



# Safety Data sheet (SDS)

Revision Date: 2018/9/20  
Name: Aquolin<sup>®</sup> 278

No: Aquolin\_278  
Version: 4

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## Section 1 - PRODUCT AND COMPANY IDENTIFICATION

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**Substance Name:** Water Dispersible Polyisocyanate  
**Product Name:** Aquolin<sup>®</sup> 278  
**Additional Name:** Hydrophilic aliphatic polyisocyanate  
Hydrophilic hexamethylene diisocyanate oligomer  
Hydrophilically modified, aliphatic polyisocyanate based on  
hexamethylene diisocyanate  
Hydrophilically modified, aliphatic hexamethylene diisocyanate  
oligomer  
**Company Name:** Wanhua Chemical Group Co., LTD  
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NA 800-424-9300、+1-703-527-3887

**Recommended uses:** Hardener for coating materials or adhesives

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## Section 2 - HAZARDS IDENTIFICATION

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### GHS Classification of the substance or mixture

Acute Tox., Inhalative, Category 4 (H332)

Sensitization of the Skin, Sub-category 1B (H317)

Chronically hazardous to the aquatic environment, Category 3 (H412)

Specific target organ toxicity (single exposure), Category 3 (H335)

### Label elements

#### GHS-Labeling



**Signal word** Warning

#### Hazardous components which must be listed on the label

Aliphatic Polyisocyanate

#### Hazard statements

H332 Harmful if inhaled

H317 May cause an allergic skin reaction

H335 May cause respiratory irritation

H412 Harmful to aquatic life with long lasting effects

**Precautionary statements**

P261 Avoid breathing dust/fume/gas/mist/vapors/spray

P271 Only use outdoors or in a well-ventilated area

P272 Contaminated work clothing should not be allowed out of the workplace

P280 Wear protective gloves/protective clothing/eye protection/face protection

**Emergency statements**

P302+P352 If ON SKIN: Wash with plenty of soap and water

P333+P313 If skin irritation or rash occurs: Get medical advice/attention

P362+P364 Take off contaminated clothing and wash it before reuse

P304+P312 If INHALED: Call a POISON CENTER or doctor/ physician if you feel unwell

P312 Call a POISON CENTER or doctor/physician if you feel unwell

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

**Disposal measures**

P501 Dispose of contents/container to an approved waste disposal plant

P502 Refer to us for information on recovery or recycling

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**Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS**

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Type of product: Mixture

Chemical Name	CAS Number	Component
Hydrophilic Polyisocyanate	NA	>=99.8%

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**Section 4 - FIRST AID MEASURES**

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**Description of first aid measures**

**General advice:** Take off all contaminated clothing immediately.

**If inhaled:** Take the person into the fresh air and keep him warm, let him rest; if there is difficulty in breathing, medical advice is required.

**In case of skin contact:** In case of skin contact wash affected areas thoroughly with soap and plenty of water. Consult a doctor in the event of a skin reaction.

**In case of eye contact:** Hold the eyes open and rinse with preferably lukewarm water for a sufficiently long period of time (at least 10 minutes). Contact an ophthalmologist.

**If swallowed:** DO NOT induce the patient to vomit, medical advice is required.

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**Section 5 - FIRE FIGHTING MEASURES**

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**Suitable extinguishing media:** Carbon dioxide (CO<sub>2</sub>), Foam, extinguishing powder, in cases of larger fires, water spray should be used.

**Unsuitable extinguishing media:** High volume water jet

**Special hazards arising from the substance or mixture:**

Burning releases carbon monoxide, carbon dioxide, oxides of nitrogen, isocyanate vapors and traces of hydrogen cyanide. In the event of fire and/or explosion do not breathe fumes.

**Advice for fire-fighters:**

During fire-fighting respirator with independent air-supply and airtight garment is required. Do not allow contaminated extinguishing water to enter the soil, ground-water or surface waters.

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**Section 6 - ACCIDENTAL RELEASE MEASURES**

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**Personal precautions, protective equipment and emergency procedures:** Put on protective equipment (see section 8). Ensure adequate ventilation/exhaust extraction. Keep unauthorized persons away.

**Environment related measures:** Do not allow to escape into waterways, wastewater or soil.

**Methods and material for containment and cleaning up:** Remove mechanically; cover the remainder with wet, absorbent material (e.g. sawdust, chemical binder based on calcium silicate hydrate, sand). After approx. one hour transfer to waste container and do not seal (evolution of CO<sub>2</sub>!). Keep damp in a safe ventilated area for several days.

**Reference to other sections:** For further disposal measures see section 13.

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**Section 7 - HANDLING AND STORAGE**

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**Precautions for safe handling:**

Provide sufficient air exchange and/or exhaust in work rooms. Exhaust ventilation necessary if product is sprayed.

