1. IDENTIFICATION

Product name: Trifluralin 4EC Herbicide
Chemical name of active ingredient(s): Trifluralin (α,α,α-trifluoro-2, 6-dinitro-N, N-dipropyl-p-toluidine)
Registrant/Manufacturer: Tenkoz Inc.
100 North Point Center East, Suite 330
Alpharetta, GA 30022

For fire, spill, and/or leak emergencies, contact Infotrac:
Phone: 1-800-535-5053

For medical emergencies and health and safety inquiries, contact Prosar:
Phone: 1-877-250-9291

2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>COMMON NAME</th>
<th>CAS NO.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trifluralin</td>
<td>001582-09-8</td>
<td>42.78%</td>
</tr>
<tr>
<td>Inert Ingredients, Total, Including:</td>
<td>57.22%</td>
<td></td>
</tr>
<tr>
<td>Aromatic 200</td>
<td>064742-94-5</td>
<td></td>
</tr>
<tr>
<td>Contains Napthalene</td>
<td>000091-20-3</td>
<td></td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
Hazardous Chemical. Clear orange liquid with an aromatic odor. May cause eye and skin irritation. LD₅₀ for skin absorption in rats (male and female) is >5000 mg/kg. May cause allergic skin reaction. Oral LD₅₀ for rats is 500 and 5,000 mg/kg (male and female). Inhalation LC₅₀ for rats >2.03 mg/L (male and females). Toxic to aquatic organisms.

POTENTIAL HEALTH EFFECTS: This section includes possible adverse effects, which could occur if this material is not handled in the recommended manner.

EYE: May cause moderate eye irritation. Corneal injury is unlikely.

SKIN: Short single exposure may cause slight skin irritation. May cause drying or flaking of skin. A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts.

INGESTION: Single dose oral toxicity is low. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. If aspirated (liquid enters the lung), may cause lung damage or even death due to chemical pneumonia.

INHALATION: Single exposure to vapors is not likely to be hazardous.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS:
For trifluralin, in animals, effects have been reported on the following organs: blood, kidney, and liver. For the solvent, in animals, effects have been reported on the following organs: lungs, stomach, thyroid gland, and urinary tract. Cataracts and other eye effects have been reported in humans repeatedly exposed to napthalene vapor or dust.

CANCER INFORMATION:
Contains napthalene, which has caused cancer in some laboratory animals. A low incidence of urinary tract tumors was seen in one strain of rat in one chronic study of five 2-year studies on trifluralin conducted in rats; trifluralin is not anticipated to be a carcinogenic risk to man.

TERATOLOGY (Birth Defects): Trifluralin did not cause birth defects; other fetal effects occurred only at doses toxic to the mother.

REPRODUCTIVE EFFECTS: Trifluralin did not interfere with reproduction in animal studies.

4. FIRST AID

IF ON SKIN OR CLOTHING:
- 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.
IF SWALLOWED:
• Call a poison control center or doctor immediately for treatment advice.
• Do not induce vomiting unless told to by a poison control center or doctor.
• Do not give any liquid to the person.
• Do not give anything by mouth to an unconscious or convulsing person.

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

IF INHALED:
• Move person to fresh air.
• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.
• Call a poison control center or doctor for further treatment advice.

Have the product container or label with you when calling a poison control center or doctor or going for treatment.

NOTE TO PHYSICIAN: This product may pose an aspiration pneumonia hazard. Contains petroleum distillate.

5. FIRE FIGHTING MEASURES

FLASH POINT: 210°F, 99°C
METHOD USED: PMCC
FLAMMABLE LIMITS (data based on solvent, 77°F, 25°C)
LFL: 1.8% approximately
UFL: 11.8% approximately
HAZARDOUS COMBUSTION PRODUCTS: Hazardous combustion products may include but are not limited to: nitrogen oxides, carbon monoxide, carbon dioxide and fluorinated hydrocarbons.
EXTINGUISHING MEDIA: Use water, CO2, or dry chemicals.
FIRE-FIGHTING INSTRUCTIONS: Dense smoke emitted when burned without sufficient oxygen. Keep people away. Isolate fire area and deny unnecessary entry. Closed containers may explode due to pressure buildup when subjected to excessive heat or intense fire. Containers exposed to intense heat from fires should be kept cool with water to prevent container weakening or rupture. Move container from fire area if this is possible without hazard. Contain firewater run-off if possible. Firewater run-off if not contained may cause environmental damage.
PROTECTIVE EQUIPMENT FOR FIRE FIGHTERS: Wear positive-pressure self-contained breathing apparatus (SCUBA) and protective fire fighting clothing (includes fire fighting helmet, coat, pants, boots, and gloves).

6. ACCIDENTAL RELEASE MEASURES

ACTION TO TAKE FOR SPILLS/LEAKS: Use non-reactive absorbent material to contain and clean-up small spills. Prohibit use of hot or sparking equipment in immediate area. Prevent runoff.

7. HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:
HANDLING: Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Use only as directed on the label.
STORAGE: Store in original container only. Avoid freezing. Store above 40°F. If frozen, poor weed control may result. Do not store near heat or open flame.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

These precautions are suggested for conditions where a potential for exposure exists. Emergency conditions may require additional precautions.
EXPOSURE GUIDELINES: Aromatic 200 (petroleum solvent): None established. Supplier recommends a guideline of 100 ppm for the total product, which is a mixture of aromatic hydrocarbons.
Naphthalene: ACGIH TLV and OSHA PEL are 10 ppm TWA, 15 ppm STEL (Note: naphthalene is a component of the solvent).
PELs are in accord with those recommended by OSHA, as in the 1989 revision of PELs.
A 'skin' notation following the exposure guideline refers to the potential for dermal absorption of the material. It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposures should be considered.

Revised 11-11-02
ENGINEERING CONTROLS: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required for certain operations, use a NIOSH approved air-purifying respirator.

SKIN PROTECTION: Use gloves impervious to this material.

EYE/FACE PROTECTION: Use chemical goggles.

APPLICATORS AND ALL OTHER HANDLERS: Refer to the product label for personal protective clothing and equipment.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Clear deep orange liquid

ODOR: Aromatic

PHYSICAL STATE: Liquid (23°C)

CHEMICAL FORMULA: C_{13}H_{16}F_3N_3O_4

MOLECULAR WEIGHT: 335.3

RELATIVE DENSITY: 1.12285

pH: 5.59 (25°C)

VISCOSITY: 13.4873 mm²/s (cSt) (22°C)

OXIDATION/REDUCTION: Neither an oxidizing nor reducing agent

FLAMMABILITY-FLASH POINT: None when heated up to 225°F.

10. STABILITY AND REACTIVITY

STABILITY: Stable under normal conditions

MATERIALS TO AVOID: Avoid contact with strong oxidizers. Avoid freezing.

HAZARDOUS REACTIONS: Hazardous polymerization will not occur

HAZARDOUS DECOMPOSITION PRODUCTS: May include but are not limited to carbon dioxide, carbon monoxide, nitrogen oxides, and fluorinated hydrocarbons.

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY/IRRITATION STUDIES:

Oral: LD₅₀: between 500 and 5,000 mg/kg (rat) (male and female)

Dermal: LD₅₀: >5000 mg/kg (rat) (male and female)

Inhalation: LC₅₀: > 2.03 mg/l (rat) (male and female)

Skin irritation: Moderately irritating (rabbit)

Eye irritation: Mildly irritating (rabbit)

Sensitization: Not a contact sensitizer (guinea pig)

MUTAGENICITY: For the major component(s), in-vitro mutagenicity studies were negative. For the active ingredient, animal mutagenicity studies were predominantly negative. For the solvent, animal mutagenicity studies were negative.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE:

MOVEMENT AND PARTITIONING: Based largely or completely on information for trifluralin. Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5). Potential for mobility in soil is slight (Koc between 2000 and 5000). Based largely or completely on information for Aromatic 200. Bioconcentration potential is high (BCF is > 3000 or Low Pow between 5 and 7).

DEGRADATION AND PERSISTENCE: Based largely or completely on information for trifluralin. Based on the stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not under environmental conditions. Based largely or completely on information for Aromatic 200. Biodegradation may occur slowly under aerobic conditions (in the presence of oxygen).

ECOTOXICOLOGY:

Based largely or completely on information for trifluralin.

Revised 11-11-02
Material is very highly toxic to aquatic organisms on an acute basis (LC$_{50}$/EC$_{50}$<0.1 mg/L in most sensitive species).

Based largely or completely on information for Aromatic 200.

Material is highly toxic to aquatic organisms on an acute basis (LC$_{50}$/EC$_{50}$ is between 0.1 and 1mg/L in most sensitive species).

Material is practically non-toxic to birds on a dietary basis (LC$_{50}$ is >5,000 ppm).

Material is practically non-toxic to birds on a dietary basis (LC$_{50}$ is >2,000 mg/kg).

### 13. DISPOSAL CONSIDERATIONS:

**DISPOSAL METHOD:** Do not contaminate food, feed, or water by storage or disposal. Wastes are toxic. Improper disposal or excess waste, spray mixture, or rinsate is a violation of federal law. If wastes resulting from the use of this product cannot be disposed of according to label instructions, dispose of these wastes at an approved facility. Contact your state pesticide or environmental control agency, or the hazardous waste representative at the nearest EPA regional office for guidance.

### 14. TRANSPORT INFORMATION:

**DOT/IATA/IMO CLASSIFICATION:**

RQ, Environmentally Hazardous Substance, Liquid, N.O.S., (trifluralin 43%), 9, UN3082, PG III

**Motor Freight Class:** Class 45617 [Fungicides, Herbicides, Insecticides, or Rodenticides] Class 77.5

### 15. REGULATORY INFORMATION:

**CERCLA Reportable Quantity (RQ):** Trifluralin 10 lbs.

Naphthalene 100 lbs.

**RCRA Waste:** If discarded in its purchased form, this product would not be a hazardous waste either by listing or 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.

**SARA TITILE III**

**Sara (313) Chemicals:** Trifluralin

Naphthalene

**Sara (311, 312):** Immediate (acute) health hazard

Delayed (chronic) health hazard

**California Proposition 65:** Naphthalene

**NFPA Ratings:**

Health 2

Flammability 1

Reactivity 1

### 16. OTHER INFORMATION:

**MSDS ISSUED:** 1-24-05

The information contained herein is given in good faith and is believed to be correct, but no warrant, express or implied, is made.