Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Substance Name: Water Dispersible Polyisocyanate
Product Name: Aquolin® 269
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
Address: No.17, Tianshan Rd, YEDA, Yantai, 264006, China
Telephone: 0086-535-3388160
Fax: 0086-535-6875138
Emergency Telephone:
  WANHUA +86 535-8203123
  China +86 532-83889090
  EU +31 20 20 65132/65130、+44 780 183 7343
  NA 800-424-9300、+1-703-527-3887

Recommended uses: In combination with waterborne polyurethane, polyacrylate, etc., it can be used for water-borne coatings and adhesives.

Section 2 - HAZARDS IDENTIFICATION

GHS Classification of the substance or mixture
Acute Tox., Inhalative, Category 4 (H332)
Serious Eye Damage Category 1 (H318)
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-Labelling

Signal word: Danger

Hazardous components which must be listed on the label
Aliphatic Polyisocyanate

Hazard statements
H332 Harmful if inhaled
H318 Causes serious eye damage.
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
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection

Emergency statements
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/physician.
P363 Wash contaminated clothing before reuse.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P405 Store locked up.
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

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS
Type of product: Mixture

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS Number</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrophilic Polyisocyanate</td>
<td>NA</td>
<td>85–95%</td>
</tr>
<tr>
<td>Organosilicon</td>
<td>NA</td>
<td>5–15%</td>
</tr>
</tbody>
</table>

Section 4 - FIRST AID MEASURES
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.
Section 5 - FIRE FIGHTING MEASURES

Suitable extinguishing media: Carbon dioxide (CO2), 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.

Section 6 - ACCIDENTAL RELEASE MEASURES

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 CO2!). Keep damp in a safe ventilated area for several days.

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

Section 7 - HANDLING AND STORAGE

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**

**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 >=0.5mm; breakthrough time >=480min.
Fluorinated rubber - FKM (>= 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**

**Information on basic physical and chemical properties.**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>Translucent to slightly yellowish</td>
</tr>
<tr>
<td>Odour</td>
<td>Slight inherent odour</td>
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<tr>
<td>Odour Threshold</td>
<td>Not established</td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>ca. -22°C</td>
</tr>
<tr>
<td>Initial boiling point</td>
<td>&gt;285°C (at 1,013 hPa)</td>
</tr>
<tr>
<td>Flash point</td>
<td>ca. 128°C (at 1,013 hPa)</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not established</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>not applicable</td>
</tr>
</tbody>
</table>
**Burning number**  
not applicable

**Vapor pressure**  
ca. 17 hPa (at 20°C);
c. 26 hPa (at 50°C)  
ca. 28 hPa (at 55°C)

**Vapor density**  
Not established

**Density**  
ca. 1.13 g/cm³ 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. 500 - 2000 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 CO₂, 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.

Section 12 - ECOLOGICAL INFORMATION
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 > 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 CO2 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**
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.

Section 14 – Transport information

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**AND**

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</tbody>
</table>

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.

Section 15 – Regulatory information

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.

Section 16 - OTHER INFORMATION

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.