



MATERIAL SAFETY DATA SHEET

NOGRASS[®] 378EC

ASTRA INDUSTRIAL COMPLEX CO., LTD. (ASTRACHEM)
P.O. Box 30447, AL-KHOBAR 31952
KINGDOM OF SAUDI ARABIA

1. PRODUCT IDENTIFICATION

Product Name: NOGRASS[®] 378EC

Chemical Class: aryloxyphenoxypropionate (diphenyl compound)

Use: Nograss 378EC is an emulsifiable concentrate herbicide formulation. Containing 378 g/L of the active ingredient of Diclofop-methyl which is diphenyl compound. It is used as a grass herbicide with contact action, absorbed primarily by the leaves, with some absorption by the roots in moist soil.

Producer: Astra Industrial Complex Co., Ltd.
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2. COMPOSITION / INFORMATION ON INGREDIENTS

Substance	Proportions (% w/w)	Chemical structure
Diclofop-methyl CAS No. 51338-27-3 Chemical Name: (RS)-2-[4-(2,4-dichlorophenoxy) phenoxy] propionic acid	39.6 (378 ±19 g/L)	 <chem>CC(=O)OC(C)Oc1ccc(Oc2ccc(Cl)c(Cl)c2)cc1</chem>
Blend of ionic and non ionic emulsifiers	5.9	
Organic solvents	54.6	



3. HAZARD IDENTIFICATION

Signs of Poisoning:

Symptoms of acute exposure include severe headaches, fatigue, nausea and anorexia. Severe cases of direct contact cause blurred vision, tightness in chest and convulsions.

Effects of single over exposures:

Ingestion:

Accidental or deliberate ingestion could cause neurological signs and symptoms such as ataxia and convulsions.

Skin Absorption:

May cause irritation, and facial skin sensations.

Inhalation:

May cause irritation to the respiratory system.

Eyes:

May cause eye irritation.

4. FIRST AID MEASURES

Emergency and First aid Procedures

Ingestion:

Call a physician or poison control center. Do not induce vomiting. Do not give anything by mouth to an unconscious person.

Skin:

Wash affected area with plenty of soap and water. Remove contaminated clothing. Launder contaminated clothing separately. Get medical attention.

Inhalation:

Remove victim to fresh air. If not breathing administer artificial respiration. Avoid unprotected mouth to mouth resuscitation. GET MEDICAL ATTENTION.

Eye:

Hold eyelids open and flush with a steady stream of water for at least 15 minutes. GET MEDICAL ATTENTION.



5. FIRE FIGHTING MEASURES

Fire and Explosion:

Flash point 29°C
Flammable

Extinguishing Media:

Use carbon dioxide or dry chemical for small fires and water fog or foam (alcohol, polymer or ordinary) for large fires. Cool containers from maximum distance.

Special fire fighting procedures:

Use dry chemical powder, foam or CO₂. In case of fire, fire fighters should use self-contained breathing apparatus

Unusual fire and explosion hazards:

Noxious fumes may be emitted under fire conditions.

6. ACCIDENTAL RELEASE MEASURES

Steps to be taken if material is released or spilled:

Dike the area using absorbent materials such as sand or clay. Recover and contain as much product as possible using absorbent. Clean spill area using a solution of water and detergent. Collect and contain wash water and all contaminated absorbent for disposal. If spilled on the ground, the affected area should be excavated to a depth of 1-2 inches. Prevent the spilled product or washing from reaching public sewers or waterways. Wear appropriate protective equipment during the cleanup. Ensure that tools and equipment are adequately decontaminated.

Waste disposal method:

Dispose of in accordance with local regulations.

Container disposal:

Dispose of in an approved facility according to local regulations.

Spillage/Disposal:

In case of spillage collect the spill with saw dust or any absorbing material and dispose of as toxic waste.



7. HANDLING AND STORAGE

This product should be stored in a cool, dry well-ventilated fire free area. Secure area out of reach of children and domestic animals. Do not use or store near heat or open flame. Do not store food or feed in storage area. It should not be stored at temperature below -7°C. Prevent eating, drinking or smoking in areas where there is a potential exposure to the product. Wash hands before eating, drinking or smoking after using the product.

8. EXPOSURE CONTROLS / PERSONNEL PROTECTION

Protective equipment should be used during the following procedures:

- Manufacture, formulation or application of this product.
- Repair and maintenance of contaminated equipment
- Clear up of leaks and spills.
- Any other activity that may result in hazardous exposures.

Respiratory Protection:

Use MSHA/NIOSH approved respirator for organic vapors. Use positive pressure contained breathing apparatus where emergency conditions or where exposure limits are exceeded.

Ventilation:

Exhaust appropriate for removal of vapors.

Protective clothing:

Chemical resistant gloves, coveralls, apron and foot coverings.

Eye Protection:

Safety goggles or face shield.

User safety recommendations:

Safety showers and eye wash should be easily accessible.

Personnel Protection:

The following protective apparel must be worn during loading and mixing operations.

1. Gloves
2. Waterproof boots
3. Goggles
4. Cartridge type respirator



9. PHYSICAL AND CHEMICAL PROPERTIES

Assay	"Diclofop-methyl" 378 ± 19 g/L
Appearance	Dark brown liquid
Density	1.027 ± 0.006 Kg/L
Flash point	29.0°C
Acidity as H ₂ SO ₄	< 2.0 g/Kg
Water Contents	< 5.0 g/Kg
Solubility in Water:	Forms emulsion

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Condition to avoid	Excessive heat.
Materials to avoid:	Strong oxidizers, acids, and alkalis.
Hazardous polymerization	will not occur

11. TOXICOLOGICAL INFORMATION

Toxicology Data (Technical Active ingredient):

Acute Oral LD ₅₀ (rat)	481-693 mg/kg
Acute Inhalation LC ₅₀ (4 h rat)	1.36 mg/l air
Eye Irritation (rabbit)	Irritating to eyes
Skin (rabbit)	No skin irritation

Teratogenic Effects

In a rat teratology study, the teratogenic No-Observable-Effect-Level (NOEL) was 100 ppm, the highest dose tested.

A rabbit teratology study reported a teratogenic NOEL of 3 mg/kg/day, the highest dose tested, and a NOEL for fetotoxicity of 3.0 mg/kg/day.

Mutagenic Effects

Ames assay testing revealed no mutagenic effects in dose ranges up to 5 milligrams.

A micronucleus test in mice indicated no mutagenic effect in a strain with known sensitivity. In a dominant lethal assay, the NOEL was greater than 100 mg/kg..

12. ECOLOGICAL INFORMATION

Keep out of water supplies ground water or open water. This product is toxic to bees, fish and other aquatic life.



13. DISPOSAL CONSIDERATION

Pesticide waste are toxic. Do not reuse product containers. Dispose of product containers, waste containers and residues according to local health and environmental regulations.

14. TRANSPORT INFORMATION

Proper Shipping Name	Environmentally hazardous substances, Herbicide/ Diclofop-methyl.
Class	6.1
Un Number:	UN 2903
Packing Group	III
Marine Pollutant	Yes

15. REGULATORY INFORMATION.

Herbicide Product

16. OTHER INFORMATION

Buyer assumes all responsibility for safety and use not in accordance with the product label instructions.