Safety Data Sheet
According to Globally Harmonized System Of Classification And Labelling Of Chemicals (GHS)

Version: 1.0/EN
Product name: CTP (PVI)
Revision date: 03/09/2010
Printing date: 03/09/2010

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

<table>
<thead>
<tr>
<th>Trade name</th>
<th>CTP (PVI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substance name</td>
<td>N-(cyclohexylthio)phthalimide</td>
</tr>
<tr>
<td>REACH registration No.:</td>
<td>The substance has been pre-registered.</td>
</tr>
<tr>
<td>CAS No.</td>
<td>17796-82-6</td>
</tr>
<tr>
<td>EC No.</td>
<td>241-774-1</td>
</tr>
</tbody>
</table>

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

| Relevant identified uses: | Rubber vulcanization inhibitor. |
| Uses advised against:     | Not available.                  |

1.3 Details of the supplier of the SDS

| Only representative:     | REACH COMPLIANCE SERVICES LIMITED |
| Address:                 | 306 The Capel Building, Mary's Abbey, Dublin 7, Ireland |
| E-mail:                  | Info@reach24h.com                 |
| Supplier name (Manufacture): | Shandong Yanggu Huatai Chemical Co., Ltd. |
| Address:                 | No.217, Qinghexi Road, Yanggu County, Shandong Province, China(The original name of Qinghexi Road is Nanhuan Road) |
| Postcode:                | 252300                               |
| E-mail:                  | hthg@lc-public.sd.cninfo.net          |
| Telephone:               | +86-635-6381126                     |
| Fax:                     | +86-635-6381030                     |

1.4 Emergency telephone number

+86-635-6381031 (In China, only office hours available.)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

<table>
<thead>
<tr>
<th>Classification according to Regulation (EC) No 1272/2008[CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard classes and Hazard categories</td>
</tr>
<tr>
<td>Skin Sens. 1</td>
</tr>
<tr>
<td>Aquatic Acute 1</td>
</tr>
<tr>
<td>Aquatic Chronic 1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Xi; R43</td>
</tr>
<tr>
<td>N; R50/53</td>
</tr>
</tbody>
</table>

Additional information

Full text of H-statements: see section 16.

2.2 Label elements

<table>
<thead>
<tr>
<th>Labelling according to Regulation (EC) No 1272/2008[CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product identifier: N-(cyclohexylthio)phthalimide</td>
</tr>
<tr>
<td>Hazard pictograms:</td>
</tr>
<tr>
<td>!  GHS07</td>
</tr>
<tr>
<td>GHS09</td>
</tr>
</tbody>
</table>

Signal word: Warning.

Hazard statement(s):

H317 May cause an allergic skin reaction.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements:

Prevention: P280 Wear protective gloves/protective clothing/eye protection/face protection. P272 Contaminated work clothing should not be allowed out of the workplace. P273 Avoid release to the environment. 

Response: P302 + P352 IF ON SKIN: Wash with plenty of soap and water. P333 + P313 If skin irritation or rash occurs: Get medical advice/attention. P363 Wash contaminated clothing before reuse. P391 Collect spillage.

Disposal: P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Supplemental Hazard information (EU):
No information available.

Special rules for supplemental label elements for certain mixtures:
No information available.

2.3 Other hazards
No information available.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance information

REACH registration No.: The substance has been pre-registered. The transition time according to REACH Regulation, Article 23 is still not expired.
CAS No.: 17796-82-6
EC No.: 241-774-1
Molecular formula: C14H15NO2S
Molecular weight: 261.34
CAS name: 1H-Isoindole-1,3(2H)-dione, 2-(cyclohexylthio)-
IUPAC name: 2-(cyclohexylsulfanyl)-1H-isooindole-1,3(2H)-dione
Purity: >95%

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General notes:
In all cases of doubt, or when symptoms persist, seek medical attention.

Following inhalation:
Bring victim into fresh air. If symptoms persist, seek medical advice.

Following skin contact:
Remove all contaminated clothing immediately. Wash off with plenty of soap and water. Seek medical advice if irritation develops. Launder clothes before reuse.

Following eye contact:
Rinse thoroughly with plenty of water. Eyelids should be held away from the eyeball to ensure thorough rinse. Seek medical advice if irritation develops.

Following ingestion:
Only when conscious, rinse mouth; give plenty of water to drink. DO NOT induce vomiting. Seek medical advice.

Notes for the doctor:
No specific recommendations.

4.2 Most important symptoms and effects, both acute and delayed

Dust may be irritating to the respiratory tract and cause symptoms of bronchitis. Repeated contact may cause skin sensitization.

4.3 Indication of the immediate medical attention and special treatment needed

Persons with pre-existing skin, eye, or respiratory disease may be at increased risk. Attending physician should treat exposed patients symptomatically.
SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: Water spray, water mist, foam, dry chemical powder, CO₂.
Unsuitable extinguishing media: No specific recommendations

5.2 Special hazards arising from the substance or mixture

Special exposure hazards: Emits toxic fumes under fire conditions.
Hazardous decomposition: carbon monoxide (CO), sulfur oxides (SOₓ), nitrous gases (NOₓ).

