**MATERIAL SAFETY DATA SHEET**

**SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION**

**PRODUCT NAME:** 3-Iodo-2-propynyl butyl carbamate (IPBC)

**GENERAL USE:** Fungicide/Preservative/Disinfectant

**PRODUCT DESCRIPTION:** Off white crystalline solid with mild, characteristic odor.

Manufacturers Name: H&S Chemical Co. Inc.

**DATE PREPARED:** 12/11/2007

**SUPERSEDES:** 4/2004

**ADDRESS (NUMBER, STREET, P.O. BOX):**

1025 Mary Laidley Drive

**TELEPHONE NUMBER FOR INFORMATION / customer service:**

1-859-356-8000

**(CITY, STATE AND ZIP CODE) COUNTRY**

Covington, KY 41017 USA

**CHEMTEL 24-HOUR EMERGENCY TELEPHONE NUMBER**

North America: 1-800-255-3924
International: +01-813-248-0585

**SECTION 2 - HAZARDOUS INGREDIENTS**

<table>
<thead>
<tr>
<th>Hazardous Components</th>
<th>% (by Weight)</th>
<th>Cas #</th>
<th>EINECS #</th>
<th>Hazard Symbol</th>
<th>RISK PHRASES (Full Text Section 16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Iodo-2-propynyl Butyl</td>
<td>97%+</td>
<td>55406-53-6</td>
<td>259-627-5</td>
<td>None</td>
<td>R-20/22</td>
</tr>
<tr>
<td>Carbamate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R-41</td>
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<td></td>
<td></td>
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<td></td>
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<td>R-50</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>R-50/53</td>
</tr>
</tbody>
</table>

**Notes:** OSHA Regulatory Status: This product is classified as Hazardous under OSHA regulations.

**SECTION 3 - HAZARDS IDENTIFICATION**

**EMERGENCY OVERVIEW**

An off white solid with a mild characteristic odor. May cause respiratory irritation and severe eye irritation with possible corneal injury if material comes into direct contact with the eyes. May evolve iodine vapors during combustion. Toxic to fish.

**POTENTIAL HEALTH EFFECTS**

**INHALATION:** May cause transient respiratory irritation

**SKIN:** Direct contact may cause mild skin irritation

**EYES:** May cause severe eye irritation with possible corneal injury unless washed from eyes promptly. The irritation and injury is reversible.

**INGESTION:** Single dose toxicity is low. Ingestion of small quantities during handling is not likely to cause harmful effects. Ingestion of larger quantities is harmful.
SECTION 4 - FIRST AID MEASURES

Use good personal hygiene practices. If skin contact should occur, material should be washed away with a mild soap and water. Wash hands and other exposed areas thoroughly before eating, drinking, smoking or using toilet facilities. Do not smoke, drink or eat in areas where this product is stored or handled. For extensive scale or contamination removal, the following precautions should be taken: the work area should be well-ventilated and access should be restricted, surface contaminants should be kept wet, plastic ground cover should be used to contain contaminants and facilitate clean-up, and high efficiency particulate respirators should be worn unless concentrations are not expected to exceed limits established. Suitable coveralls and gloves should be worn and contaminated protective equipment and clothing should be decontaminated or disposed of.

INHALATION: If symptoms develop, remove from exposure area to fresh air promptly. If breathing is difficult, oxygen should be administered by qualified personnel. If breathing has stopped, perform artificial respiration. Keep person warm and at rest. Get medical attention.

EYES: Wash eyes immediately with large amounts of water for at least 15 minutes. Get medical attention immediately.

SKIN: Remove contaminated clothing. Wash effected areas with soap and water. If irritation or redness develops, get medical attention. Wash clothing before re-use.

INGESTION: If swallowed, wash out mouth with water provided person is conscious. Seek medical attention immediately.

SECTION 5 - FIRE FIGHTING MEASURES

GENERAL HAZARDS: Emits toxic Iodine fumes under fire conditions. This material may burn but does not ignite readily. Runoff from fire control or dilution water may cause pollution.

EXTINGUISHING MEDIA: Dry chemical, carbon dioxide, water spray, or regular foam.

FIRE FIGHTING PROCEDURES: Move container from fire area if this can be done without risk. Do not scatter spilled material with high pressure water streams. Avoid breathing vapors, keep upwind. Positive pressure SCBA with full face piece and firefighters’ protective clothing will provide limited protection.