The threshold limit values noted in Chapter 8 must be monitored. In all areas where isocyanate aerosols and/or vapor concentrations are produced in elevated concentrations, exhaust ventilation must be provided in such a way that the workplace exposure limits (WEL) is not exceeded. The air should be drawn away from the personnel handling the product

The personal protective measures described in Chapter 8 must be observed. The precautions required in the handling of isocyanates must be taken. Avoid contact with skin and eyes and the inhalation of vapor.

Keep away from foodstuffs, drinks and tobacco. Wash hands before breaks and at end of work and use skin-protecting ointment. Keep working clothes separately. Take off all contaminated clothing immediately.

**Conditions for safe storage, including any incompatibilities:**

Keep container dry and tightly closed in a cool and well ventilated place. Further information on the storage conditions which must be observed to preserve quality can be found in our product information sheet. The product will keep stable for at least twelve months when stored in its sealed original packaging at temperatures between 5°C and 35°C.

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## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

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### Exposure controls

#### Respiratory protection:

Respiratory protection required in insufficiently ventilated working areas and during spraying. An air-fed mask, or for short periods of work, a combination of charcoal filter and particulate filter is recommended.

In case of hypersensitivity of the respiratory tract and skin (e.g. asthmatics and those who suffer from chronic bronchitis and chronic skin complaint) it is inadvisable to work with the product.

#### Hand protection:

Suitable materials for safety gloves; EN 374:

Butyl rubber - IIR: thickness  $\geq 0.5$  mm; breakthrough time  $\geq 480$  min.

Fluorinated rubber - FKM ( $\geq 0.4$  mm)

Recommendation: contaminated gloves should be disposed of.

#### Eye protection:

Wear eye/face protection.

#### Skin and body protection:

Wear suitable protective clothing.

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## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

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### Information on basic physical and chemical properties.

Physical state	liquid
Colour	Translucent colorless to slightly yellowish
Odour	Slight inherent odour
Odour Threshold	Not established
pH	Not applicable
Melting point/freezing point	ca. -22°C
Initial boiling point	>300°C (at 1,013 hPa)
Flash point	ca. 196°C (at 1,013 hPa)
Evaporation rate	Not established
Flammability(solid, gas)	not applicable
Burning number	not applicable
Vapor pressure	ca. 17 hPa (at 20°C); ca. 26 hPa (at 50°C) ca. 28 hPa (at 55°C)
Vapor density	Not established
Density	ca. 1.16 g/cm <sup>3</sup> at 20°C

Miscibility with water	Not established
Surface tension	Not established
Partition coefficient (n-octanol/water)	Not established
Auto-ignition temperature	Not applicable
Ignition temperature	ca. 425°C (at 1,013 hPa)
Decomposition temperature	Not established
Viscosity	ca. 1500 - 3500 mPa.s (at 25°C)
Explosive properties	Not established
Dust explosion class	Not applicable
Oxidising properties	Not established
Other information	The indicated values do not necessarily correspond to the product specification. Please refer to the technical information sheet for specification data.

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## Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

**Possibility of hazardous reactions:** Exothermic reaction with amines and alcohols; reacts slowly with water forming CO<sub>2</sub>, in closed containers risk of bursting owing to increase of pressure.

**Hazardous decomposition products:** On drying of the coating / hardening release of neutralising agent. (see section 3).

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## Section 11 - TOXICOLOGICAL INFORMATION

Toxicological studies on the product are not yet available.

Please find below the data available to us:

### Acute toxicity, oral:

Hydrophilic Polyisocyanate

LD50 rat: >= 5.000 mg/kg

Method: OECD Test Guideline 423

Toxicological studies of a comparable product.

### Acute toxicity, dermal

No data available.

### Acute toxicity, inhalation

No data available.

### Primary skin irritation

Hydrophilic Polyisocyanate

Species: rabbit

Result: An irritant effect cannot be distinguished from a mechanical load caused by the removal of the test specimen.

Classification: No skin irritation  
Method: OECD Test Guideline 404  
Toxicological studies of a comparable product.

**Primary mucosae irritation**

Hydrophilic Polyisocyanate  
Species: rabbit  
Result: slight irritant  
Classification: No eye irritation  
Method: OECD Test Guideline 405  
Toxicological studies of a comparable product.

**Sensitisation**

Hydrophilic Polyisocyanate  
Skin sensitization (local lymph node assay (LLNA)):  
Species: Mouse  
Result: positive  
Classification: May cause sensitization by skin contact (Sub cat. 1B)  
Method: OECD Test Guideline 429  
Toxicological studies of a comparable product.

**Subacute, subchronic and prolonged toxicity**

No data available.

**Carcinogenicity**

No data available.

**Reproductive toxicity/Fertility**

No data available.

**Reproductive toxicity/Teratogenicity**

No data available.

**Genotoxicity in vitro**

Hydrophilic Polyisocyanate  
Test type: Salmonella/microsome test (Ames test)  
Result: No indication of mutagenic effects.  
Method: OECD Test Guideline 471  
Toxicological studies of a comparable product.

