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

1.1. Product identifier

8973 PU Hardener

Substance name:	Formaldehyde, oligomeric reaction products with aniline and phosgene
REACH Registration Number:	01-2119457024-46-0006
CAS No:	32055-14-4
EC No:	500-079-6
UFI:	CTFF-G4QG-J002-WETU

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

Use of the substance/mixture

Hardener (Crosslinker)

Uses advised against

Do not use for injecting or spraying.

1.3. Details of the supplier of the safety data sheet

Company name:	Kisling (Deutschland) GmbH		
Street:	Salzstraße 15		
Place:	D-74676 Niedernhall		
Telephone:	+49 7940 50961 61		
E-mail:	customerservice@kisling.com		
Contact person:	Product Compliance	Telephone:	+49 7940 5096 143
E-mail:	compliance@kisling.com		
Internet:	www.kisling.com		

1.4. Emergency telephone number:

24 hr. emergency phone number +1 872 5888271 (KAR)
Medicines & Poisons Info Office +356 2545 6508

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

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

Full text of hazard statements: see SECTION 16.

2.2. Label elements

Regulation (EC) No 1272/2008

Signal word: Danger

Pictograms:

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

Precautionary statements

P260	Do not breathe Vapour.
P280	Wear protective gloves and eye protection/face protection.
P284	Wear respiratory 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.

Special labelling of certain mixtures

EUH204 Contains isocyanates. May produce an allergic reaction.
As from 24 August 2023 adequate training is required before industrial or professional use.

Labelling of packages where the contents do not exceed 125 ml

Signal word: Danger

Pictograms:

Hazard statements

H317-H334-H351

Precautionary statements

P280-P284-P304+P340-P342+P311

SECTION 3: Composition/information on ingredients

3.1. Substances

Relevant ingredients

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
32055-14-4	Formaldehyde, oligomeric reaction products with aniline and phosgene			50 - < 100 %
	500-079-6		01-2119457024-46-0006	
	Carc. 2, Acute Tox. 4, Skin Irrit. 2, Eye Irrit. 2, Resp. Sens. 1, Skin Sens. 1, STOT SE 3, STOT RE 2; H351 H332 H315 H319 H334 H317 H335 H373			

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

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
32055-14-4	500-079-6	Formaldehyde, oligomeric reaction products with aniline and phosgene	50 - < 100 %
	inhalation: ATE = 11 mg/l (vapours); inhalation: LC50 = 0,31 mg/l (dusts or mists); dermal: LD50 = > 9400 mg/kg; oral: LD50 = > 10000 mg/kg Skin Irrit. 2; H315: >= 5 - 100 Eye Irrit. 2; H319: >= 5 - 100 Resp. Sens. 1; H334: >= 0.1 - 100 STOT SE 3; H335: >= 5 - 100		

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Never give anything by mouth to an unconscious person or a person with cramps.
If unconscious but breathing normally, place in recovery position and seek medical advice.

After inhalation

Remove casualty to fresh air and keep warm and at rest.

After contact with skin

Wash with plenty of water/soap. Do not wash with:

After contact with eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical advice immediately.

After ingestion

If swallowed, rinse mouth with water (only if the person is conscious). Call a physician immediately. Do NOT induce vomiting.

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

No information available.

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

No information available.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Powder.
In case of major fire and large quantities: Water spray jet

5.2. Special hazards arising from the substance or mixture

Burning produces heavy smoke.
Carbon monoxide, Carbon dioxide, Nitrogen oxides (NOx), Isocyanates, Hydrogen cyanide (hydrocyanic acid), Danger of serious damage to health by prolonged exposure. Use appropriate respiratory protection. Emergency cooling must be provided for in case of a fire in the vicinity.

5.3. Advice for firefighters

Use water spray jet to protect personnel and to cool endangered containers.

Additional information

No information available.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General advice

Keep away from sources of ignition - No smoking. Ventilate affected area.
Avoid breathing dust/fume/gas/mist/vapours/spray.
See protective measures under point 7 and 8.

For non-emergency personnel

No information available.

For emergency responders

No information available.

