1. CHEMICAL PRODUCT IDENTIFICATION:

<table>
<thead>
<tr>
<th>PRODUCT NAME</th>
<th>TEMPO 20% Wettable Powder</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRODUCT CODE</td>
<td>21642</td>
</tr>
<tr>
<td>CHEMICAL FAMILY</td>
<td>Pyrethroid Insecticide</td>
</tr>
<tr>
<td>CHEMICAL NAME</td>
<td>Cyano(4-fluoro-3-phenoxyphenyl)methyl 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate</td>
</tr>
<tr>
<td>SYNONYMS</td>
<td>Cyfluthrin</td>
</tr>
<tr>
<td>FORMULA</td>
<td>C22 H18 Cl2, F N O3</td>
</tr>
</tbody>
</table>

2. COMPOSITION/INFORMATION ON INGREDIENTS:

<table>
<thead>
<tr>
<th>INGREDIENT NAME</th>
<th>CAS NUMBER</th>
<th>EXPOSURE LIMITS</th>
<th>CONCENTRATION (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEMPO (cyfluthrin)</td>
<td>68359-37-5</td>
<td>OSHA : Not Established</td>
<td>20 %</td>
</tr>
<tr>
<td>Ingredient 1968</td>
<td>14808-60-7</td>
<td>OSHA : .10 mg/m3 TWA (respirable)</td>
<td>1-5 %</td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION:

<table>
<thead>
<tr>
<th>EMERGENCY OVERVIEW</th>
<th>CAUTION!</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color: Tan</td>
<td>Form: Solid; Powder</td>
</tr>
<tr>
<td>Harmful if inhaled; Harmful if absorbed through skin; Causes eye irritation; Harmful if swallowed.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>POTENTIAL HEALTH EFFECTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROUTE(S) OF ENTRY: Inhalation; Skin Contact; Skin Absorption; Eye Contact</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACUTE EFFECTS OF EXPOSURE: Mild eye or skin irritation may occur from contact with the powder or spray mixture. Paresthesia (a tingling or burning sensation on the surface of the skin) may also result from skin contact. This is a frequently reported symptom associated with sufficient dermal exposure to alpha-cyano (Type II) synthetic pyrethroids and normally subsides without treatment within 24 hours. The onset of these symptoms usually occurs 2-12 hours after exposure. Mucous membrane irritation involving the nose, throat and upper respiratory tract may occur from inhalation of aerosols during end use of the product such as during a spray application.</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES:

| FIRST AID FOR EYES: | Hold eyelids open and flush with a steady, gentle stream of water for 15 minutes. Get medical attention. |
| FIRST AID FOR SKIN: | Wash skin immediately with soap and warm water. Get medical attention if irritation persists. |
| FIRST AID FOR INHALATION: | If a person is overcome by excessive exposures to dusts or aerosols of this material, remove to fresh air or uncontaminated area. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention as soon as possible. |
| FIRST AID FOR INGESTION: | If ingestion is suspected, call a physician or poison control center. Drink one or two glasses of water and induce vomiting by touching back of throat with finger, or, if available, by administering syrup of ipecac. If syrup of ipecac is available, administer 1 tablespoonful (15 mL) of syrup of ipecac followed by 1 to 2 glasses of water. If vomiting does not occur within 20 minutes, repeat the dose once. Do not induce vomiting or give anything by mouth to an unconscious person. |
MATERIAL SAFETY DATA SHEET

5. FIRE FIGHTING MEASURES:
   FLASH POINT: Not Applicable
   EXTINGUISHING MEDIA: Water; Dry Chemical
   SPECIAL FIRE FIGHTING PROCEDURES: If involved in fire, wear self-contained breathing apparatus and stay up wind.

6. ACCIDENTAL RELEASE MEASURES:
   SPILL OR LEAK PROCEDURES: Isolate area. Avoid breathing dusts and skin contact. Use recommended protective equipment while carefully sweeping up and place in covered container for re-use if possible. Scrub contaminated area with soap and water. Repeat and rinse with water. Prevent contamination of streams, sewers, or other waterways.

