MATERIAL SAFETY DATA SHEET (MSDS)

TROY CHEMICAL CORP.
1 Avenue L
Newark, NJ 07105

FOR MSDS INFORMATION: (973) 589-2500
24 HOUR EMERGENCY PHONE NUMBER
CHEMTREC 1-800-424-9300

Polyphase 659
Product Code 80133X

Effective Date: January 17, 2003
Replaces: December 18, 2001

1. PRODUCT & COMPANY IDENTIFICATION

PRODUCT NAME Polyphase 659
CHEMICAL NAME Not applicable
CHEMICAL FAMILY Not applicable
FORMULA Proprietary
SYNONYMS None

MANUFACTURER Troy Chemical Corporation
1 Avenue L
Newark, NJ 07105

2. COMPOSITION/INFORMATION ON INGREDIENTS

The listed components are considered to be hazardous based on OSHA’s Hazard Communication Standard. For further regulatory information, see Section 15.

CHEMICAL NAME | CAS# | % | AGENCY | EXPOSURE LIMITS
--- | --- | --- | --- | ---
N-Cyclopropyl-N’-(1,1-dimethylethyl)-6-(methylthio)-1,3,5-triazine-2,4-diamine | 28159-98-0 | 5-12 | Not applicable | None established
Methyl benzimidazole-2-yl carbamate | 10605-21-7 | 5-10 | Not applicable | None established
3-iodo-2-propynyl butyl carbamate | 55406-53-6 | 1-10 | Not applicable | None established
Trade secret Proprietary | <5 | Not applicable | None established
Trade secret Proprietary | <5 | ACGIH TWA: 2 mg/m3 (resp. dust) | None established

OSHA Regulatory Status: This product is classified as hazardous under OSHA regulations.

3. HAZARDS IDENTIFICATION - POTENTIAL HEALTH EFFECTS

EMERGENCY OVERVIEW

Polyphase 659 is a white flowable dispersion with a mild characteristic odor. May cause mild eye, skin and respiratory irritation. May evolve iodine vapors during combustion. Toxic to fish.

ROUTES OF ENTRY

INGESTION
Ingestion, skin contact, skin absorption, eyes, inhalation
May be harmful if swallowed. May cause muscle spasticity, excitement, and respiratory depression. Ingestion of excessive quantities may cause gastrointestinal irritation, nausea, vomiting, and diarrhea.

SKIN
Direct contact may cause slight skin irritation. Skin absorption is possible, and may contribute to toxicity from other routes of exposure.

EYE CONTACT
Direct contact may cause mild irritation.

INHALATION
Breathing small amounts during normal handling is not likely to cause harmful effects. Excessive inhalation may be harmful.

CHRONIC EFFECTS
Reproductive effects have been seen based on animal testing on product (or component).

TARGET ORGANS
Respiratory tract, stomach

CARCINOGENICITY
This product (or component) is not listed as a carcinogen according to OSHA, NTP, IARC, and ACGIH.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
May aggravate pre-existing kidney disorders, skin disorders, and allergies.

4. FIRST AID MEASURES

INGESTION
Call poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.

SKIN CONTACT
Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

EYE CONTACT
Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing the eye. Call a poison control center or doctor for treatment advice.

INHALATION
If respiratory symptoms develop, remove from exposure area to fresh air immediately. If breathing is difficult, oxygen should be administered by qualified personnel. If symptoms persist, call a poison control center or doctor for further treatment advice.

NOTES TO PHYSICIAN
Probable mucosal damage may contraindicate use of gastric lavage.

5. FIRE FIGHTING MEASURES

FLASH POINT
Not applicable

FLAMMABLE LIMITS
Not applicable

AUTOIGNTION TEMPERATURE
No data

FLAMMABILITY CLASS
Non-hazardous

HAZARDOUS PRODUCTS OF COMBUSTION
Carbon monoxide, carbon dioxide, iodine vapors, nitrogen oxides, sulfur oxides, and other toxic compounds.

FIRE EXTINGUISHING MEDIUM
Dry chemical, carbon dioxide, water spray, or regular foam.