6.2. Environmental precautions

Do not allow to enter into surface water or drains.
In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

6.3. Methods and material for containment and cleaning up

For containment

Prevent spread over a wide area (e.g. by containment or oil barriers). Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Due to gaseous decomposition products, overpressure can occur in tightly sealed containers.
Dispose of contents/container to hazardous or special waste collection point.

Other information

The contaminated area should be cleaned up immediately with:
1 - a mixture of 95% water and 5% sodium carbonate & Soap
2 - 20ml anionic surfactants in aqueous solution, 700 ml Water, 350 ml Polyethylene glycol 400
3 - 30% Laundry detergents (monoethanolamine), 70 %

Add the decontaminant to the remnants and let stand for several days in a non-sealed container until no further reaction is observed. Once reaction is finished, close container and dispose of.

6.4. Reference to other sections

Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Examination of lung function should be carried out on a regular basis on persons spraying this product.

Avoid release to the environment. In use, may form flammable/explosive vapour-air mixture.
Only use the material in places where open light, fire and other flammable sources can be kept away. Use explosion-proof machinery, apparatus, ventilation facilities, tools etc. Provide earthing of containers, equipment, pumps and ventilation facilities. Use non-sparking tools.

Handle and open container with care. Formation of: Due to gaseous decomposition products, overpressure can occur in tightly sealed containers.
Never use pressure to empty container. Keep/Store only in original container.

Advice on general occupational hygiene

Avoid contact with skin, eyes and clothes. Avoid breathing dust/fume/gas/mist/vapours/spray. When using do not eat, drink or smoke.

Further information on handling

Do not allow to enter into surface water or drains.

7.2. Conditions for safe storage, including any incompatibilities

Hints on joint storage

Do not store together with: ,

Further information on storage conditions

Keep container dry.
Keep away from sources of ignition - No smoking. Protect from direct sunlight.

7.3. Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

DNEL/DMEL values

CAS No	Name of agent			
DNEL type		Exposure route	Effect	Value
32055-14-4	Formaldehyde, oligomeric reaction products with aniline and phosgene			
Worker DNEL, long-term		inhalation	local	0,05 mg/m³
Worker DNEL, acute		inhalation	local	0,1 mg/m³
Consumer DNEL, long-term		inhalation	local	0,025 mg/m³
Consumer DNEL, acute		inhalation	local	0,05 mg/m³

PNEC values

CAS No	Name of agent	
Environmental compartment		Value
32055-14-4	Formaldehyde, oligomeric reaction products with aniline and phosgene	
Freshwater		0,0037 mg/l
Freshwater (intermittent releases)		0,037 mg/l
Marine water		0,00037 mg/l
Freshwater sediment		11,7 mg/kg
Marine sediment		1,17 mg/kg
Soil		2,33 mg/kg

Additional advice on limit values

Examination of lung function should be carried out on a regular basis on persons spraying this product.

8.2. Exposure controls

Appropriate engineering controls

Provide adequate ventilation.

If handled uncovered, arrangements with local exhaust ventilation should be used if possible.

If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear eye/face protection.

Hand protection

Suitable material: Butyl caoutchouc (butyl rubber)

See information supplied by the manufacturer.

Skin protection

(Natural fibres (e.g. cotton) / heat-resistant synthetic fibres)

Respiratory protection

During spraying wear suitable respiratory equipment.

Thermal hazards

No information available.

Environmental exposure controls

Do not allow to enter into surface water or drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	brown
Odour:	characteristic
Odour threshold:	not determined

		Test method
Melting point/freezing point:	not determined	
Boiling point or initial boiling point and boiling range:	> 300 °C	
Flammability:	not applicable not applicable	
Lower explosion limits:	not determined	
Upper explosion limits:	not determined	
Flash point:	217 °C	
Auto-ignition temperature:	> 600 °C	
Decomposition temperature:	not determined	
pH-Value:	not determined	
Water solubility:	Immiscible	
Solubility in other solvents not determined		
Partition coefficient n-octanol/water:	not determined	
Vapour pressure: (at 20 °C)	< 0,00001 hPa	
Vapour pressure: (at 50 °C)	< 0,0005 hPa	
Density (at 20 °C):	1,19 g/cm³	
Relative vapour density:	not determined	

9.2. Other information

Information with regard to physical hazard classes

Explosive properties

No data available

Oxidizing properties

No data available

Other safety characteristics

Evaporation rate:	not determined	
Solid content:	not determined	
Pour point:	5 °C	
Viscosity / dynamic: (at 25 °C)	21 mPa·s	DIN 53019

SECTION 10: Stability and reactivity

10.1. Reactivity

(Yes, slowly)

Formation of:

10.2. Chemical stability

Decompostion takes place from temperatures above: 200°C.

