### 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

#### 1.1 Product identifier:

| Substance name: | CHISORB® SUV |
| Other name: | CS SUV |
| REACH Registration No.: | Not available |
| Recommended use of the chemical and restrictions on use: | UV absorber for the polymer industry |

#### 1.2 Manufacturer or supplier information

| Company name: | Double Bond Chemical Ind., Co., Ltd. |
| Address: | 4F, 959, JUNGJENG RD. JUNGHE DISTRICT, NEW TAIPEI CITY, TAIWAN, R.O.C |
| Emergency contact person: | Jenny Chen |
| Emergency phone/ fax number: | +886-2-8228-1168/ +886-2-8228-1818 |
| Emergency contact Email: | techdata@dbc.com.tw |

### 2. HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance or mixture:

##### 2.1.1 Classification according to Regulation (EC) No. 1272/2008 [CLP]

- Aquatic chronic 2, H411
- Specific target organ toxicity, repeated exposure 2, H373
- Sensitisation, Skin 1, H317

##### 2.1.2 Classification according to Directive 67/548/EEC

- N: Dangerous for the environment
- Xn: Harmful
- Xi: Irritant
- R43 May cause sensitization by skin contact.
- R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
- R48/22 Danger of serious damage to health by prolonged exposure if swallowed

##### 2.1.3 Additional information

- No other information

#### 2.2 Label elements:

**Symbols:**

- ![Symbol 1](image1)
- ![Symbol 2](image2)

**Signal word:** Warning

**Hazard substance:** Bis (1,2,2,6,6-pentamethyl-4-piperidyl) Sebacate and 2-(2H-benzotriazol-2-yl)-4,6-ditetrapentylpheno
Hazard statement:
H317 May cause an allergic skin reaction
H373 Cause damage to organs through prolonged or repeated exposure if swallowed
H411 Toxic to the aquatic life with long lasting effects.

Precautionary statements:
P260 Do not breathe spray/mist/vapours/fume.
P314 Get medical advice/attention if you feel unwell
P302+P352 IF ON SKIN: Gently wash with plenty of soap and water.
P333+P313 If skin irritation occurs: Get medical advice/attention.
P273 Avoid release to the environment
P501 Dispose of contents/container in accordance with regional/international regulations.

2.3 Other hazards:
None to our knowledge.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Information about mixture:

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No.</th>
<th>EC No.</th>
<th>Weight % content</th>
<th>Classification according to 67/548/EEC</th>
<th>Classification according to Regulation (EC) No 1272/2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bis (1,2,2,6,6-pentamethyl-4-piperidyl) Sebacate</td>
<td>41556-26-7</td>
<td>255-437-1</td>
<td>1-20%</td>
<td>R43 N; R50/53</td>
<td>Skin sens. 1, H317 Aquatic chronic 1, H410</td>
</tr>
<tr>
<td>methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate</td>
<td>82919-37-7</td>
<td>280-060-4</td>
<td>1-20%</td>
<td>R43 N; R50/53</td>
<td>Skin sens. 1, H317 Aquatic chronic 1, H410</td>
</tr>
<tr>
<td>2-(2H-benzotriazol-2-yl)-4,6-diterpenylphenol</td>
<td>25973-55-1</td>
<td>247-384-8</td>
<td>1-20%</td>
<td>Xn R48/22 R53</td>
<td>Aquatic chronic 4, H413 STOT RE 2, H373</td>
</tr>
<tr>
<td>Blends of UV absorber</td>
<td>Proprietary</td>
<td>Proprietary</td>
<td>20-80%</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

4. FIRST-AID MEASURES

Eye contact: Immediately wash eyes with plenty of running water for at least 15 minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. Occasionally lift the upper and lower eyelids. Seek medical advice if irritation develops and persists.

Skin contact: Wash affected skin area with plenty of water and soap for at least 15 minutes while removing contaminated clothing and shoes. Seek medical advice if irritation develops and persists.

Ingestion: Seek medical advice if the victim feels unwell. Wash out mouth with plenty of water and give 2-4 cupfuls of water or milk to drink. Never give anything by mouth to an unconscious person. Do not induce vomiting.
Inhalation: Remove the victim from exposure into fresh air if adverse effects (e.g. dizziness, drowsiness or respiratory irritation) occur. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical advice if cough or other symptoms appear.