7. HANDLING AND STORAGE:
   STORAGE TEMPERATURE(MIN/MAX): None/60 day average not to exceed 120 °F
   SHELF LIFE: Time/temperature-dependent. Contact Bayer for specific information.
   SPECIAL SENSITIVITY: Heat, moisture
   HANDLING/STORAGE PRECAUTIONS: Store in a cool, dry area designated specifically for pesticides. Do not store near any material intended for use or consumption by humans or animals.

8. PERSONAL PROTECTION:
   EYE PROTECTION REQUIREMENTS: Goggles should be used when needed to prevent dust or spray mixture from getting into the eyes.
   SKIN PROTECTION REQUIREMENTS: Avoid skin contact. Use chemical-resistant gloves (such as nitrile) and additional protective clothing when needed to prevent dermal exposure.
   VENTILATION REQUIREMENTS: Control airborne concentrations of TEMPO 20 WP through the use of general and local exhaust ventilation where needed.
   RESPIRATOR REQUIREMENTS: When needed based on the conditions of use, wear a NIOSH-approved organic vapor respirator with particulate pre-filter.
   ADDITIONAL PROTECTIVE MEASURES: Clean water and soap should be available for washing in case of eye or skin contamination. Educate and train employees in safe use of the product. Follow all label instructions. Launder clothing after use. Wash thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES:
   PHYSICAL FORM: Solid; Powder
   COLOR: Tan
   ODOR: Slightly aromatic
   ODOR THRESHOLD: Not Established
   MOLECULAR WEIGHT: 434.3 (for cyfluthrin)
   pH: 9.2 (1% Solution)
   BOILING POINT: Not applicable
   MELTING/FREEZING POINT: Not applicable
   SOLUBILITY IN WATER: 2 ppb (for cyfluthrin)
   SPECIFIC GRAVITY: Not Applicable
   BULK DENSITY: 20-26 lb/cu-ft
   VAPOR PRESSURE: 3.3 x 10^-8 mm Hg @ 20 °C (for cyfluthrin)

10. STABILITY AND REACTIVITY:
    STABILITY: This is a stable material.
    HAZARDOUS POLYMORIZATION: Will not occur.
    INCOMPATIBILITIES: Alkaline media; reacts with methanol; incompatible with most disinfectants
    INSTABILITY CONDITIONS: Not Noted
    DECOMPOSITION PRODUCTS: Not established

11. TOXICOLOGICAL INFORMATION:
    ORAL LD50: Male Rat: 3084 mg/kg -- Female Rat: 1733 mg/kg
    DERMAL LD50: Male and Female Rabbit: >2000 mg/kg
    INHALATION LC50: 4 hr exposure to Dust: Male and Female Rat: >1.18 mg/l (analytical) -- 1 hr exposure to Dust (extrapolated from 4 hr LC50): Male and Female Rat: >4.72 mg/l (analytical)
    EYE EFFECTS: Rabbit: Mild irritation to the iris and conjunctiva was observed with all irritation resolving within 7 days.
    SKIN EFFECTS: Rabbit: Slight dermal irritant.
    SENSITIZATION: Guinea Pig: Not a dermal sensitizer.
    SUBCHRONIC TOXICITY:
    In a 3 week dermal toxicity study, cyfluthrin was administered to rats for 6 hours/day at dose levels of 100, 340 or 1000 mg/kg. Animals received a total of 17-18 applications in a period of 22-23 days. An additional control and high-dose group were treated and maintained for 14-15 days following treatment so as to ascertain the extent of recovery. Effects observed included reduced feed consumption, red nasal discharge, urine stains, and findings at the dose site (scabbing, crusty, discolored and raised zones). Histologically, epidermal and dermal alterations in treatment skin were observed in animals of the mid- and high-dose groups. Similar, but slightly less severe microscopic alterations were also observed in the high-dose recovery group. The overall NOEL was 100 mg/kg. In a 13 week inhalation study, rats were exposed to cyfluthrin at aerosol concentrations of 0.09, 0.71 or 4.51 mg/m3 for 6 hours/day, 5 days/week. The NOEL was 0.09 mg/m3 based on reduced body weight gains.

