1. Identification

Product identifier

Product Name: HHD 5510
Pure substance/mixture: Mixture

Details of the supplier of the safety data sheet

Responsible Party
Bostik (Shanghai) Management Co., Ltd
Building 1, No.968 Guanghua Road, Minhang District
Shanghai, China
Tel: 021-60763101
Fax: 021-60763133

See section 16 for more information.

E-mail address: SDS.AP@Bostik.com

Emergency telephone number

Emergency Telephone: Chemtrec: 1-800-424-9300 (US) , 1-703-527-3887 (Outside U.S.)
Chemtrec: China 4001-204937
CHEMTREC (Chemical Transportation Emergency Center)

Emergency Telephone
National contact
0532-8388 9090 (China only)

Recommended use of the chemical and restrictions on use

Recommended use: No information available
Restrictions on use: No information available

2. Hazard(s) identification

Emergency Overview
Irritating to skin
May cause allergic respiratory reaction
May cause allergic skin reaction
Contains a known or suspected carcinogen

Appearance: Solid
Physical state: Solid
Odor: Odorless

Classification of the substance or mixture

<table>
<thead>
<tr>
<th>Skin corrosion/irritation</th>
<th>Category 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory sensitization</td>
<td>Category 1</td>
</tr>
<tr>
<td>Skin sensitization</td>
<td>Category 1</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Category 2</td>
</tr>
</tbody>
</table>

Label elements
Signal word

Danger

Hazard statements
H316 - Causes mild skin irritation
H317 - May cause an allergic skin reaction
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
H351 - Suspected of causing cancer

Precautionary statements

Prevention
P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P284 - In case of inadequate ventilation wear respiratory protection
P272 - Contaminated work clothing should not be allowed out of the workplace
P280 - Heat resistant gloves are recommended when handling molten materials

Response
P308 + P313 - IF exposed or concerned: Get medical advice/attention
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor
P302 + P352 - IF ON SKIN: Wash with plenty of water and soap
P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention
P362 + P364 - Take off contaminated clothing and wash it before reuse

Storage
P405 - Store locked up

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

Other hazards
Not applicable.

3. Composition/information on ingredients

Substance
Not applicable.

Mixture

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,4’-Methylenebisphenyl disocyanate</td>
<td>101-68-8</td>
<td>1 - &lt;5</td>
</tr>
</tbody>
</table>

*** Any remaining ingredients are not hazardous

4. First-aid measures

Description of necessary first aid measures

General advice
Show this safety data sheet to the doctor in attendance. IF exposed or concerned: Get
medical advice/attention.

Inhalation
May cause allergic respiratory reaction. If breathing has stopped, give artificial respiration. Get medical attention immediately. Remove to fresh air. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Get immediate medical advice/attention.

Eye contact
Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact
Wash with soap and water. May cause an allergic skin reaction. In the case of skin irritation or allergic reactions see a physician.

Ingestion
May produce an allergic reaction. Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Get immediate medical advice/attention.

Most important symptoms/effects, acute and delayed
Symptoms
May cause allergy or asthma symptoms or breathing difficulties if inhaled. Coughing and/or wheezing. Itching. Rashes. Hives. Prolonged contact may cause redness and irritation.

For emergency responders
Self-protection of the first aider
Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personal protective equipment as required. See section 8 for more information.

Note to physicians
May cause sensitization in susceptible persons. Treat symptomatically.

5. Fire-fighting measures
Extinguishing media
Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
No information available.

Specific hazards arising from the chemical
Product is or contains a sensitizer. May cause sensitization by inhalation and skin contact. May cause sensitization by skin contact.

Hazardous combustion products

Special protective actions for fire-fighters
Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. Accidental release measures
Personal precautions, protective equipment and emergency procedures
Personal precautions
Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Other information
Refer to protective measures listed in Sections 7 and 8.
For emergency responders Use personal protection recommended in Section 8.

Environmental precautions Prevent further leakage or spillage if safe to do so.