10.3. Possibility of hazardous reactions

,

Due to gaseous decomposition products, overpressure can occur in tightly sealed containers. Danger of bursting container.

10.4. Conditions to avoid

In case of warming: Thermal decomposition.

10.6. Hazardous decomposition products

Carbon monoxide (monomer)

Further information

No information available.

SECTION 11: Toxicological information

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

Acute toxicity

Harmful if inhaled.

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
32055-14-4	Formaldehyde, oligomeric reaction products with aniline and phosgene				
	oral	LD50 > 10000 mg/kg	Rat	Pre-supplier/manufacturer	OECD 401
	dermal	LD50 > 9400 mg/kg	Rabbit	Study report (1964)	OECD 402
	inhalation vapour	ATE 11 mg/l			
	inhalation (4 h) dust/mist	LC50 0,31 mg/l	Rat	Pre-supplier/manufacturer	OECD 403

Irritation and corrosivity

Skin corrosion/irritation: Causes skin irritation.

Serious eye damage/eye irritation: Causes serious eye irritation.

Sensitising effects

May cause allergy or asthma symptoms or breathing difficulties if inhaled. (Formaldehyde, oligomeric reaction products with aniline and phosgene)

May cause an allergic skin reaction. (Formaldehyde, oligomeric reaction products with aniline and phosgene)

Contains isocyanates. May produce an allergic reaction.

Carcinogenic/mutagenic/toxic effects for reproduction

Suspected of causing cancer. (Formaldehyde, oligomeric reaction products with aniline and phosgene)

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

Reproductive toxicity: Based on available data, the classification criteria are not met.

STOT-single exposure

May cause respiratory irritation. (Formaldehyde, oligomeric reaction products with aniline and phosgene)

STOT-repeated exposure

May cause damage to organs through prolonged or repeated exposure. (Formaldehyde, oligomeric reaction products with aniline and phosgene)

Aspiration hazard

Based on available data, the classification criteria are not met.

Information on likely routes of exposure

No information available.

Specific effects in experiment on an animal

No information available.

Additional information on tests

No information available.

Practical experience

May cause respiratory irritation. Potential hazards:

The product is skin resorptive.

Irritating to eyes. (reversible.)

11.2. Information on other hazards

Other information

Isocyanate containing product.
Respiratory or skin sensitisation/ May cause allergy or asthma symptoms or breathing difficulties if inhaled.

People who suffer from skin sensitization problems, asthma, allergies, chronic or recurring respiratory illnesses should not be deployed in any process using this mixture.

Further information

The classification was carried out according to the calculation method of the Preparations Directive (1999/45/EC).

SECTION 12: Ecological information

12.1. Toxicity

Based on available data, the classification criteria are not met.

CAS No	Chemical name						
	Aquatic toxicity	Dose		[h] | [d]	Species	Source	Method
32055-14-4	Formaldehyde, oligomeric reaction products with aniline and phosgene						
	Acute fish toxicity	LL50 mg/l	> 100	96 h	Danio rerio (zebrafish)	Study report (2020)	OECD 203
	Acute algae toxicity	ErC50 mg/l	> 100	72 h	Scenedesmus quadricauda Scenedesmus quadricauda	Study report (2020)	OECD 201
	Acute crustacea toxicity	EL50 mg/l	> 100	48 h		Study report (2021)	
	Crustacea toxicity	NOEC mg/l	>= 10	21 d		Study report (1986)	
	Acute bacteria toxicity	EC50 mg/l ( )	>100	3 h	Activated sludge		OECD 209

12.2. Persistence and degradability

No information available.

12.3. Bioaccumulative potential

No information available.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
32055-14-4	Formaldehyde, oligomeric reaction products with aniline and phosgene	4,52

BCF

CAS No	Chemical name	BCF	Species	Source
32055-14-4	Formaldehyde, oligomeric reaction products with aniline and phosgene	439		Other company data (

12.4. Mobility in soil

No information available.

