

# MATERIAL SAFETY DATA SHEET



Emergency Phone: 800-992-5994  
Dow AgroSciences LLC  
Indianapolis, IN 46268

## TENKOZ TRIFLURALIN 4 EMULSIFIABLE CONCENTRATE

Effective Date: 3/30/99  
Product Code: 53010  
MSDS: 005301

### 1. PRODUCT AND COMPANY IDENTIFICATION:

**PRODUCT:** Tenkoz Trifluralin 4 Emulsifiable Concentrate

#### COMPANY IDENTIFICATION:

Dow AgroSciences  
9330 Zionsville Road  
Indianapolis, IN 46268-1189

**INGESTION:** Single dose oral toxicity is considered to be low. Small amounts that might be swallowed incidental to normal handling operations are not likely to cause injury; swallowing larger amounts may cause injury. The oral LD<sub>50</sub> for rats is 3700 mg/kg.

**INHALATION:** Single exposure to vapors is not likely to be hazardous. The LC<sub>50</sub> is 5.59 mg/L for male rats and >6.05 mg/L for female rats for 4 hours.

### 2. COMPOSITION/INFORMATION ON INGREDIENTS:

Trifluralin: alpha,alpha,alpha- CAS# 001582-09-8 43.0%  
Trifluoro-2,6-dinitro-N,N-  
dipropyl-p-toluidine  
Inert Ingredients, total: 57.0%

**SYSTEMIC (OTHER TARGET ORGAN) EFFECTS:** For trifluralin, in animals, effects have been reported on the following organs: blood, kidney and liver. Cataracts and other eye effects have been reported in humans repeatedly exposed to naphthalene vapor or dust.

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

**CANCER INFORMATION:** Contains naphthalene which has caused cancer in some laboratory animals. A low incidence of urinary tract tumors were 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.

### 3. HAZARDOUS IDENTIFICATIONS:

#### EMERGENCY OVERVIEW

Hazardous Chemical. Clear, orange liquid. Aromatic odor. Flash point 210°F. May cause eye irritation. Harmful if swallowed, inhaled or absorbed through skin. May cause skin sensitization in certain individuals. Closed containers may explode due to pressure build-up when subjected to excessive heat or fire. Toxic fumes are released in fire situations. Product is toxic to fish, wildlife, and avian.

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**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 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. The LD<sub>50</sub> for skin absorption in rabbits is >5000 mg/kg. Has caused allergic skin reactions when tested in guinea pigs.

**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:

**EYES:** Irrigate with flowing water immediately and continuously for 15 minutes. Consult medical personnel.

**SKIN:** Wash off in flowing water or shower.

**INGESTION:** If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

**INHALATION:** Remove to fresh air if effects occur. Consult a physician.

**NOTE TO PHYSICIAN:** No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

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### 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, CO<sub>2</sub>, 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 build-up 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 fire water run-off if possible. Fire water run-off if not contained may cause environmental damage.

**PROTECTIVE EQUIPMENT FOR FIRE FIGHTERS:** Wear positive-pressure self-contained breathing apparatus (SCBA) 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 nonreactive absorbent material to contain and clean-up small spills. Report large spills to Dow AgroSciences at 800-992-5594. 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.

**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 glove impervious to this material.

**EYE/FACE PROTECTION:** Use chemical goggles.

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

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### 9. PHYSICAL AND CHEMICAL PROPERTIES:

**BOILING POINT** (solvent): 450 to 527°F, 232 to 275°C  
**VAPOR PRESSURE** (solvent): < 1 mm Hg @ 68°F, 20°C  
**VAPOR DENSITY** (solvent): 4.7 (relative to air)  
**SOLUBILITY IN WATER:** Emulsifies in water  
**SPECIFIC GRAVITY:** 1.12 approximately  
**APPEARANCE:** Clear deep orange liquid  
**ODOR:** Aromatic odor  
**pH:** (aqueous 50/50) 5.0 to 8.0

### 10. STABILITY AND REACTIVITY:

**STABILITY (CONDITIONS TO AVOID):** Stable under recommended storage conditions.

**INCOMPATIBILITY (SPECIFIC MATERIALS TO AVOID):** Avoid contact with strong oxidizers. Avoid freezing.

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

**HAZARDOUS POLYMERIZATION:** Not known to occur.

### 11. TOXICOLOGICAL INFORMATION:

**MUTAGENICITY:** For trifluralin, in-vitro mutagenicity studies were negative. Animal mutagenicity studies were predominantly negative.

### 12. ECOLOGICAL INFORMATION:

#### ENVIRONMENTAL FATE:

**MOVEMENT & 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).

**DEGRADATION & PERSISTENCE:** Based largely or completely on information for trifluralin. Based on the stringent test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

**ECOTOXICOLOGY:** Based largely or completely on information for trifluralin. Material is very highly toxic to aquatic organisms on an acute basis (LC<sub>50</sub>/EC<sub>50</sub> <0.1 mg/L in most sensitive species).

### 13. DISPOSAL CONSIDERATIONS:

**DISPOSAL METHOD:** Do not contaminate food, feed, or water by storage or disposal. Wastes are toxic. Improper disposal or excess pesticide, 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:

Environmentally Hazardous Substance, Liquid.  
N.O.S./(Trifluralin)/9/UN3082/PG III/RQ (Trifluralin).

### 15. REGULATORY INFORMATION:

**NOTICE:** The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations.

### U.S. REGULATIONS

**SARA 313 INFORMATION:** This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	CONCENTRATION
TRIFLURALIN	001582-09-8	43%

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**SARA HAZARD CATEGORY:** This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard  
A delayed health hazard

**TOXIC SUBSTANCES CONTROL ACT (TSCA):** All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

**STATE RIGHT-TO-KNOW:** The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

<u>CHEMICAL NAME</u>	<u>CAS NUMBER</u>	<u>LIST</u>
TRIFLURALIN	001582-09-8	NJ2 NJ3 PA1 PA3

NJ2=New Jersey Environmental Hazardous Substance (present at greater than or equal to 1.0%).  
NJ3=New Jersey Workplace Hazardous Substance (present at greater than or equal to 1.0%).  
PA1=Pennsylvania Hazardous Substance (present at greater than or equal to 1.0%).  
PA3=Pennsylvania Environmental Hazardous Substance (present at greater than or equal to 1.0%).

**OSHA HAZARD COMMUNICATION STANDARD:** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATINGS:**

Category	Rating
Health	2
Flammability	2
Reactivity	1

**COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND):** This product contains the following substance(s) listed as "Hazardous Substances" under CERCLA which may require reporting of releases:

<u>CHEMICAL NAME</u>	<u>CAS NUMBER</u>	<u>RQ</u>	<u>% in PRODUCT</u>
Trifluralin	001582-09-8	10	43%

### 16. OTHER INFORMATION:

**MSDS STATUS:** Changed company name and telephone number  
Revised sections: 2, 3, 6, 7, 8, 10, 14  
Reference DR: 0347-2568  
Replaces MSDS dated: 9/22/97

The Information Herein Is Given In Good Faith, But No Warranty, Express Or Implied, Is Made. Consult Dow AgroSciences For Further Information.