Methods and material for containment and cleaning up Prevent further leakage or spillage if safe to do so. Pick up and transfer to properly labeled containers.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

7. Handling and storage

Precautions for safe handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Provide extract ventilation to points where emissions occur. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product. Remove contaminated clothing and shoes. Take off contaminated clothing and wash before reuse. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and immediately after handling the product. See Section 8 for information on appropriate personal protective equipment.

Conditions for safe storage, including any incompatibilities Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children. Keep at temperatures between 50 and 95 °F / 10 and 35 °C.

8. Exposure controls/personal protection

Occupational exposure limits

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>China</th>
<th>ACGIH TLV</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,4'-Methylene diphenyl disocyanate - 101-68-8</td>
<td>TWA: 0.05 mg/m³ STEL: 0.1 mg/m³ Sensitizer+</td>
<td>TWA: 0.005 ppm</td>
</tr>
</tbody>
</table>

Note See section 16 for terms and abbreviations

Biological occupational exposure limits

No data available

Monitoring and observation processes

No applicable information was found.

Engineering controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles). Eye protection must conform to standard EN 166.

Hand protection Heat resistant gloves are recommended when handling molten materials. Gloves must conform to standard EN 407. Unsuitable protective clothing. Wet gloves.

Skin and body protection Wear suitable protective clothing.

Respiratory protection In case of inadequate ventilation wear respiratory protection. During spraying wear suitable respiratory equipment.

Recommended filter type Wear a respirator conforming to EN 140 with Type A/P2 filter or better. Organic gases
and vapors filter conforming to EN 14387.

9. Physical and chemical properties

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Solid</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>White Light yellow</td>
<td></td>
</tr>
<tr>
<td>Physical state</td>
<td>Solid</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
<td></td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>pH (as aqueous solution)</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Flammability</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Upper flammability or explosive limits</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Lower flammability or explosive limits</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Relative vapor density</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Water solubility</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Dynamic viscosity</td>
<td>3000 - 5000 mPa s @ 110 °C</td>
<td></td>
</tr>
</tbody>
</table>

Additional information

| Oxidizing properties                    | No information available      |                  |
| Solid content (%)                       | No information available      |                  |
| Density                                 | 1.0-1.1 g/cm³                 |                  |

10. Stability and reactivity

Stability

Stable under normal conditions.

Sensitivity to mechanical impact

None.

Sensitivity to static discharge

None.

Possibility of hazardous reactions

None under normal processing.

Conditions to avoid

None known based on information supplied.

Incompatible materials

None known based on information supplied.

Hazardous decomposition products

None known based on information supplied.

11. Toxicological information
SAFETY DATA SHEET

Product Information

Inhalation
Specific test data for the substance or mixture is not available. May cause sensitization in susceptible persons. (based on components).

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

Skin contact
Specific test data for the substance or mixture is not available. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. (based on components). May cause sensitization by skin contact. Causes mild skin irritation.

Ingestion
Specific test data for the substance or mixture is not available. May cause additional affects as listed under "Inhalation".

Symptoms
Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing. Coughing and/ or wheezing. Itching. Rashes. Hives. Prolonged contact may cause redness and irritation.

Acute toxicity

Numerical measures of toxicity

The following values are calculated based on chapter 3.1 of the GHS document
ATEmix (inhalation-dust/mist) 50.00 mg/l

Component Information

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,4’-Methylenediphenyl diisocyanate</td>
<td>=31600 mg/kg</td>
<td>LD 50 &gt; 9400 mg/kg</td>
<td>=1.5 mg/L (Rattus) 4 h</td>
</tr>
<tr>
<td></td>
<td>(Rattus)</td>
<td>(Oryctolagus cuniculus)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9200 mg/kg</td>
<td>OECD 402</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Rattus)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Skin corrosion/irritation
Classification based on data available for ingredients.