UNUSUAL FIRE AND EXPLOSION HAZARDS: May emit vapors of Iodine under fire conditions.

HAZARDOUS COMBUSTION PRODUCTS: Carbon Monoxide, carbon dioxide, nitrogen oxides, Iodine vapors

SECTION 6 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Keep unnecessary people away from spill area. Wear protective equipment as specified in section 8. Stop leak if you can do it without risk. Small spills may be shoveled into a clean dry container, loosely covered. For larger spills cover spill with plastic sheet or tarp minimizing spreading or, if wet, dike far ahead of liquid spill for later disposal. Notify the appropriate authorities.

SECTION 7 - HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Avoid contact with eyes and skin. Avoid breathing dust. Wash thoroughly after handling. Keep container tightly closed. Use only with adequate ventilation. Do not permit product dust to accumulate on walls, sills, floors, or machinery. Avoid breakage of bagged material or spillage of bulk material. Store away from incompatible substances in a cool dry well ventilated area. Recommended storage temperatures should be between 0° C (32°F) and 32°C (90°F) . Do not store this product for extended periods at over 45°C (112°F). Do not contaminate water, food, or feed by storage or disposal. Observe all local, state and federal regulations when storing or disposing of this substance.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION
**PERSONAL PROTECTION:**

**RESPIRATORY PROTECTION:** A respiratory protection program meeting OSHA 1910.134 must be followed whenever workplace conditions warrant the use of a respirator. If exposure may exceed recommended limits, a NIOSH/MSHA-approved respirator should be used based on exposure levels found in the workplace. Normally respiratory protection is not required when using this product. Where protection from nuisance dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks.

**PROTECTIVE GLOVES:** Wear impervious gloves and an apron to minimize skin contact.

**EYE PROTECTION:** Use dust resistant Safety goggles or other approved eye protection.

**OTHER PROTECTIVE CLOTHING OR EQUIPMENT:** Eyewash station should be available within the immediate work area for emergency use.

**WORK / HYGIENIC PRACTICES:** Provide local exhaust or process enclosure ventilation to minimize exposure.

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### SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

- **APPEARANCE AND ODOR:** Off white crystalline powder with a mild characteristic odor.
- **VAPOR PRESSURE:** @20°C <1.8X10⁻⁵ mm Hg
- **pH:** Not Applicable
- **BOILING POINT / BOILING RANGE:** Not Applicable
- **FLASH POINT:** Not Applicable
- **FLAMMABLE LIMITS:** LEL: NA UEL: NA
- **AUTOIGNITION TEMPERATURE:** Not Applicable

### SECTION 10 - STABILITY AND REACTIVITY

- **STABILITY:** Stable X
- **CONDITIONS TO AVOID:** Avoid excessive heat >180° C (>356° F).
- **INCOMPATIBILITY (MATERIALS TO AVOID):** Strong acids (pH<2) and bases (pH >10)
- **HAZARDOUS DECOMPOSITION OR BYPRODUCTS:** Carbon monoxide, carbon dioxide, nitrogen oxides, and iodine vapors.
- **HAZARDOUS POLYMERIZATION:** Does not occur.

### SECTION 11 - TOXICOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Hazardous Components</th>
<th>CAS #</th>
<th>LD50 of Ingredient (Specify Species and Route)</th>
<th>LC50 of Ingredient (Specify Species)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(IPBC) 55406-53-6</td>
<td></td>
<td>Oral Rat Female-1056mg/Kg</td>
<td></td>
</tr>
<tr>
<td>259-627-5</td>
<td></td>
<td>Oral Rat Male -1795mg/Kg</td>
<td>Dermal, rabbit &gt;2000mg/Kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Eyes, rabbit-severe reversible irritant</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Rat 4hrs -680 mg/Kg</td>
</tr>
</tbody>
</table>

### SECTION 12 - ECOLOGICAL INFORMATION

This product is toxic to fish. LC-50 (bluegill sunfish, 96 hr flow through- 230ug/l. COD: 1148 mg/g. Octanol /water partition coefficient: Kow=log P=2.81.

Environmental fate: This product is a pesticide and may cause adverse environmental impact. Avoid contamination of steams and sewers. The fate of the active ingredient IPBC is quite favorable. Degradation is rapid and occurs through biological as well as non-biological processes.

