ASTRA INDUSTRIAL COMPLEX CO., LTD. (**ASTRACHEM**)
P.O. BOX 30447, AL-KHOBAR 31952
KINGDOM OF SAUDI ARABIA
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MATERIAL SAFETY DATA SHEET

PRE PLANT® 480EC

ASTRA INDUSTRIAL COMPLEX CO., LTD. (**ASTRACHEM**)
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1. PRODUCT IDENTIFICATION

Product Name: ***PRE-PLANT® 480EC***

Chemical Class: dinitroaniline

Use: **Pre-Plant** 480EC is a pre-emergence herbicide for the control of annual grases and certain broadleaf weeds in certain horticultural and agricultural crops.

Producer: **Astra Industrial Complex Co., Ltd.**
P.O. Box 30447, Al-Khobar 31952
Kingdom of Saudi Arabia
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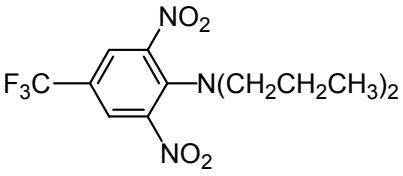
2. COMPOSITION / INFORMATION ON INGREDIENTS

Substance	Proportions (% w/w)	Chemical structure
***Trifluralin Tech* 96 %** **CAS No.** 1582-09-8 **Chemical Name**: α,α,α-trifluoro-2,6-dinitro-*N,N*-dipropyl-*p*-toluidine *(IUPAC)*	47.99 (480 ± 24 g/L)	
Blend of anionic and nonionic emulsifiers	5.76	
Organic solvents	46.25	

3. HEALTH HAZARD IDENTIFICATION

Acute Effects:

Swallowed:

The active ingredient in the concentrate is of low toxicity. However, the solvent can be of concern if vomiting has occurred; aspiration of the vomit into the lungs can cause mild to severe pulmonary injury and possibly death.

Inhalation:

High vapor concentrations of the solvent while handling the concentrate are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, can be anaesthetic and may have other central nervous system effects. Avoid working in, or inhaling spray mist.

Eye:

The concentrate may cause irritation and pain, but no serious damage is expected.

Skin:

The concentrate is not considered a serious toxic hazard. Prolonged or repeated contact with the concentrate can cause defatting of the skin leading to secondary dermatitis.

Chronic Effects:

No chronic effects of trifluralin exposure have been documented in the literature over many years of use.

Other Health Hazard Information:

Trifluralin is colored and will strongly stain skin and clothing. If skin has been exposed to the product, through washing with soap and water will remove any excess product. The color on the skin is not deep and will naturally disappear over a few days.

4. FIRST AID MEASURES

Exposure:

In all cases consult a doctor!

Swallowed:

Do not induce vomiting.

Give plenty of milk or water and seek medical help.

Eye:

Irrigate with copious amounts of water for at least 15 minutes with eyelid held open

Skin:

Wash thoroughly with soap and water. Remove contaminated clothing and launder before re-use.

Inhalation:

Remove victim to fresh air until recovered, If not breathing, give artificial respiration.

Advice to doctor:

Treat symptomatically mainly for hydrocarbon solvent ingestion. If product has been aspirated into the lung (e.g. from vomiting), consider the possibility of chemical pneumonitis.

5. FIRE FIGHTING MEASURES

Flammability:

Flammable

Fire and Explosion Hazards:

If involved in a fire, products of combustion may include hydrogen fluoride, oxides of nitrogen, possibly cyandies.

Fire Fighting Instructions:

The use of breathable air appearatus is indicated if fighting fires that involves this product, especially if fighting in confined spaces

Extinguishing Media:

Alcohol foam, dry chemical, carbon dioxide, and water fog. The product is a total herbicide, contain fire water and keep from entering waterways, sewers, drains etc.

Protective Equipment:

Long sleeve shirt and long pants. Chemical resistant gloves. Shoes and socks. Protective eyewear.

6. ACCIDENTAL RELEASE MEASURES

Environment:

Do not contaminate dams or waterways with product or empty containers. The product is a total herbicide. After use, wash out equipment thoroughly and ensure that it is clean before using the equipment for any other purpose. Do not use in high winds or in locations where spray drift can cause damage to desirable vegetation. Trifluralin degrades in soil at a relatively moderate rate, about 85 – 90 % of the material is lost in normal soil in 1/2 to 1 year.

7. SAFE HANDLING INFORMATION

Storage:

Store below 35^{o}C
Store container tightly sealed and does not store with foods, seeds, fertilizers or other pesticides.