12.5. Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

12.6. Endocrine disrupting properties

This substance does not have endocrine disrupting properties with respect to non-target organisms.

12.7. Other adverse effects

No information available.

Further information

Do not allow to enter into surface water or drains.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Do not allow to enter into surface water or drains.

List of Wastes Code - residues/unused products

080501 WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS; wastes not otherwise specified in 08; waste isocyanates; hazardous waste

List of Wastes Code - used product

080501 WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS; wastes not otherwise specified in 08; waste isocyanates; hazardous waste

List of Wastes Code - contaminated packaging

080501 WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS; wastes not otherwise specified in 08; waste isocyanates; hazardous waste

Contaminated packaging

Completely emptied packages can be recycled.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number:	No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name:	No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es):	No dangerous good in sense of this transport regulation.
14.4. Packing group:	No dangerous good in sense of this transport regulation.

Inland waterways transport (ADN)

14.1. UN number or ID number:	No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name:	No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es):	No dangerous good in sense of this transport regulation.
14.4. Packing group:	No dangerous good in sense of this transport regulation.

Marine transport (IMDG)

14.1. UN number or ID number:	No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name:	No dangerous good in sense of this transport regulation.

14.3. Transport hazard class(es): No dangerous good in sense of this transport regulation.

14.4. Packing group: No dangerous good in sense of this transport regulation.

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number: No dangerous good in sense of this transport regulation.

14.2. UN proper shipping name: No dangerous good in sense of this transport regulation.

14.3. Transport hazard class(es): No dangerous good in sense of this transport regulation.

14.4. Packing group: No dangerous good in sense of this transport regulation.

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

No dangerous good in sense of this transport regulation.
Moisture-sensitive.
Protect against: Cold < +10°C
Short-term maximum storage temperature permitted: +50°C
Store separately.

14.7. Maritime transport in bulk according to IMO instruments

No dangerous good in sense of this transport regulation.

SECTION 15: Regulatory information

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

EU regulatory information

Restrictions on use (REACH, annex XVII):
Entry 3, Entry 56

Information according to Directive 2012/18/EU (SEVESO III): Not subject to 2012/18/EU (SEVESO III)

National regulatory information

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers. Observe employment restrictions for women of child-bearing age.

Water hazard class (D): 1 - slightly hazardous to water

Skin resorption/Sensitization: Causes allergic hypersensitivity reactions.

15.2. Chemical safety assessment

For this substance a chemical safety assessment has not been carried out.

SECTION 16: Other information

Abbreviations and acronyms

Acute Tox: Acute toxicity
Skin Irrit: Skin irritation
Eye Irrit: Eye irritation
Resp. Sens: Respiratory sensitisation
Skin Sens: Skin sensitisation
Carc: Carcinogenicity
STOT SE: Specific target organ toxicity - single exposure
STOT RE: Specific target organ toxicity - repeated exposure
CLP: Classification, labelling and Packaging
REACH: Registration, Evaluation and Authorization of Chemicals
GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals
UN: United Nations
CAS: Chemical Abstracts Service
DNEL: Derived No Effect Level
DMEL: Derived Minimal Effect Level
PNEC: Predicted No Effect Concentration
ATE: Acute toxicity estimate
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%
LL50: Lethal loading, 50%
EL50: Effect loading, 50%
EC50: Effective Concentration 50%
ErC50: Effective Concentration 50%, growth rate
NOEC: No Observed Effect Concentration
BCF: Bio-concentration factor
PBT: persistent, bioaccumulative, toxic
vPvB: very persistent, very bioaccumulative
ADR: Accord européen sur le transport des marchandises dangereuses par Route
(European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID: Regulations concerning the international carriage of dangerous goods by rail
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
(Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures)
IMDG: International Maritime Code for Dangerous Goods
EmS: Emergency Schedules
MFAG: Medical First Aid Guide
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization
MARPOL: International Convention for the Prevention of Marine Pollution from Ships
IBC: Intermediate Bulk Container
SVHC: Substance of Very High Concern

Relevant H and EUH statements (number and full text)

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.
EUH204	Contains isocyanates. May produce an allergic reaction.

Further Information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.