FIRE FIGHTING INSTRUCTIONS
Move container from fire area if you can do it without risk. Do not scatter spilled material with high-pressure water streams. Avoid breathing vapors, keep upwind. Positive pressure self-contained breathing apparatus with full facepiece and structural firefighters’ protective clothing will provide limited protection.

UNUSUAL FIRE & EXPLOSION HAZARDS
This material may burn but does not ignite readily. Runoff from fire control or dilution water may cause pollution.

May evolve vapors of iodine.
6. ACCIDENTAL RELEASE MEASURES

Keep unnecessary people away; isolate hazard area and deny entry. Wear protective equipment as specified in Section 8. Stop leak if you can do it without risk. For small spills, absorb with vermiculite or other noncombustible absorbent material and place into containers for later disposal. For large spills, dike far ahead of liquid spill for later disposal. If water pollution occurs, notify the appropriate authorities.

Observe all Federal, State, and Local regulations regarding notifications of accidental releases.

7. HANDLING & STORAGE

Avoid contact with eyes, skin, or clothing. Avoid breathing vapor or mist. Wash thoroughly after handling. Use only with adequate ventilation. Store away from incompatible substances in a cool, dry, ventilated area. Store indoors at temperatures between 5-40°C (41-104°F). This product should be well-mixed before use. If the product has excessively chilled, propeller-agitate. Do not contaminate water, food, or feed by storage or disposal.

Observe all Federal, State, and Local regulations when storing or disposing of this substance.

8. PERSONAL PROTECTION/EXPOSURE CONTROLS

VENTILATION

Provide local exhaust or process enclosure ventilation to minimize exposure.

EYE/FACE PROTECTION

If potential for contact with material exists, use splashproof goggles or other approved eye protection.

SKIN PROTECTION

Wear impervious gloves and apron to prevent skin contact. Wear impermeable suit if exposure is possible to a large portion of the body.

RESPIRATORY PROTECTION

None normally required, however if excessive exposure is possible, use a NIOSH/MSHA-approved respirator based on exposure levels found in the workplace and in compliance with OSHA's 29CFR1910.134.

OTHER

Eyewash and safety shower should be available within the immediate work area for emergency use.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

White flowable dispersion

SPECIFIC GRAVITY AT 25°C. (Water=1)

1.07

ODOR

Mild characteristic odor

WATER SOLUBILITY

Dispersible

INITIAL BOILING POINT

100°C (212°F)

pH

7-8

MELTING POINT

Not determined

EVAPORATION RATE (Butyl acetate=1)

<1

VAPOR PRESSURE AT 20°C.

Negligible

% VOLATILES BY WEIGHT

75%

VAPOR DENSITY (Air=1)

>1

VOC (g/l)

124

VISCOSITY (Brookfield) AT 20°C

500-600 cps

10. STABILITY & REACTIVITY

REACTIVITY

Stable under normal temperatures and pressures.

CONDITIONS TO AVOID

Avoid excessive heat.

INCOMPATIBILITY

Avoid contact with strong acids (pH <2), bases (pH >10), and oxidizing agents.

HAZARDOUS DECOMPOSITION

Decomposition may release carbon monoxide, carbon dioxide, iodine vapors, nitrogen oxides, sulfur oxides, and other toxic compounds.

HAZARDOUS POLYMERIZATION

Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

ACUTE ORAL EFFECTS

LD50 (oral, rat) - 3836 mg/kg,

ACUTE SKIN EFFECTS

LD50 (dermal, rabbit) >2000 mg/kg. Non-irritating. This product is not a skin sensitizer.

ACUTE EYE EFFECTS

Mild eye irritation

ACUTE INHALATION EFFECTS

LC50 (rat,4 hr) > 2.07 mg/l

SUBCHRONIC EFFECTS AND OTHER STUDIES

N-Cyclopropyl-N'(1,1-dimethylethyl)-6-(methylthio)-1,3,5-triazine-2,4-diamine: In feeding studies with rats, this material resulted in slight adverse effects only in the highest dose level (62.5 mg/kg/day).

