



MATERIAL SAFETY DATA SHEET

Trimaran

1. Identification of the substance and of the Company undertaking.

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Product An emulsifiable concentrate containing Trifluralin.
Product CAS No:
Reference No: 301030D
Use: Herbicide.

2. Composition/Information on ingredients.

Number	Ingredient
1	Trifluralin (α,α,α -trifluoro-2,6-dinitro-N,N-dipropyl-p-toluidine)
2	Anionic/non-ionic surfactant.
3	Aromatic hydrocarbon.

Number	CAS No	Hazard Symbols	R phrases	Concentration	Annex 1 Index
1	1582-09-8	Xi;N	R36, 43, R50/53	480g/l	216-428-8
2		T	R10, 23/25	1 - 5%	
3	64742-95-6	Xn;N	R10, 37, 51/53, 65, 66, 67	45 - 55%	649-356-00-4

3. Hazards Identification.

Flammable.
Harmful by inhalation and if swallowed.
Irritating to eyes.
Irritating to respiratory system.
May cause sensitisation by skin contact.
Harmful: may cause lung damage if swallowed.
Very toxic to aquatic organisms, may cause long term effects in the environment.
Repeated exposure may cause skin dryness and cracking.

4. First Aid Measures

Inhalation:	Remove to fresh air. Keep patient in half-upright position. If patient is unconscious put in lateral recovery position. Apply artificial respiration if breathing shows sign of failing. Seek medical attention.
Skin Contact:	Remove contaminated clothing. Wash off immediately with plenty of soap and water. Seek medical attention if there are persistent problems.
Eye Contact:	Irrigate eye with eyewash solution or clean water, holding the eyelids apart for at least 15 minutes. Continue irrigation until medical attention is obtained.
Ingestion:	Keep patient at rest in half-upright position. Rinse mouth out with plenty of water. If patient is unconscious put in lateral recovery position. Seek medical advice immediately. Decision on inducing vomiting should be made by an attending physician. Aspiration during ingestion or vomiting can result in serious lung damage.
Advice for Medical Practitioners:	Treat symptomatically.

5. Fire-Fighting Measures

Suitable Extinguisher:	Dry chemical, water spray, foam, carbon dioxide. Take measures to prevent water from entering drains or water courses.
Unsuitable Extinguisher:	None known.
Special Exposure Hazards:	Flammable liquid - May form flammable/explosive vapour mixtures with air. Toxic and irritating fumes may be given off. Electrostatic charges may be generated during handling.
Protective Equipment:	Chemical resistant clothing. Self contained breathing apparatus with full face shield.

6. Accidental Release Measures

Personal Precautions:	Chemical resistant clothing. Rubber gloves. Full face shield with suitable respiratory protective equipment.
Environmental Precautions:	Do not allow to enter drains or water courses. Advise relevant authorities in case of contamination of public waters.
Methods For Cleaning:	Contain spill and absorb with sand or propriety absorbent (vermiculite). Collect contaminated material in heavy duty plastic bags or drums. Dispose of through a reputable waste disposal contractor. Final cleanup with degreasing agent or detergent is advised. In the event of spillage's entering drains or water courses, inform the local Water Services Company and The Environment Agency immediately.

7. Handling and Storage

Handling	Handle only in well ventilated areas. Provide adequate ventilation if fumes or vapours are likely to be evolved. Keep away from sources of ignition. Avoid contact with naked flames and hot surfaces. When using do no smoke.
Storage:	Keep container tightly closed in a well ventilated place. Keep only in original container.

8. Exposure Controls/Personal Protection

Take Measures to Prevent:	Contact with skin, eyes and clothing.
Exposure Control Limits:	No occupational exposure limits, for the product, have been established in EH 40. The solvent manufacturer recommends a TWA of 100mg/m ³ (19ppm) for the solvent. TWA (8hr) for the solvent = 25ppm (150mg/m ³)
Respiratory Protection:	In areas of poor ventilation use CN510 (Class FFP1) combi type respirator.
Hand Protection:	Nitrile or rubber gloves.
Skin Protection:	Protective overalls ensuring arms and legs are covered.
Eye Protection:	Goggles or safety glasses.