<table>
<thead>
<tr>
<th>Component Information</th>
<th>Method</th>
<th>Species</th>
<th>Exposure route</th>
<th>Effective dose</th>
<th>Exposure time</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,4’-Methylenediphenyl diisocyanate (101-68-8)</td>
<td>OECD Test No. 404:</td>
<td>Rabbit</td>
<td>Dermal</td>
<td></td>
<td></td>
<td>Irritant</td>
</tr>
<tr>
<td></td>
<td>Acute Dermal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Irritation/Corrosion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Serious eye damage/eye irritation
Based on available data, the classification criteria are not met.

<table>
<thead>
<tr>
<th>Component Information</th>
<th>Method</th>
<th>Species</th>
<th>Exposure route</th>
<th>Effective dose</th>
<th>Exposure time</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,4’-Methylenediphenyl diisocyanate (101-68-8)</td>
<td>OECD Test No. 405:</td>
<td>Rabbit</td>
<td>Eye</td>
<td>0.1 mL</td>
<td>24 hours</td>
<td>Mild eye irritation</td>
</tr>
<tr>
<td></td>
<td>Acute Eye</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Irritation/Corrosion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Respiratory or skin sensitization
May cause an allergic skin reaction.

<table>
<thead>
<tr>
<th>Component Information</th>
<th>Method</th>
<th>Species</th>
<th>Exposure route</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,4’-Methylenediphenyl diisocyanate (101-68-8)</td>
<td>OECD GD 39</td>
<td>Rat</td>
<td>Inhalation</td>
<td>Sensitizing</td>
</tr>
</tbody>
</table>
OECD Test No. 406: Skin Sensitization

<table>
<thead>
<tr>
<th>Component Information</th>
<th>Method</th>
<th>Species</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>OECD Test No. 474: Mammalian Erythrocyte Micronucleus Test</td>
<td>Rat, in vivo</td>
<td>Not mutagenic</td>
<td></td>
</tr>
</tbody>
</table>

**Germ cell mutagenicity**

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

**Carcinogenicity**

Contains a known or suspected carcinogen. Classification based on data available for ingredients. May cause cancer.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>China</th>
<th>IARC</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,4'-Methylenediphenyl diisocyanate</td>
<td>-</td>
<td>Group 3</td>
</tr>
</tbody>
</table>

**Legend**

IARC (International Agency for Research on Cancer)

Group 3 - Not Classifiable as to Carcinogenicity in Humans

**Reproductive toxicity**

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

**Specific target organ toxicity**

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

**Specific target organ toxicity**

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

**Aspiration hazard**

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

HHD 5510
Revision Number 1

Revision date 06-Jul-2022
Supersedes Date: 06-Jul-2022

Ecotoxicity

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Algae/aquatic plants</th>
<th>Fish</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,4’-Methylenediphenyl diisocyanate</td>
<td>ErC50 (72h) &gt;1640 mg/L Algae (scenedesmus subspicatus) (OECD 201)</td>
<td>&gt;1000 mg/l (Danio rerio)</td>
<td>EC50 (24H) &gt;1000 mg/L Daphnia magna</td>
</tr>
</tbody>
</table>

Persistence and degradability
No information available.

Bioaccumulative potential
No information available.

Component Information

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Partition coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,4’-Methylenediphenyl diisocyanate</td>
<td>4.51</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>PBT and vPvB assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,4’-Methylenediphenyl diisocyanate 101-68-8</td>
<td>The substance is not PBT / vPvB</td>
</tr>
</tbody>
</table>

Mobility in soil
No information available.

13. Disposal considerations

Waste chemicals
Waste from residues/unused products
Dispose of waste in accordance with environmental legislation. Dispose of in accordance with local regulations.

Contaminated packaging
Do not reuse empty containers.

14. Transport information

IMDG
Not regulated

IATA
Not regulated

China
Not regulated

ADR
Not regulated

Special precautions for user
Please refer to the applicable dangerous goods regulations for additional information.