Methyl benzimidazole-2-yl carbamate: Reproductive effects have been reported in several animal species (rat, mouse, and hamster) with oral administration. These include effects on spermatogenesis, decreased fertility, fetotoxicity, and developmental abnormalities.

Genotoxic effects have been demonstrated on both in vitro and in vivo tests.

Trade secret ingredient (concentration in product <5%): Feeding studies of this material in very high doses in rats and rabbits produced CNS depression, hemolysis, and minimal kidney changes. Very slight liver damage was noted in rats feed 0.9-1.77 ml/kg for 24 months. Death occurred in animals given 25-50% in drinking water. Administration of 7.5% in the diet produced no adverse effects on reproduction in rats. Higher levels affected growth, feeding, mating, and weaning.

Trade secret ingredient (concentration in product <5%): Female rats fed 20% of ingredient in their diet for lengths of time from a minimum of 37 days to a maximum of 117 days prior to fertilization and during gestation exhibited maternal anemia which was associated with a significant reduction in birth weight of the newborn.

For additional information on active ingredients, contact Troy Chemical Corporation.
### 12. Ecological Information

**Ecotoxicity**

This product is toxic to fish. Do not apply directly to water or wetlands. Do not contaminate water when disposing of equipment washwaters.

Data on N-Cyclopropyl-N’-(1,1-dimethylethyl)-6-(methylthio)-1,3,5-triazine-2,4-diamine is as follows:
- **LC$_{50}$** (bluegill sunfish, 96 hr flow-through) - 2.9 mg/l
- COD: 1320 mg/g.

Data on Methyl benzimidazole-2-yl carbamate is as follows:
- **LC$_{50}$** (bluegill sunfish, 96 hr flow-through) - 2.1 mg/l
- **LC$_{50}$** (rainbow trout, 96 hr flow-through) - 1.5 mg/l
- **LC$_{50}$** (water flea, 48 hr flow-through) - 0.22 mg/l

Data on 3-Iodo-2-propynyl butyl carbamate (IPBC), is as follows:
- **LC$_{50}$** (bluegill sunfish, 96 hr flow-through) - 230 ug/l
- Octanol/water partition coefficient: Kow = log P = 2.81
- COD: 1148 mg/g.

**Environmental Fate**

This product is a pesticide and may cause adverse environmental impact. Avoid contamination of streams 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.

The fate of N-Cyclopropyl-N’-(1,1-dimethylethyl)-6-(methylthio)-1,3,5-triazine-2,4-diamine based on the modified Sturm test is that it is not biodegradable.

Methyl benzimidazole-2-yl carbamate may cause adverse environmental impact. Avoid contamination of streams and sewers.

### 13. Disposal Information

**RCRA Hazardous Waste**

This product is not a RCRA hazardous waste by definition.

**Waste Disposal Procedure**

The user of this material has the responsibility to dispose of unused material, residues, and containers in compliance with all Federal, State, and Local Regulations.

### 14. Transportation Information

**DOT**

| Shipping Name                                      | Environmentally hazardous substance, liquid n.o.s. (contains: iodo-butyl-carbamate; carbendazim, triazine compound - marine pollutants) |
| HAZARD CLASS                                       | 9 - Misc. dangerous goods |
| UN/NA NUMBER                                       | UN3082 |
| PACKING GROUP                                      | PG III |
| LABELS REQUIRED                                    | Class 9, Marine pollutant |
| ERG#                                               | 171 |

**IATA**

| Shipping Name                                      | Environmentally hazardous substance, liquid n.o.s. (contains: iodo-butyl-carbamate; carbendazim, triazine compound - marine pollutants) |
| HAZARD CLASS                                       | 9 - Misc. dangerous goods |
| UN/NA NUMBER                                       | UN3082 |
| PACKING GROUP                                      | PG III |
| LABELS REQUIRED                                    | Class 9, Marine pollutant |
| ERG#                                               | 9L |

**IMDG**

| Shipping Name                                      | Environmentally hazardous substance, liquid n.o.s. (contains: iodo-butyl-carbamate; carbendazim, triazine compound - marine pollutants) |
| HAZARD CLASS                                       | 9 - Misc. dangerous goods |
| UN NUMBER                                          | UN3082 |
| PACKING GROUP                                      | PG III |
| EMS#                                               | Not applicable |
| LABELS REQUIRED                                    | Class 9, Marine pollutant |

### 15. Regulatory Information

**CERCLA Section 103 (40CFR302.4)**

This product contains the following toxic chemicals that require notification of the National Response Center of release of quantities of hazardous substances equal to or greater than the Reportable Quantities (RQ).