Pre-Plant 480EC should be transported its original labeled, tightly closed container and stored in a dry well ventilated store at room temperature and away from direct sunlight. It should also be kept away from children, animals, food, feed and drinks and unauthorized personnel. Personnel involved in handling this material should wear protective gloves, clean protective clothing and a facemask.

Transport:

Considered non-hazardous for transport

Packing and Labeling: WARNING
KEEP OUT OF REACH OF CHILDREN
READ SAFETY DIRECTIONS BEFORE OPENING
The product has been assessed according to the work safe criteria for classifying hazardous substances and is classified as not hazardous.

8. EXPOSURE CONTROLS / PERSONAL MEASURES

Exposure Standards:

No exposure limits have been set for this product.
The supplier of the solvent has set a company limit of 100ppm TWA for the solvent.

Engineering Controls:

Natural ventilation only required. When handling the concentrate in confined spaces it is advisable to use some forced ventilation to avoid building-up of solvent vapours that may make working conditions unpleasent

Personnel Protection:

Avoid contact of product with eyes or skin. When preparing product for use, wear cotton overalls buttoned to the wrist and neck, washable hat, elbow length PVC gloves and fact shield. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each days use, wash contaminated clothing, gloves and face shield. Wash concentrate from skin and eyes immediately. Avoid working in and breathing spray mist

9. PHYSICAL AND CHEMICAL PROPERTIES

Assay	"Trifluralin" 480 ± 24.0 (g/L)
Appearance	Light Red Liquid free of visible impurities
Odour	Slightly Aromatic
Density	1.054 ± 0.006 (Kg/L)
Acidity as H2SO4	<5.0(g/Kg)
Water Contents	<2.0(g/Kg)
Flash Point	33.5°C
Flammability	Flammable
Explosivity	Not Explosive
Corrosivity	Corrosive to iron
Solubility in Water	Forms emulsion

10. STABILITY AND REACTIVITY

Reactivity Data:

Store away from strong oxidizing agents, may react violently.

Polymerization is not possible.

Prolonged reaction with water can cause slow decomposition and the formation of acid which may attack drums. If a part open drums is to be stored, ensure that no water has been added to the drum.

11. TOXICITY DATA

Trifluralin Technical

Acute LD_{50} oral, rat	<10,000 mg/Kg
Acute LD_{50} oral mouse	5,000 mg/Kg

In 2 year feeding trails, rats receiving 2000 mg/Kg diet and dogs at 1000 mg/Kg diet suffered no ill effects.

An impurity di-n-propylnitrosamine, a known carcinogen, present in crude trifluralin at about 80 – 100 ppm. Experimentation with trifluralin on mice and rats given high doses of material containing 1 ppm or less of di-n-propylnitrosamine have not shown any tumor formation. Daily doses for rats were 202 – 392 mg/Kg/day and for mice 256 – 664 mg/Kg/day. Thus trifluralin itself is considered to be non carcinogenic. Trifluralin (technical) used is manufactured to comply with a maximum limit of 0.5 ppm di-n-propylnitrosamine. Generally, the levels are not detectable at a detection limit of.2 ppm

Toxicity to fish:

LC_{50} (96 hrs) for bluegill fingerlings is 0.089 mg/L

Acceptable Intack (ADI) of trifluralin for a human is 0.02 mg/kg/day, set for the public for daily, lifetime exposure. This is based on the NOEL of 2.5 mg/kg/day, the level determined to show no effects during long term exposure for most sensitive indicators and the most sensitive species.

12. ECOLOGICAL INFORMATION

Trifluralin Technical

Effects on birds

Trifluralin is practically nontoxic to birds The LD_{50} in bobwhite quail is greater than 2000 mg/kg, as it is in female mallards and pheasants. These values are for the technical product.

Effects on aquatic organisms

Trifluralin is very highly toxic to fish and other aquatic organisms

Effects on other organisms:

At exposure levels well above permissible application rates (100 mg/kg), trifluralin has been shown to be toxic to earthworms. However, permitted application rates will result in soil residues of approximately 1 ppm trifluralin, a level that had no adverse effects on earthworms. It is nontoxic to bees

13. DISPOSAL CONSIDERATIONS

Spills and Disposal:

Contain spill and absorb with sand or other solid absorbent. Collect in sealed open-top containers for disposal. Prevent from entering drains, sewers, waterways.

Triple rinse empty containers and add rinstate to spray tank. Puncture top, sides and bottom and dispose of in landfill in accordance with local regulations. On-site disposal of the concentrate is not acceptable.

The product will emulsify in water forming a yellow, milky emulsion.

14. TRANSPORT INFORMATION

Proper Shipping Name: Herbicide, Liquid; Flammable

15. REGULATORY INFORMATION.

Herbicide for Agricultural use

16. OTHER INFORMATION

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