    CHRONIC TOXICITY:
    Cyfluthrin has been investigated in chronic feeding studies using two different strains of rats. In each study, cyfluthrin was administered for 2 years at dietary concentrations ranging from 50 to 450 ppm. Body weight gains were decreased at concentrations of 150 ppm and greater. Changes in clinical chemistries occurred at 450 ppm. In one of the studies, histopathology revealed a numerical increase in mammary gland adenocarcinomas at 450 ppm. This finding was not statistically significant when compared to the controls and is not considered to be compound-related. In each study, the overall NOEL was 50 ppm based on decreased body weight gains. In a 1 year feeding study, dogs were administered cyfluthrin at dietary concentrations of 50, 100, 360 or 650 ppm. Beginning on week 8, the high-dose was reduced to 500 ppm for the remainder of the study due to severe clinical neurological symptoms. Body weights were decreased for animals of the high-dose. Neurological findings (gait abnormalities and postural reaction deficits) were observed at doses of 360 and greater. The NOEL was 100 ppm.

    CARCINOGENICITY:
    Cyfluthrin was investigated for carcinogenicity in chronic studies using several different strains of rats and mice. In rats, the maximum level tested was 450 ppm. Maximum levels tested in mice were 1400 and 1600 ppm for males and females, respectively. There was no evidence of a carcinogenic potential observed in any of the strains in either species.
12. ECOLOGICAL INFORMATION:
This material is toxic to fish and highly toxic to bees when exposed to direct treatment or residues. Bayer will provide a summary of specific data upon written request. As with any pesticide, this product should be used according to label directions and should be kept out of streams, lakes and other aquatic habitats of concern. In event of a spill emergency, call 1-800-414-0244.

13. DISPOSAL CONSIDERATIONS
WASTE DISPOSAL METHOD: Follow all federal, state and local regulations. Bury material in EPA-approved landfill or burn in an incinerator approved for pesticide destruction. Do not reuse container.

14. TRANSPORTATION INFORMATION:
TECHNICAL SHIPPING NAME: Cyfluthrin
FREIGHT CLASS BULK: Insecticides, NOI - NMFC 102120
FREIGHT CLASS PACKAGE: Insecticides, NOI - NMFC 102120
PRODUCT LABEL: Not Noted
DOT (DOMESTIC SURFACE): Non-Regulated
IMO / IMDG CODE (OCEAN): Non-Regulated
ICAO / IATA (AIR): Non-Regulated

15. REGULATORY INFORMATION:
OSHA STATUS: This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
TSCA STATUS: This product is exempt from TSCA Regulation under FIFRA Section 3 (2)(ii) when used as a pesticide.
CERCLA REPORTABLE QUANTITY: No components listed.
SARA TITLE III:
SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES: No components listed.
SECTION 311/312 HAZARD CATEGORIES: Immediate Health Hazard
SECTION 313 TOXIC CHEMICALS: Cyfluthrin-CAS# 68359-37-5 (20%)
RCRA STATUS: If discarded in its purchased form, this product would not become a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24) The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

COMPONENT NAME /CAS NUMBER CONCENTRATION STATE CODE
Total crystalline silica (quartz) 14808-60-7 <1 - 7% CA
CA = California Proposition 65
An evaluation of TEMPO 20 WP indicates potential exposure to respirable crystalline silica during normal use poses no significant risk and therefore does not trigger warning requirements as specified under California Proposition 65.
16. OTHER INFORMATION:

NFPA 704M RATINGS:
Health: 2 Flammability: 1 Reactivity: 1 Other:
0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme
Bayer’s method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. NFPA ratings are provided by Bayer as a customer service.

REASON FOR ISSUE: Revise Sections 3 (carcinogenicity & IARC statements); 8 (respirator requirements); 11 (update subchronic, chronic, carcinogenicity, reproduction, & neurotoxicity data); 15 (add state regulatory information); revise to ANSI format

PREPARED BY: V. C. Standart
APPROVED BY: D. C. Eberhart
TITLE: Product Safety Manager
APPROVAL DATE: 09/07/1999
SUPERSEDES DATE: 07/11/1995
MSDS NUMBER: 08265

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