### SECTION 13 - DISPOSAL CONSIDERATIONS

**WASTE DISPOSAL METHOD:**

This product is not a RCRA hazardous waste by definition. The user of this material has the responsibility to dispose
of unused material, residues, and containers in compliance with local, state and federal regulations.

SECTION 14 - TRANSPORT INFORMATION

PROPER SHIPPING NAME: Environmentally Hazardous Substance, solid N.O.S. contains 3-iodo-2-propynyl butyl carbamate

DOT HAZARD CLASS / Pack Group: 9/PGIII
UN / NA IDENTIFICATION NUMBER: UN 3077
LABEL: Class 9
ERG#: 171
HAZARD SYMBOLS: Class 9

IATA HAZARD CLASS / Pack Group: 9/PGIII, ERG# 9L
IMDG HAZARD CLASS: 9/PGIII, ERG# F-A, S-F.
UN TDG Class / Pack Group: UN 3077/PGIII

Note: Transportation information provided is for reference only. Client is urged to consult CFR 49 parts 100 - 177, IMDG, IATA, EU, United Nations TDG, and WHMIS (Canada) TDG information manuals for detailed regulations and exceptions covering specific container sizes, packaging materials and methods of shipping.

SECTION 15 - REGULATORY INFORMATION

TSCA (USA - Toxic Substance Control Act): Listed
SARA TITLE III (USA - Superfund Amendments and Reauthorization Act): Not Reportable

313 REPORTABLE INGREDIENTS: (40CFR 372.65)
This product contains the following toxic chemicals subject to the reporting requirements of the Emergency Planning and Community Right-to-Know Act of 1986. This information must be included in all MSDS’s that are copied and distributed for this material.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-iodo-2-propynyl butyl carbamate</td>
<td>55406-53-6</td>
<td>97</td>
</tr>
</tbody>
</table>

CERCLA (USA - Comprehensive Response Compensation and Liability Act): Not reportable
California Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986: Not listed
CPR (Canadian Controlled Products Regulations): Complies
IDL (Canadian Ingredient Disclosure List): Listed
DSL / NDSL (Canadian Domestic Substances List / Non-Domestic Substances List): Listed
EINECS (European Inventory of Existing Commercial Chemical Substances): Listed. This product is not considered hazardous according to E.U. directive 67/548/EEC. This chemical substance is not listed in a priority list (as foreseen under council regulation EEC No. 793/93).

WGK German (Water Quality): Listed

RISK PHRASES:

<table>
<thead>
<tr>
<th>SYMBOL(S) REQUIRED FOR EU LABEL</th>
<th>SAFETY PHRASES:</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-20/22</td>
<td>S-57-Use appropriate containment to avoid environmental contamination.</td>
</tr>
<tr>
<td>R-41</td>
<td>S-61-Avoid release to the environment.</td>
</tr>
<tr>
<td>R-50</td>
<td></td>
</tr>
<tr>
<td>R-50/53</td>
<td></td>
</tr>
</tbody>
</table>

SECTI0N 16 - OTHER INFORMATION

Notes & full R-Phrase text
R20/22-Harmful by inhalation and if swallowed.
R41- Risk of serious damage TO EYES.
R50-Very toxic to aquatic organisms
R50/53- Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

<table>
<thead>
<tr>
<th>HMIS HAZARD RATINGS</th>
<th>HEALTH:</th>
<th>2</th>
<th>0 = INSIGNIFICANT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FLAMMABILITY:</td>
<td>0</td>
<td>1 = SLIGHT</td>
</tr>
<tr>
<td></td>
<td>REACTIVITY:</td>
<td>0</td>
<td>2 = MODERATE</td>
</tr>
<tr>
<td></td>
<td>PERSONAL PROTECTIVE EQUIPMENT:</td>
<td>E</td>
<td>3 = HIGH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4 = EXTREME</td>
</tr>
</tbody>
</table>

REVISION SUMMARY: Supersedes 4/04 issue.
The information contained herein is believed to be accurate but is not warranted to be so. Data and calculations are based on information furnished by the manufacturer of the product and manufacturers of the components of the product. Users are advised to confirm in advance of need that information is current, applicable and suited to the circumstances of use. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of this material even if reasonable safety procedures are followed. Any questions regarding this product should be directed to the manufacturer of the product as described in Section 1.