**Genotoxicity in vivo**

No data available.

**STOT evaluation – one-time exposure**

Hydrophilic Polyisocyanate  
May cause respiratory irritation.  
Studies of a comparable product.

**STOT evaluation – repeated exposure**

No data available.

**Aspiration toxicity**

No data available.

**Additional information**

Special properties/effects: Over-exposure entails the risk of concentration-dependent irritating effects on eyes, nose throat, and respiratory tract. Delayed appearance of the complaints and development of hypersensitivity (difficult breathing, coughing, asthma) are possible. Hypersensitive persons may suffer from these effects even at low isocyanate concentrations, including concentrations below the occupational exposure limit.

Prolonged contact with the skin may cause tanning and irritant effects.

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**Section 12 - ECOLOGICAL INFORMATION**

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Ecotoxicological studies of the product are not available.

Do not allow to escape into waterways, wastewater or soil.

Please find below the data available to us:

**Acute Fish toxicity**

Hydrophilic Polyisocyanate  
LC50 35,2 mg/l  
Species: Danio rerio (zebra fish)  
Exposure duration: 96 h  
Method: OECD Test Guideline 203  
Ecotoxicological reports on a comparable product

**Acute toxicity for daphnia**

Hydrophilic Polyisocyanate  
EC50 > 100 mg/l  
Species: Daphnia magna (Water flea)  
Exposure duration: 48 h  
Method: OECD Test Guideline 202  
Ecotoxicological reports on a comparable product

**Acute toxicity for algae**

**Hydrophilic Polyisocyanate**

ErC50 72 mg/l

Species: *Desmodesmus subspicatus* (Green algae)

Exposure duration: 72 h

Method: OECD Test Guideline 201

Ecotoxicological reports on a comparable product

**Acute bacterial toxicity**

Hydrophilic Polyisocyanate

EC50 &gt; 10.000 mg/l

Species: activated sludge

Method: OECD Test Guideline 209

Ecotoxicological reports on a comparable product

**Biodegradability**

Hydrophilic Polyisocyanate

Biodegradation: 0 %, 28 d, i.e. not readily degradable

Method: OECD Test Guideline 301 F

Ecotoxicological reports on a comparable product

**Bioaccumulative potential**

No data available.

**Mobility in soil**

No data available.

**Results of PBT and vPvB assessment**

This substance does not meet the criteria for classification as PBT or vPvB.

**Other adverse effects**

Isocyanate reacts with water at the interface forming CO<sub>2</sub> and a solid insoluble product with high melting point (polyurea). This reaction is accelerated by surfactants (e.g. detergents) or by watersoluble solvents. Previous experience shows that polyurea is inert and non-degradable.

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**Section 13 - DISPOSAL CONSIDERATIONS**

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Dispose in accordance with applicable international, national and local laws, ordinances and statutes. For disposal within the EC, the appropriate code according to the European Waste Catalogue (EWC) should be used.

**Waste treatment methods**

After final product withdrawal, all residues must be removed from containers (drip-free, powder-free or paste-free). Once the product residues adhering to the walls of the containers have been rendered harmless,



the product and hazard labels must be invalidated. These containers can be returned for recycling to the appropriate centres set up within the framework of the existing take-back scheme of the chemical industry. Containers must be recycled in compliance with national legislation and environmental regulations.

None disposal into waste water.

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## Section 14 – Transport information

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### ADR/RID

UN number	Not dangerous goods
UN proper shipping name	Not dangerous goods
Transport hazard class	Not dangerous goods
Packing group	Not dangerous goods
Environment hazards	Not dangerous goods

### AND

UN number	Not dangerous goods
UN proper shipping name	Not dangerous goods
Transport hazard class	Not dangerous goods
Packing group	Not dangerous goods
Environment hazards	Not dangerous goods

### IATA

UN number	Not dangerous goods
UN proper shipping name	Not dangerous goods
Transport hazard class	Not dangerous goods
Packing group	Not dangerous goods
Environment hazards	Not dangerous goods

### IMDG

UN number	Not dangerous goods
UN proper shipping name	Not dangerous goods
Transport hazard class	Not dangerous goods
Packing group	Not dangerous goods
Environment hazards	Not dangerous goods

Special precautions for user

See section 6-8.

Additional information : Not dangerous cargo.  
Avoid heat above 35°C or lower than 5°C, stay away from food, acids and bases. According to 57th of IATA DGR 2016, this product is not dangerous.

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## Section 15 – Regulatory information

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

**mixture**

Schedule 6 (Standard for the Uniform Scheduling of Medicines and Poisons)

Any existing national regulations on the handling of isocyanates must be observed.

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**Section 16 - OTHER INFORMATION**

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**Indication of changes**

This version replaces all previous versions.

**Further information**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of publication. The information given is designed only as guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.