5.3 Advice for fire-fighters

Firefighters should wear full protective clothing, including self-contained breathing equipment.
Fight fire from a safe distance and from a protected location. Use water spray to cool fire exposed surfaces.
Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear protective equipment specified in section 8.
Avoid the generation of dust. Avoid contact with skin, eyes.
Keep unprotected persons away. Ensure adequate ventilation.
Sweep, vacuum, or shovel and place into closable container for disposal.

6.2 Environmental precautions

Avoid discharge into the environment.

6.3 Methods and material for containment and cleaning up

Collect as much as possible in a clean container for (preferable) reuse or disposal.

6.4 Reference to other sections

See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Prevent skin contact and contamination of clothing. Avoid dust generation. Avoid breathing dust.
Wash thoroughly with soap and water after handling.
Fire and explosion prevention: Dust/air mixtures may ignite violently upon exposure to sparks or sources of ignition.
Wash contaminated skin promptly with plenty of soap and water.
Launder all contaminated clothing and clean protective equipment before reuse.

7.2 Conditions for safe storage, including any incompatibilities

Store closed containers in a cool, dry, well-ventilated area. Avoid exposure to direct sunlight. Do not double stack.

7.3 Specific end use(s)

Not available.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational exposure limit values:
N- (cyclohexylthio) phthalimide: OSHA PEL/8Hr-TWA = 15 mg/m³ (Total Dust).
ACGIH TLV/8-Hr TWA = 10 mg/m³. PEL/8Hr TWA: 0.5 mg/m³ (Skin).
United kingdom: OES-TWA: 0.5mg/m³
8.2 Exposure controls

Appropriate engineering controls:
Avoid dust generation. Ensure good ventilation and local exhaustion of the working area.

Personal protective equipment:
Eye and face protection: Wear safety goggles.
Skin protection: Wear chemical resistant gloves and clothing to prevent skin contact.
Respiratory protection: Avoid breathing dust. In case of insufficient ventilation, wear suitable respiratory equipment.
Thermal hazards: Not available.
Other information: Wash thoroughly with soap and water after handling. Regular showering can minimize skin odour once it has developed.

Environmental exposure controls:
Avoid discharge into the environment.

Consumer exposure controls:
Consumer exposure to CTP is essentially nil.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Dedusted powder or granular.</td>
</tr>
<tr>
<td>Colour</td>
<td>White.</td>
</tr>
<tr>
<td>Odour</td>
<td>Unpleasant.</td>
</tr>
<tr>
<td>pH</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Melting point/range</td>
<td>87°C (initial); 89-94°C (final)</td>
</tr>
<tr>
<td>Boiling point</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Flash point</td>
<td>177°C</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available.</td>
</tr>
<tr>
<td>Flammability</td>
<td>Solid substance: not flammable.</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Approx. 300°C</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Dust explosion hazard</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>Lower Explosion Limit (LEL): 30g/m³</td>
</tr>
<tr>
<td>Minimum ignition energy</td>
<td>&lt; 2 MJ.</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>Negligible at room temperatures.</td>
</tr>
<tr>
<td>Density</td>
<td>1330 kg/m³ (25°C)</td>
</tr>
<tr>
<td>Bulk density</td>
<td>700kg/ m³ (compacted, 25°C)</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>0.022 kg/m³ (25°C)</td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>Soluble in most organic solvents.</td>
</tr>
<tr>
<td>Partition coefficient (n-octanol/water):</td>
<td>Log Pow = 3.66</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Relative vapour density (air=1)</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

9.2 Other information

No data available.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

No information available.

10.2 Chemical stability

Stable under recommended storage and handling conditions (see section 7).

10.3 Possibility of hazardous reactions

No hazardous reactions known.
10.4 Conditions to avoid
Avoid strong heating. Heating > 100°C: May catch fire.

10.5 Incompatible materials
No specific recommendations.

10.6 Hazardous decomposition products
Thermal decomposition products: carbon monoxide (CO), nitrous gases (NOx), sulfur oxides (SOx).

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Toxicokinetics, metabolism and distribution
There is no information on toxicokinetics.

11.2 Information on toxicological effects
Acute toxicity:
- Acute Oral toxicity: LD₅₀ = 2600 mg/kg (rat);
- Acute Inhalation toxicity: No data available.
- Acute Dermal toxicity: LD₅₀ > 5010 mg/kg (rat);

Skin corrosion/irritation:
- Skin, Rabbits: slightly irritating (IUCLID).

Serious eye damage/irritation:
- Eye, Rabbits: not irritating (IUCLID).

Respiratory or skin sensitization:
The substance is considered as a sensitizer.

