

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

1.1 Product identifier

Trade name: ZZ 381

This safety data sheet pertains to the following products:
ZZ® 381 Fire Protection Casting Compound

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

General use: Fire protection means. Reserved for industrial and professional use.

1.3 Details of the supplier of the safety data sheet

Company name: Karl Zimmermann GmbH

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

Postal Code, city: 50769 Köln
Germany

WWW: www.kzim.de

E-mail: info@kzim.de

Telephone: +49 (0)221-97 061-0

Telefax: +49 (0)221-97 061-928

Department responsible for information:

Lars Volkmer,

Telephone: +49 (0)221-97061-160, e-mail Lars.Volkmer@kzim.de

1.4 Emergency telephone number

GIZ-Nord, Göttingen
Telephone: +49 551-19240

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to EC regulation 1272/2008 (CLP)

Acute Tox. 4; H332	Harmful if inhaled.
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	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.
Precautionary statements:	P201	Obtain special instructions before use.
	P260	Do not breathe dusts or mists.
	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.
	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.
	P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

Special labelling

Text for labelling:	EUH204	Contains isocyanates. May produce an allergic reaction.
		Contains: 4,4'-Diphenylmethane diisocyanate (isomers, homologues), Melamine
		As from 24 August 2023 adequate training is required before industrial or professional use.

2.3 Other hazards

Special danger of slipping by leaking/spilling product.
People who suffer from skin sensitization problems, asthma, allergies, chronic or recurring respiratory illnesses should not be deployed in any process using this mixture.

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

Chemical characterisation: A mixture of: Polyether polyol, Diphenylmethane diisocyanate, additives

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.	20 - 25 %
REACH 01-2119485947-16-xxxx 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))
Contains pentaerythritol and Diiron trioxide: The maximum workplace exposure limits are, where necessary, listed in section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information: First aider: Pay attention to self-protection!
If medical advice is needed, have product container or label at hand. Take off immediately all contaminated clothing and wash it before reuse.

In case of inhalation: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately get medical attention.

Following skin contact: Immediately clean with water and soap followed by thorough rinsing. 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. Subsequently consult an ophthalmologist.

After swallowing: Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Do not induce vomiting. Immediately get medical attention.

4.2 Most important symptoms and effects, both acute and delayed

May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction. Harmful if inhaled. Causes serious eye irritation. Causes skin irritation. May cause respiratory irritation. cramp feeling in breast, cough, Breathing difficulty

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: Water spray jet, foam, extinguishing powder, carbon dioxide

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.
In case of fire may be liberated: Hydrogen cyanide, isocyanates, nitrogen oxides (NOx), ammonia, phosphorus oxides, carbon monoxide and carbon dioxide

5.3 Advice for firefighters

Special protective equipment for firefighters:

Use a breathing apparatus independent of the ambient air (isolated apparatus) and a full protection outfit (suit) against chemicals.

Additional information:

Use fine water spray to cool endangered containers.
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.

If possible, eliminate leakage. Provide adequate ventilation.

Do not breathe dust/fume/gas/mist/vapours/spray. Avoid contact with the substance.

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

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents) and place in closed containers for disposal.

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: Obtain special instructions before use. Provide adequate ventilation, and local exhaust as needed.
Avoid the formation of aerosol. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid contact with the substance.
During spraying wear suitable respiratory equipment. Wear appropriate protective equipment. Take off contaminated clothing and wash it before reuse.
Protect from moisture contamination. Have eye wash bottle or eye rinse ready at work place.
People who suffer from skins problems, asthma, allergies, chronic or recurring respiratory illnesses must not be deployed in processes, which use this mixture.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storerooms and containers:
Keep container tightly closed and in a well-ventilated place.
Keep container dry. Keep only in the original container.
Protect from heat and direct sunlight.
Store containers in upright position.

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

7.3 Specific end use(s)

Observe instructions for use.

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: When vapours form: Use combination filter type A-P2 according to EN 14387. The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product.
- Hand protection: Protective gloves according to EN 374. Observe glove manufacturer's instructions concerning penetrability and breakthrough time.
- Eye protection: Tightly sealed goggles according to BS EN ISO 16321-1:2022.
- Body protection: Wear suitable protective clothing.
- General protection and hygiene measures: Obtain special instructions before use. Avoid the formation of aerosol. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid contact with the substance. Take off contaminated clothing and wash it before reuse. Have eye wash bottle or eye rinse ready at work place. People who suffer from skins problems, asthma, allergies, chronic or recurring respiratory illnesses must not be deployed in processes, which use this mixture.

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
	Form: pasty
Colour:	No data available
Odour:	No data available
Odour threshold:	No data available
Melting point/freezing point:	No data available
Initial boiling point and boiling range:	No data available
Flammability:	No data available
Upper/lower flammability or explosive limits:	No data available
Flash point/flash point range:	No data available
Decomposition temperature:	No data available
pH:	No data available
Viscosity, kinematic:	No data available
Solubility:	No data available
Partition coefficient: n-octanol/water:	No data available
Vapour pressure:	No data available
Density:	No data available
Vapour density:	No data available
Particle characteristics:	Not applicable

9.2 Other information

Explosive properties:	No data available
Oxidizing characteristics:	none
Auto-ignition temperature:	No data available
Evaporation rate:	No data available

Additional information: 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

No hazardous reaction when handled and stored according to provisions.

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

No data available

10.6 Hazardous decomposition products

Hydrogen cyanide, isocyanates, nitrogen oxides (NO_x), ammonia, phosphorus oxides, carbon monoxide and carbon dioxide

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): Lack of data.

Acute toxicity (dermal): Lack of data.

Acute toxicity (inhalative): Acute Tox. 4; H332 = Harmful if inhaled.

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

Symptoms

cramp feeling in breast, cough, Breathing difficulty Upon direct contact with eyes may cause burning, tearing, redness.

SECTION 12: Ecological information

12.1 Toxicity

Further details: No data available

12.2 Persistence and degradability

Further details: No data available

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water:

No data available

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 enter into ground-water, surface water 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, IMDG, IATA-DGR: not applicable

ADN: ID 9004

14.2 UN proper shipping name

ADR/RID, IMDG, IATA-DGR: Not restricted

ADN: ID 9004, DIPHENYLMETHANE-4,4'-DIISOCYANATE

14.3 Transport hazard class(es)

ADR/RID, IMDG, IATA-DGR: not applicable

ADN: Class 9, Code: M12

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

Inland waterway craft (ADN)

Hazard label: -

Transport permitted: T

Equipment necessary: PP

Only dangerous if carried on tank-ships.

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.
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, (56,) 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: 7/9/2018

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
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
MARPOL: Maritime Pollution: The International Convention for the Prevention of Pollution from Ships
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
TRGS: Technical Rules for Hazardous Substances
vPvB: Very persistent and very bioaccumulative