9. Physical and Chemical Properties

Appearance:	An orange liquid.
Odour:	Organic solvent.
pH:	Non aqueous.
Boiling Point:	
Flash Point (Open or Closed):	>41°C (41°C for the solvent)
Flammability (gas/solid):	Flammable.
Autoflammability:	Not known.
Explosive Properties:	Explosion limits for the solvent 0.8- 7.0vol%
Oxidising Properties:	Not known.
Vapour Pressure:	Not known.
Density:	1.05kg/m ³
Solubility:	Forms an emulsion with water.
Viscosity:	No data available.
Octanol/water co-efficient:	logP = 4.83 @ 20°C (Trifluralin)
Vapour Density:	No data available.
Evaporation rate:	No data available.
Other Properties:	

10. Stability and Reactivity

Conditions to Avoid:	Strong acids, strong bases and oxidising agents.
Materials to Avoid:	Stable under normal conditions of storage and use.
Hazardous Decomposition	Toxic and irritating fumes.

11. Toxicological Information

Acute Toxicity:	The following information applies to the active ingredients:- Trifluralin. LD50 oral, rat > 5000mg/kg LD 50 dermal, rabbit >5000mg/kg LC50(4hr) inhalation rat >4.8mg/l
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Not carcinogenic.
Not mutagenic.

Irritation: Irritating to eyes and respiratory system.
Sensitisation: May cause sensitisation by skin contact.

12. Ecological Information

Biological Degradability: Trifluralin is not readily biodegradable. (logP > 3)
Ecotoxicity: The following information applies to the active ingredients:-

Trifluralin
LC50 (96hr) Young rainbow trout = 0.088mg/L
LC50(48hr) Daphnia = 0.245mg/L
EC50 7d) Algae = 12.2mg/L
LD50 bobwhite quail > 2000mg/kg.
Not toxic to bees.

Solvent.
Toxic to aquatic organisms, may cause long term effects in the environment.

13. Disposal Considerations

Safe Handling of Residues/Waste: Controlled incineration or burial in a specially designated landfill without contaminating water sources. Always dispose of in accordance with local regulations.

Packaging should be disposed of as the product. Always dispose of in accordance with local regulations.

14. Transport Information

Special Transport Precautions:

Road Classification: UN 1993 Flammable liquid n.o.s, (aromatic hydrocarbon 45-55%).
Class 3 Packing group III

Maritime Classification: UN 1993 Flammable liquid n.o.s, (aromatic hydrocarbon 45-55%).
Class 3 Packing group III
label Flammable liquid + Marine pollutant.

Air Classification: UN 1993 Flammable liquid n.o.s, (aromatic hydrocarbon 45-55%).
Class 3 Packing group III

15. Regulatory Information

Label Information: This product is classified under European Directive 99/45/EC.

Hazard symbols Xn: N

Risk phrases.
R10 - Flammable.
R20/22 - Harmful by inhalation and if swallowed.
R36 - Irritating to eyes.
R37 - Irritating to respiratory system.
R43 - May cause sensitisation by skin contact.
R50/53 - Very toxic to aquatic organisms, may cause long term effects in the environment.
R65 - Harmful: may cause lung damage if swallowed.
R66 - Repeated exposure may cause skin dryness and cracking.
R67 - Vapours may cause drowsiness and dizziness.

Safety phrases.

S24 - Avoid contact with skin.

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S37 - Wear suitable gloves.

S62 - If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

16. Other Information

This MSDS supersedes revision 2, dated 10/04/98.

Sections revised:- All sections.

This Material Safety Data Sheet was compiled in compliance with Council Directive 91/155/EEC and their subsequent amendments.

The information given herein is, to the best of our knowledge, correct and is given in good faith but no warranty, expressed or implied, is given.