Sens. 1; H334 = May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Skin sensitisation: Skin Sens. 1; H317 = May cause an allergic skin reaction.

Germ cell mutagenicity/Genotoxicity: Lack of data.

Carcinogenicity: Carc. 2; H351 = Suspected of causing cancer.

Reproductive toxicity: Repr. 2; H361f = Suspected of damaging fertility.

Effects on or via lactation: Lack of data.

Specific target organ toxicity (single exposure): STOT SE 3; H335 = May cause respiratory irritation.

Specific target organ toxicity (repeated exposure): STOT RE 2; H373 = May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard: Lack of data.

11.2 Information on other hazards

Endocrine disrupting properties: No data available

Other information: Persons with over-sensitive breath ways (e.g. asthma, chronic bronchitis) are not allowed to use the product due to safety regulations.

Information about Diphenylmethane diisocyanate (isomers, homologues):
A long-term studie with rats over two years with mechanically produced, inhalable aerosols (aerodyn. diametre of 95% under 5 µm) of polymer MDI (PMDI) and concentrations of 0.2, 1.0 and 6.0 mg PMDI/m³ showed the following results:
The group of animals exposed to the highest concentration suffered an increased incidence of lung tumours, persistent inflammatory changes to the nose, respiratory tract and lungs, and yellowish deposits in the respiratory tract and lungs.
The animals in the 1.0 mg/m³ group exhibited slight irritation and inflammatory changes to the nose, respiratory tract and lungs, but did not develop lung tumours and/or deposits.
Animals in the 0.2 mg/m³ group suffered no irritation: this concentration was therefore deemed to constitute the 'no-effect level'.

Symptoms

In case of inhalation: Irritation of nose, throat, lung.
Headache, throat dryness, respiratory complaints, chest pressure.
May cause sensitization by inhalation. Susceptible persons may develop ailments and allergic reactions with some delay.

In case of ingestion: May be harmful if swallowed.

After contact with skin: In case of a prolonged contact tanning and irritating effects may occur.

After eye contact:
Produces for a short time a weak reddening and tumefaction of the conjunctiva as well as a weak, reversible rendering turbid of the cornea.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity: Information about Diphenylmethane diisocyanate (isomers, homologues):

Bacterial toxicity: EC50 > 100 mg/L /3h

Daphnia toxicity: EC50 Daphnia magna: > 1000 mg/L /24h

Fish toxicity: LC0 Danio rerio (zebrafish): > 1000 mg/L /96 h.

12.2 Persistence and degradability

Further details: Forms carbon dioxide and turns into a hard and insoluble by-product (poly urea) on the water's edge. This reaction is intensified by surface-active substances (e.g. liquid soaps) or water soluble solvents. Based upon current knowledge, poly urea is inert and will not decompose.

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water:

not determined

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

General information: Do not allow to penetrate into soil, waterbodies or drains.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Recommendation:

Non-reacted state:

ASN 080501*: Waste isocyanates

*= Evidence for disposal must be provided.

Reacted state:

ASN 080410: waste adhesives and sealants other than those mentioned in 08 04 09.

Dispose of waste according to applicable legislation.

Package

Waste key number:

15 01 02 = Plastic packaging

Recommendation:

Dispose of waste according to applicable legislation.

Handle contaminated packages in the same way as the substance itself.

Non-contaminated packages may be recycled.

SECTION 14: Transport information

14.1 UN number or ID number

ADR/RID, ADN, IMDG, IATA-DGR:

not applicable

14.2 UN proper shipping name

ADR/RID, ADN, IMDG, IATA-DGR:

Not restricted

14.3 Transport hazard class(es)

ADR/RID, ADN, IMDG, IATA-DGR:

not applicable

14.4 Packing group

ADR/RID, ADN, IMDG, IATA-DGR:

not applicable

14.5 Environmental hazards

Dangerous for the environment: Substance/mixture is not environmentally hazardous according to the criteria of the UN model regulations.

Marine pollutant - IMDG: no

14.6 Special precautions for user

No dangerous good in sense of these transport regulations.

14.7 Maritime transport in bulk according to IMO instruments

No data available

SECTION 15: Regulatory information

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

National regulations - EC member states

Labelling of packaging with <= 125mL content



Signal word:

Danger

Hazard statements:

H317	May cause an allergic skin reaction.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H351	Suspected of causing cancer.
H361f	Suspected of damaging fertility.
EUH204	Contains isocyanates. May produce an allergic reaction.
Precautionary statements: P201	Obtain special instructions before use.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection.
P284	In case of inadequate ventilation wear respiratory protection.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

Further regulations, limitations and legal requirements:

Use restriction according to REACH annex XVII, no.: 3, (20, 40,) 74, 75
Contains the following substances of very high concern (SVHC) which are included in the Candidate List according to Article 59 of REACH: Melamine.

15.2 Chemical Safety Assessment

For this mixture a chemical safety assessment is not required.

SECTION 16: Other information

Wording of the H-phrases under paragraph 2 and 3:

H302 = Harmful if swallowed.

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.

H361f = Suspected of damaging fertility.

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

EUH204 = Contains isocyanates. May produce an allergic reaction.

Reason of change: Changes in section 2: classification, labelling
Changes in section 3: Composition/information on ingredients
Changes in section 15: Regulatory information
General revision
General revision

Date of first version: 19/12/2013

Department issuing data sheet: see section 1: Department responsible for information

Abbreviations and acronyms: Acute Tox.: Acute toxicity
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
AS/NZS: Australian Standards/New Zealand Standards
Carc.: Carcinogenicity
CAS: Chemical Abstracts Service
CFR: Code of Federal Regulations
CLP: Classification, Labelling and Packaging
DMEL: Derived minimal effect level
DNEL: Derived no-effect level
EC: European Community
EC50: Effective Concentration 50%
EN: European Standard
EQ: Excepted quantities
EU: European Union
Eye Irrit.: Eye irritation
IATA: International Air Transport Association
IATA-DGR: International Air Transport Association – Dangerous Goods Regulations
IBC Code: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IMDG Code: International Maritime Dangerous Goods Code
LC0: Lethal concentration 0%
LEL: Lower Explosion Limit
MARPOL: Maritime Pollution: The International Convention for the Prevention of Pollution from Ships
OEL: Occupational Exposure Limit Value
OSHA: Occupational Safety and Health Administration
PBT: Persistent, bioaccumulative and toxic
PNEC: Predicted no-effect concentration
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
Repr.: Reproductive toxicity
Resp. Sens.: Sensitisation to the respiratory tract
RID: Regulations Concerning the International Carriage of Dangerous Goods by Rail
Skin Irrit.: Skin irritation
Skin Sens.: Skin sensitisation
STOT RE: Specific target organ toxicity - repeated exposure
STOT SE: Specific target organ toxicity - single exposure
SVHC: Substance of very high concern
TLV: Threshold Limit Value
TRGS: Technical Rules for Hazardous Substances
vPvB: Very persistent and very bioaccumulative
WEL: Workplace Exposure Limit