The most important symptoms and hazardous effects: See Section 11 for more detailed information on effects and symptoms

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Water fog or fine spray, dry chemical fire, carbon dioxide extinguishers and foam; alcohol resistant foam (ACT type) are preferred; general purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Unsuitable extinguishing media: Direct water stream

Exposure hazards (combustion products): During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon oxides and nitrogen oxides

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Ignition and/or flash back may occur. Flammable concentrations of vapour can accumulate at temperatures above flash point.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

Special methods/instructions: Keep people away. Isolate fire and deny unnecessary entry. Stay up wind. Water may not be effective in extinguishing fire. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Eliminate ignition sources. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Wear appropriate personal protective equipment (see section 8) during cleaning. Avoid contact with eyes and skin. Avoid inhalation. No smoking in the area. Eliminate all sources of ignition in vicinity of spill or released vapour to avoid fire or explosion. Check area with combustible gas detector before re-entering area.

Environmental precautions: Prevent the material from entering surface water or sanitary sewer system. Do not discharge directly to a water source. If accidental spillage or washings enter drains or watercourses contact local Environment Agency.
Methods for cleaning up:

Pick up with absorbent material. Sweep up absorbed substance, place in suitable and properly labelled waste containers for later disposal. Residual trace can be wiped away. Prevent entry into sewers and waterways. For large spills: Contain spilled material if possible. Ground and bond all containers and handling equipment. Pump with explosion-proof equipment. If available, use foam to smother or suppress.

7. HANDLING AND STORAGE

7.1 Handling

Personal precautions:

Wear personal protective equipment (see section 8). Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Avoid breathing vapour. No smoking, open flames or sources of ignition in handling and storage area.

Technical measures/ Precautions:

Provide good ventilation (local exhaust) of the working area, safety showers and eye wash station near the workplace. Avoid release to the environment. Ground/Bond container and receiving equipment. Use explosion-proof electrical equipment. Use only non-sparking tools. Keep product away from heat, sparks, flame and other sources of ignition. Avoid exposure the sunlight, UV light or fluorescent light.

7.2 Storage

Technical measures/ Storage conditions:

Keep in the original container. Keep container tightly closed in a cool, dry, well-ventilated place. Keep product away from heat, sparks, flame and other sources of ignition and out of direct sunlight and away from incompatible materials.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Occupational exposure limits

8.1.1 Control parameters

8 hours time weighted average exposure limits (TWA): Data not yet available
Short-term exposure limits (STEL): Data not yet available

8.2 Exposure controls

8.2.1 Technical measures:

Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

8.2.2 Organisational measures:

Organize regular exposure monitoring to check that exposure levels of operators stay beyond exposure limit. Sampling and analysis should be carried out according to accepted methods.

8.3 Personal protective equipment

Respiratory protection:

Recommended: NIOSH-approved respirator with minimum APF 10
For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. Use the following CE approved air-purifying respirator: Organic vapor cartridge, type A (boiling point >65 °C)

Hand protection:

When prolonged or frequently repeated contact may occur, a glove
with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 1 or higher (breakthrough time greater than 10 minutes according to EN 374) is recommended. After contamination with product change the gloves immediately and dispose them off according to relevant national and local regulations.

Eye protection: Safety goggles should be consistent with EN 166 or equivalent.

Skin and body protection: Wear chemical-resistant protective clothing.

