Safety Data Sheet

PVI (CTP)

1. IDENTIFICATION OF SUBSTANCE / COMPANY INFORMATION

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>N-Cyclohexyl(thio)phthalimide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms</td>
<td>Anti-scorching agent PVI; CTP; CTPI; 1H-Isoindole-1,3-(2H)-dione, 2-(cyclohexylthio)</td>
</tr>
<tr>
<td>CAS #</td>
<td>17796-82-6</td>
</tr>
<tr>
<td>Formula</td>
<td>C_{14}H_{15}O_{2}SN</td>
</tr>
<tr>
<td>Chemical Family</td>
<td>Retarder</td>
</tr>
<tr>
<td>Supplier</td>
<td>SunBoss Chemicals Corp.</td>
</tr>
<tr>
<td>Address</td>
<td>8-110 West Beaver Creek Road</td>
</tr>
<tr>
<td></td>
<td>Richmond Hill, ON  L4B 1J9</td>
</tr>
<tr>
<td>Telephone</td>
<td>905-707-3433</td>
</tr>
<tr>
<td>Fax</td>
<td>905-707-7393</td>
</tr>
</tbody>
</table>

Emergency Information  After normal hours call Chemtrec at 1-800-424-9300

2. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS - No</th>
<th>Weight %</th>
<th>EC No.</th>
</tr>
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<tbody>
<tr>
<td>N-(Cyclohexylthio)phthalimide</td>
<td>17796-82-6</td>
<td>97-99</td>
<td>241-774-1</td>
</tr>
</tbody>
</table>

Symbol (s)  Xi, N
Risk Phrase(s)  R43, R50/53

3. HEALTH HAZARDS INFORMATION

EMERGENCY OVERVIEW

Signal Word: WARNING!
May cause sensitisation by skin contact.
May cause persistent skin odour.
Very toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment.

Potential Health Effects

Inhalation  May cause vomiting. Illness may occur after a single overexposure by inhalation to relatively large quantities of this material.

Ingestion  May be harmful if large amounts are swallowed. May cause stomach discomfort. May cause vomiting.
Skin contact
May cause an allergic skin reaction. May cause a rash and itching of the skin. May cause skin defatting with prolonged exposure? May be absorbed through the skin and contribute to the symptoms listed under ingestion.

Eye Contact
Causes moderate eye irritation. Signs/symptoms can include redness, swelling, pain, tearing, and hazy vision.

4. EMERGENCY FIRST AID PROCEDURES

Inhalation
Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, get immediate medical attention.

Ingestion
If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

Skin
Wash skin with water, using soap if available. Remove contaminated clothing and launder before reuse. Get medical attention if irritation persists.

Eyes
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Note to Physician
Provide symptomatic/supportive care as necessary. Treatment based on sound judgment of physician and individual reactions of patient.

5. FIRE AND EXPLOSION HAZARD MEASURES

Flammability
Not determined

Flash Point
350°F / 177°C

Flash Point Method
Cleveland Open Cup

DOT Category
Not regulated

Extinguishing Media
Water fog, carbon dioxide, foam, dry chemical

Auto Ignition Temperature
660°F / 349°C (Dust)

Flammable Limits
Not determined

Special Fire Fighting Procedures
Fight fire from a safe distance and from a protected location. Use water spray to cool fire exposed surfaces. Decomposition in fire may produce toxic gases. Flammable dust when in finely divided and highly suspended state. Do not allow runoff to enter waterways.

Special Protective Equipment
Fire fighters should wear full protective clothing, including self-contained breathing equipment.

Unusual Fire and Explosion Hazards
Toxic emissions may result if product is involved in a fire. Fire produces highly toxic sulphur dioxide gas.

6. ACCIDENTAL RELEASE MEASURES

Procedures
Wear protective equipment specified. Avoid the generation of dust. Sweep, vacuum, or shovel and place into closable container for disposal.
Clean up Methods

Isolate area and remove sources of friction, impact, heat, low level electrical current, and RF energy. Isolate spill and stop leak where safe. Remove ignition sources and work with non-sparking tools. Scoop up and remove. Do NOT spread spilled product with water.

7. HANDLING AND STORAGE

Handling

Good hygienic practices should be observed. Work clothes should be washed separately at the end of each work day. Disposable clothing should be discarded with material. Avoid generating or breathing dust. Avoid contact with eyes, skin and clothing. Close containers of unused product. Wash hands before eating, drinking, and chewing gum, using tobacco or using the toilet. Do not reuse this container.