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS#</th>
<th>%</th>
<th>RQ (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbendazim</td>
<td>10605-21-7</td>
<td>5-10</td>
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</tbody>
</table>

**SARA Section 302 (40CFR355.30), SARA Section 304 (40CFR355.40)**

This product does not contain any chemicals that require emergency planning based on Threshold Planning Quantities (TPQ) or release reporting based on Reportable Quantities (RQ).

**SARA Hazard Categories, SARA Sections 311/312 (40CFR370.21)**

<table>
<thead>
<tr>
<th>Acute</th>
<th>Chronic</th>
<th>Fire</th>
<th>Reactive</th>
<th>Pressure</th>
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<tbody>
<tr>
<td>X</td>
<td>X</td>
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</tbody>
</table>
**SARA SECTION 313 (40CFR372.65)**
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>1-10</td>
</tr>
</tbody>
</table>

**CHEMICAL INVENTORIES**
The ingredients of this product are all on the following Chemical Substance Inventories, are exempt from the Inventories, or are otherwise compliant with inventory requirements of the governing agency.

<table>
<thead>
<tr>
<th>TSCA</th>
<th>EINECS</th>
<th>DSL/NDSL</th>
<th>AICS</th>
<th>ECL</th>
<th>MITI/ENCS</th>
<th>PICCS</th>
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</thead>
<tbody>
<tr>
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<td>Europe</td>
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**CALIFORNIA PROPOSITION 65**
This product does not contain any substances that are currently on the list of Known Carcinogens and Reproductive Toxins, at levels which would require a warning under the statute.

**STATE RIGHT-TO-KNOW**
This product is regulated by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and is exempt from State Right-to-Know labeling requirements when labeled with an approved EPA label.

**16. OTHER**
**REVISIONS**
Prepared by: Environmental and Regulatory Affairs Dept.

This MSDS has been revised in the following sections: (revisions indicated in left border)
- Added Product Code, Sect. 2 (Composition - Revised ingredient %), Sect. 3 (Emergency Overview - Updated Product Description), Sect. 7 (Additional storage and handling information), Sect. 9 (Revised Appearance, Water Solubility), Sect. 13 (Revised RCRA Status), Sect. 14 (Revised Shipping names), Sect. 15 (CERCLA -Revised ingredient %, Updated Chemical Inventory Status, Revised Prop65)

**ABBREVIATIONS**

<table>
<thead>
<tr>
<th>PNOC - Particulates not otherwise classified</th>
<th>PNOR - Particulates not otherwise regulated</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEL - Short-term exposure limit</td>
<td>TLV - Threshold limit value</td>
</tr>
<tr>
<td>TWA - Time-weighted average</td>
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</tbody>
</table>

**HMIS RATING**

<table>
<thead>
<tr>
<th>HEALTH</th>
<th>FLAMMABILITY</th>
<th>REACTIVITY</th>
<th>PERSONAL PROTECTION</th>
<th>HEALTH</th>
<th>FLAMMABILITY</th>
<th>REACTIVITY</th>
</tr>
</thead>
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<td>D</td>
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<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

The information contained in this MSDS is believed to be accurate and reliable as of issue date, but no representation, guarantee, or warranty, express or implied is made to the accuracy, reliability, or completeness of the information. It is provided for the purpose of complying with hazard communication regulations. It is not intended as performance information or specifications for the product. It is the user’s responsibility to determine the suitability of the product for his own use. Troy does not assume legal responsibility for reliance on information herein.

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