8.4 Hygiene measures
Keep away from foodstuffs, drinks and tobacco. Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

8.5 Environmental exposure controls:
Procedural and/or control technologies are used to minimize emissions and the resulting exposure during cleaning and maintenance procedures. Transfer waste gases to a combustion unit or to a powder separator. Do not apply industrial sludge to natural soils. Sealing of all relevant soil surfaces in the facility.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear light yellowish liquid</td>
</tr>
<tr>
<td>Odour</td>
<td>Faint</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting/Freezing temperature</td>
<td>&lt; 0 °C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>&gt; 200 °C</td>
</tr>
<tr>
<td>Flash-point</td>
<td>&gt; 100 °C</td>
</tr>
<tr>
<td>Auto ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>&lt; 1.0 x 10^-4 Pa @20°C</td>
</tr>
<tr>
<td>Viscosity</td>
<td>1000-3000 cps @ 25°C</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>Ca. 1.04 @20°C</td>
</tr>
<tr>
<td>Partition coefficient of n-octanol/water (log Pow)</td>
<td>No data available</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Stability</td>
<td>Stable under original conditions.</td>
</tr>
<tr>
<td>Conditions to be avoided</td>
<td>Avoid direct sunlight and UV light.</td>
</tr>
<tr>
<td>Materials to avoid</td>
<td>Strong oxidizing agents, bases and strong acids.</td>
</tr>
<tr>
<td>Hazardous polymerization</td>
<td>Will not occur</td>
</tr>
<tr>
<td>Hazardous decomposition products</td>
<td>Thermal decomposition and burning may produce carbon oxides and other toxic gases.</td>
</tr>
</tbody>
</table>
11. TOXICOLOGICAL INFORMATION

Routes of exposure: Skin, inhalation, ingestion, eyes.

ACUTE TOXICITY
No data available

LOCAL EFFECTS
Skin irritation: No data available
Eye irritation: No data available
Skin sensitization: No data available

OTHER
Repeated dose toxicity: Following prolonged exposure, adverse effects on liver, kidneys and thyroid were observed in animals.

Mutagenicity: No data available
Reproductive toxicity: No data available
Carcinogenicity: No data available

12. ECOLOGICAL INFORMATION

ACUTE TOXICITY
No data available

OTHER
Biodegradation: No data available
Bioaccumulation: No data available
Adsorption coefficient: No data available

13. DISPOSAL CONSIDERATIONS

Waste from residues: Any disposal practices must be in compliance with all national and provincial laws and any municipal or local by-laws governing hazardous waste. For used, contaminated and residual materials additional evaluations may be required. Do not dump into any sewers, on the ground, or into any body of water.

Container: Containers should be cleaned by appropriate method and then re-used or disposed by landfill or incineration as appropriate, in accordance with local and national regulations. Do not remove label until container is thoroughly cleaned.

14. TRANSPORT INFORMATION

United nations number (UN No): 3082
Transport hazardous class: 9
UN Proper shipping name: Environmental Hazardous Substance, Liquid, N.O.S.

ADR/RID:
Packing group: III
Classification code: M6
Hazard ID no.: 90

IMDG/IMO:
Packing group: III
EMS no.: F-A, S-F
Marine pollutant: Yes

IATA/ICAO: Packing group: III
Packing instructions: 914

Specific transport measures and precautionary conditions: Not available

15. REGULATORY INFORMATION

HMIS Classification
Health Hazard: 1  Flammability: 0  Physical Hazards: 0  Personal Protection: J

NFPA Classification
Health Hazard: 1  Flammability: 0  Instability: 0

EPCRA
- Section 302 (extremely hazardous substances): Substance is not listed.
- Section 313 (Specific toxic chemical listings): Substance is not listed.

RCRA Status:
Substance is not listed.

CERCLA Hazardous Substances:
Substance is not listed.

CAA 112(r) Regulated Chemicals For Accidental Release Prevention:
Substance is not listed.

Chemical Inventories
Australia – AICS  EU – EINECS  Korea – ECL  Canada – DSL/NDSL
China – IECSC  USA – TSCA

16. OTHER INFORMATION

Shelf life
2 years after shipping date in sealed containers protected from light and air.

Reference documents
European Chemical Substance Information System (ESIS)
United States Environmental Protection Agency (US EPA)

MSDS prepared by
Company name: DOUBLE BOND CHEMICAL IND., CO., LTD.
Address: 4F, 959, JUNGJENG RD., JUNGHE DISTRICT, NEW TAIPEI CITY, 23544 TAIWAN, R.O.C
TEL. / FAX: +886-2-82281168 / +886-2-82281818
Title / Name (signature): Technical Data Administrator / Janice Sung

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The above details do not imply any guarantee concerning composition, properties or performance.