Storage

Store closed containers in a cool, dry, well-ventilated area. Store away from strong acids. Avoid exposure to direct sunlight.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls

Avoid dust generation. Ensure good ventilation and local exhaustion of the working area. Eliminate Ignition sources.

Exposure Limits

N-Cyclohexyl(thio)phthalimide

OES-TWA 0.5mg/m³

Respiratory

Appropriate respiratory protection shall be worn when applied engineering controls are not adequate to protect against inhalation exposure. Firefighting; use a Positive Pressure Demand Full Face Self Contained Breathing Apparatus.

Eyes

Wear safety glasses or goggles to protect against exposure.

Skin

Normal work coveralls. Launder contaminated clothing before reuse.

Gloves

Use gloves as a standard industrial handling procedure. All cleanable impervious glove types are acceptable.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

White powder or granules

Odour

Strong, pungent

Specific Gravity

1.33 @ 25°C

Density

1.30 g/cm³

Bulk Density

1330 kg/m³
Solubility in water: INSOLUBLE

pH: Not applicable

Other Solubility: Soluble in acetone, benzene, toluol, diethyl ether, ethyl acetate, hot CCl₄, hot alcohol.

Boiling point: Not determined

Melting Point: 90°C

Molecular Weight: 261.34

Molecular Formula: C₁₄H₁₅O₂SN

10. STABILITY AND REACTIVITY

Chemical Stability: Stable when stored at room temperature in closed, original container. Stable under normal conditions of handling, use and transportation. Stable if protected from heat and exposure to air. Loses potency with time. Protect from moisture.

Conditions to avoid: Keep away from heat, sparks and flame. Moisture.

Incompatibility: Contact with acids

Hazardous Polymerization: Will not occur


Additional Guidelines: None

11. TOXICOLOGICAL INFORMATION

Acute oral LD₅₀ (mg/kg): >2600 mg/kg (Rat)

Acute Dermal LD₅₀ (mg/kg): >5010 mg/kg (Rabbit)

Acute Inhalation LC₅₀ (mg/l): Not determined


Ingestion: May be harmful if large amounts are swallowed. May cause stomach discomfort. May cause vomiting.

Skin contact: May cause an allergic skin reaction. May cause a rash and itching of the skin. May cause skin defatting with prolonged exposure. May be absorbed through the skin and contribute to the symptoms listed under ingestion.

Inhalation: May cause vomiting. Illness may occur after a single overexposure by inhalation to relatively large quantities of this material.

Eye Contact: Causes moderate eye irritation. Signs/symptoms can include redness, swelling, pain, tearing, and hazy vision.
Aggravated Conditions: Pulmonary disorders. Dermal ailments.

Carcinogenicity: Negative in the Ames test on bacteria cells. Negative in standard tests using bacteria and yeast cells. This product or one of its ingredients present 0.1% or more is NOT listed as a carcinogen or suspected carcinogen by NTP, IARC, or OSHA. Carcinogenic: Category 3.

Primary Irritation Effect: Moderately irritating to skin and eyes. Cumulative irritant to skin. Probable skin sensitizer. STRONG skin allergen/sensitizer in human patch tests.

Genotoxicity: Negative for genetic activity - in vitro tests. Negative for genetic activity - in vivo tests. Some evidence of tumour activity was seen in high-dose animals in a mammalian feeding study.

Reproductive/Developmental Toxicity: No evidence of teratogenicity in animal studies using rats, mice and/or hamsters. No teratogenic effects seen in a mammalian study on rabbits. Maternal toxicity decreased fetal weight and delayed development seen only in highest dose animals.

12. ECOLOGICAL INFORMATION

Acute Fish Toxicity: 96Hr LC50 Rainbow Trout = 0.40 mg/l. 96Hr LC50 Bluegill Sunfish = 1.20 mg/l. 96Hr LC50 Fathead Minnow = 0.42 mg/l.

Acute Crustacean Toxicity: 48Hr EC50 Daphnia Magna = 32.0 mg/l.

Octonal/Water Coefficient: 4600. Log P = 3.76 (Calculated).

Chemical Fate Information: Bio-concentration Factor: 130 (calculated).

Other Information: Tests indicate this material will not bio-accumulate or persist in the environment.