CMR effects (Carcinogenicity, Mutagenicity and Toxicity for Reproduction):
There is no information available on Carcinogenicity, Mutagenicity and Toxicity for Reproduction.

STOT-single exposure and repeated exposure:
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Aspiration hazard:
No data available.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

<table>
<thead>
<tr>
<th>Toxicity</th>
<th>Effect dose</th>
<th>Species</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute fish toxicity</td>
<td>LC₅₀ = 1.2 mg/l/96h</td>
<td><em>Lepomis macrochirus</em></td>
<td>IUCLID</td>
</tr>
<tr>
<td></td>
<td>LC₅₀ = 0.41 mg/l/96h</td>
<td><em>Oncorhynchus mykiss</em></td>
<td>IUCLID</td>
</tr>
<tr>
<td>Acute daphnia toxicity</td>
<td>EC₅₀ = 32 mg/l/48h</td>
<td><em>Daphnia magna</em></td>
<td>OECD Guide-line 202,</td>
</tr>
<tr>
<td>Acute Algae toxicity</td>
<td>EC₅₀ = 22 mg/l/96h</td>
<td><em>Selenastrum capricornutum</em></td>
<td>IUCLID</td>
</tr>
</tbody>
</table>

12.2 Persistence and degradability
CTP is readily biodegradable. Testing in activated sludge showed 99% biodegradation after 190 hours.

12.3 Bioaccumulative potential
Log Pow = 3.66,
Bio Concentration Factor (BCF): 130.
Tests indicate this material will not bioaccumulate or persist in the environment.

12.4 Mobility in soil
No data available.

12.5 Results of PBT and vPvB assessment
No data available.

12.6 Other adverse effects
Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Product: Avoid discharge into the environment.
Small quantities: According to local regulations.
Large quantities: Consult Shandong Yanggu Huatai Chemical Co., Ltd. for special advice.
Contaminated packaging: According to local regulations.
Waste code number: Please refer to your specific industry in the European Waste Catalogue.

SECTION 14: TRANSPORT INFORMATION

14.1 Land transport (ADR/RID/GGVSE)
UN-No.: none
Official transport designation: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(N-(cyclohexylthio)phthalimide)
Class: Not restricted
Classification Code: None
Packing group: Not restricted
Hazard label: none

14.2 Sea transport (IMDG-Code/GGVSee)
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(N-(cyclohexylthio)phthalimide)
Class: not restricted
UN-No.: none
Packing group: not restricted

14.3 Air transport (ICAO-TI/IATA-DGR)
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(N-(cyclohexylthio)phthalimide)
Class: 9
UN-No.: 3077
Packing group: III

14.4 Additional information
No data available.

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
EU regulation:
Authorisations: No information available.
Restrictions on use: No information available.
EINECS: The substance is listed in the inventory.
DSD (67/548/EEC): The substance is not listed in the Annex I.
Other chemical regulation:
USA - TSCA: The substance is listed in the inventory.
Canada - DSL: The substance is listed in the inventory.
Australia - AICS: The substance is listed in the inventory.
Korea - ECL: The substance is listed in the inventory.
Japan - ENCS: The substance is listed in the inventory.
China - IECSC: The substance is listed in the inventory.

15.2 Chemical Safety Assessment
No Chemical Safety Assessment has been carried out for this substance.
SECTION 16: OTHER INFORMATION

16.1 Revision Information:
Date of the previous revision: Not applicable.
Date of this revision: 03/09/2010
Revision summary: New SDS

16.2 Abbreviations and acronyms
GHS: Global Harmonized System of Classification and Labelling of Chemicals.
CAS: Chemical Abstracts Service (division of the American Chemical Society).
EINECS: European Inventory of Existing Commercial Chemical Substances.
IARC: International agency for research on cancer.
RID: European Rail Transport.
IATA: International Air Transport Association.
TSCA: Toxic Substances Control Act, The American chemical inventory.
DSL: Domestic Substances List, The Canadian chemical inventory.
AICS: The Australian Inventory of Chemical Substances.
ECL: Existing Chemicals List, the Korean chemical inventory.
ENCS: Japanese Existing and New Chemical Substances
IECSC: Inventory of existing chemical substances in China.

16.3 Key literature references and sources for data
IUCLID Dataset.

16.4 Relevant H-statements
R-phrases (code and full text):
R43 May cause sensitization by skin contact.
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

H-statements (code and full text):
H317 May cause an allergic skin reaction.
H410 Very toxic to aquatic life with long lasting effects.
H400 Very toxic to aquatic life.

16.5 Training advice
No data available.

16.6 Declare to reader
The information in this Safety Data Sheet (SDS) was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable. According to REACH Article 31(5), the SDS shall be supplied in an official language of the Member State(s) where the substance or mixture is placed on the market, unless the recipient Member State(s) concerned provide otherwise. It should also be noted that this SDS is applicable to the countries with English as an official language.