15. Regulatory information

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

National regulations

SDS and Label prepared in compliance with the following regulations:
Decree No. 591 of the State Council of the People's Republic of China
General Rule for classification and hazard communication of chemicals, GB 13690
Series standards of Safety rules for classification, precautionary labeling and precautionary statements of chemicals, GB 30000.2~GB 30000.29
General rules for preparation of precautionary label for chemicals, GB 15258
Safety data sheet for chemical products—Content and order of sections, GB/T 16483 GB/T17519
Regulations on the Control over Safety of Hazardous Chemicals

China - Catalog of Hazardous Chemicals - Hazardous Chemicals
The table below indicates ingredients above the cut-off threshold considered as relevant which are listed

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>China - Catalog of Hazardous Chemicals - Hazardous Chemicals</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,4’-Methylenebisphenyl diisocyanate</td>
<td>Listed</td>
<td>1 - &lt;5</td>
</tr>
</tbody>
</table>

List of hazardous chemicals under priority management

Not applicable

Regulations on Labor Protection in Workplaces Where Toxic Substances Are Used

Inventory of highly toxic goods

Not applicable

GB33372-2020

We certify that goods delivered comply with the limit of volatile organic compounds content in adhesive regulated in GB33372-2020, in agreement with our Asia Technical Center and regulatory team.

Regulations for Environmental Management on the First Import of Chemicals and the Import and Export of Toxic Chemicals

Not applicable

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer

Not applicable

The Stockholm Convention on Persistent Organic Pollutants

Not applicable

The Rotterdam Convention

Not applicable

Europe


SVHC: Substances of Very High Concern for Authorization:

This product does not contain candidate substances of very high concern at a concentration >=0.1% (Regulation (EC) No. 1907/2006 (REACH), Article 59)

2015/863/EU - RoHS

This product does not contain Lead, Cadmium, Mercury, Hexavalent chromium, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE), Bis(2-Ethylhexyl) phthalate (DEHP), Benzyl butyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP) above the regulated limit mentioned in this regulation

16. Other information

Local Contacts
### Abbreviations and acronyms

**Legend**

- **Exposure Controls/Personal Protection**: TWA, STEL, Ceiling, \*, SVHC, PBT, vPvB, STOT RE, STOT SE

**Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

- **TWA**: TWA (time-weighted average)
- **STEL**: STEL (Short Term Exposure Limit)
- **Ceiling**: Ceiling Limit Value
- **\***: Skin designation
- **SVHC**: Substance(s) of Very High Concern
- **PBT**: Persistent, Bioaccumulative, and Toxic (PBT) Chemicals
- **vPvB**: Very Persistent and very Bioaccumulative (vPvB) Chemicals
- **STOT RE**: Specific target organ toxicity - Repeated exposure
- **STOT SE**: Specific target organ toxicity - Single exposure

### Key literature references and sources for data used to compile the SDS

- **Agency for Toxic Substances and Disease Registry (ATSDR)**
- **U.S. Environmental Protection Agency ChemView Database**
- **European Food Safety Authority (EFSA)**
- **EPA (Environmental Protection Agency)**
- **Acute Exposure Guideline Level(s) (AEGL(s))**
- **U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act**
- **U.S. Environmental Protection Agency High Production Volume Chemicals**
- **Food Research Journal**
- **Hazardous Substance Database**
- **International Uniform Chemical Information Database (IUCLID)**
- **Japan GHS Classification**
- **Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)**
- **NIOSH (National Institute for Occupational Safety and Health)**
- **National Library of Medicine's ChemID Plus (NLM CIP)**
- **National Library of Medicine's PubMed database (NLM PUBMED)**
- **National Toxicology Program (NTP)**
- **New Zealand's Chemical Classification and Information Database (CCID)**
- **Organization for Economic Co-operation and Development Environment, Health, and Safety Publications**
- **Organization for Economic Co-operation and Development High Production Volume Chemicals Program**
- **Organization for Economic Co-operation and Development Screening Information Data Set**
- **RTECS (Registry of Toxic Effects of Chemical Substances)**
World Health Organization

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance 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.

End of Safety Data Sheet