13. DISPOSAL CONSIDERATIONS

Waste Disposal: This material is not a RCRA hazard waste. Bury in a licensed landfill or burn in an approved incinerator according to federal, state, and local regulations. Empty containers should be handled in a manner not to cause dusting during collection, transportation and disposal.

Contaminated Packaging: If empty container retains product residues, all label precautions must be observed. Store away from ignition sources. Transport with all closures in place. Return for reuse or dispose according to national or local regulations. Dispose of container according to national or local regulations.

14. TRANSPORT INFORMATION

DOT: Not regulated

IATA
UN/ID No. UN 3077
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., (N-Cyclohexyl(thio)phthalimide)
Hazard Class 9
Packing Group III

IMDG

UN/ID No. UN 3077
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., (N-Cyclohexyl(thio)phthalimide)
Hazard Class 9
Packing Group III
Marine Pollutant No

TDG (Canada) Not regulated

15. REGULATORY INFORMATION

LABELLING ACCORDING TO DIR 67/548 EEC

EC Number: 241-774-1
Classification based on: TESTS

IRRITANT (Xi) DANGEROUS FOR THE ENVIRONMENT (N)

CLASSIFIED ACCORDING TO DIRECTIVE 199/45/EC

Risk Phrases: R43 – May cause sensitization by skin contact.
R50/53 – Very toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment.

Safety Phrases: S22 – Do not breathe dust.
S24 – Avoid contact with skin.
S36 – Wear suitable protective clothing.
S37 – Wear suitable gloves.
S60 – This material and its container must be disposed of as a hazardous waste.
S61 – Avoid release to the environment. Refer to Special Instructions/Safety Data Sheet.
FDA Status 21 CFR
Not regulated for use in food contact applications under FDA 21 CFR

TSCA
Listed

Canadian DSL
Listed

EINECS/ELINCS
Listed

**US Regulations**
SARA Section 302
None Found
SARA 311/312 Hazard Categories
Immediate Delayed Fire
SARA 313 Chemical
Not Applicable / None
RCRA Status
Not a RCRA waste

**Canadian Regulations**

WHMIS Hazard Class
D2B TOXIC MATERIALS / Materials Causing Other Toxic Effects.

NPRI
Not Listed. [Canada]

### 16. HAZARD RATING SYSTEM

**NFPA Rating (Scale 0-4)**

<table>
<thead>
<tr>
<th>HEALTH</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRE</td>
<td>1</td>
</tr>
<tr>
<td>REACTIVITY</td>
<td>0</td>
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**HMIS Classification (Scale 0-4)**

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### 17. OTHER INFORMATION

Although reasonable precautions have been taken in the preparation of the data contained herein, it is offered solely for your information, consideration and investigation. SunBoss Chemicals Corp. extends no warranty and assumes no responsibility for the accuracy or sufficiency of the content and expressly disclaims all liability for reliance thereon. This safety data sheet provides guidelines for the safe handling of this product; it does not and cannot advise on all possible situations, therefore, your specific use of this product should be evaluated to determine if additional precautions are required. It is the responsibility of the user to comply with all Federal, State and local laws and regulations. Individuals exposed to this product should read and understand this information and be provided pertinent training prior to working with this product.

**Abbreviations and Acronyms**

ACGIH: American Conference of Governmental Industrial Hygienists Inc.
CAS: Chemical Abstracts Service (Division of American Chemical Society)
DOT: Department of Transportation (USA)
EINECS: European Inventory of Existing Commercial Chemical Substances
HMIS: Hazardous Materials Identification System (USA)
IARC: International Agency for Research on Cancer
IATA: International Air Transport Association
IMDG: International Marine Code for Dangerous Goods
LD50: Lethal Dose Medium
LC50: Lethal Concentration Medium
EC50: Effective Concentration Medium
NIOSH: National Institute for Occupational Safety and Health
NFPA: National Fire Protection Association (USA)
NPRI: National Pollutant Release Inventory (Canada)
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration (USA)
TDG: Transportation of Dangerous Goods (Canada)
TLV: Threshold Limit Value
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Information Systems (Canada)

18. REVISION DATE

Revision number: 5
Date of Issue: September 3, 2014
Changes: Number and format of headings changed; Updates to Sections 1: Identification of Substance - EC information added; 2: Health Hazards Information; 8: Specific Personal Protection Equipment - pictograms added; 14: Transport information - pictograms added; 15: Regulatory information - EC information added; 16: Hazard Rating System - table added; 17: Abbreviations and Acronyms added