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READ THE ENTIRE LABEL BEFORE USING THIS PRODUCT.

USE ONLY IN ACCORDANCE WITH INSTRUCTIONS.

KEEP OUT OF REACH OF CHILDREN

STABOR 480



INGREDIENTS

Alachlor48%
Other ingredients52%

STABOR 480 is an acetanilide herbicide of low acute toxicity and contains as its active ingredient Alachlor.

Selective pre-emergence and post-emergence herbicide effective in the control of most grasses, most annuals and some broad leaved plants in corn, soybean and other crops.

Trade names: AlanexR; LassoR; LazoR; MicrotechR; PillarzoR.

What is STABOR 480 and how does it work?
STABOR 480 is an acetanilide herbicide of low acute toxicity. Repeated exposure has been reported to cause hepatotoxicity, irreversible uveal degeneration and tumour formation in rats. Low to moderate leaching potential in soil and good translocation in plants demand careful adherence to good agricultural practices to avoid potential contamination of food and water resources.

Key Benefits of STABOR 480:

1. Selective pre-emergence and post-emergence herbicide
2. Effective in the control of most grasses, most annuals

PRECAUTIONS

STABOR 480 is an acetanilide herbicide of low acute toxicity but is considered a possible human carcinogen. It has the potential to be absorbed from the gastrointestinal tract and across intact skin. It is important that contamination be washed from the skin as STABOR 480 is a sensitizer following repeated dermal exposure. Avoid contact with skin, eyes or clothing. Avoid breathing dust or vapor. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse. Keep children or pets away from treated area until dry.

SYMPTOMS OF POISONING

No reported cases but symptoms of poisoning would probably include nausea, vomiting, dizziness. Collapse and coma may occur in severe poisoning. Dermal irritancy and allergic dermatitis may be seen in susceptible individuals following exposure to spray-mists, liquids or particulates.

MEDICAL TREATMENT

Treatment is symptomatic.

FIRST AID

Treatment before person is seen by physician if symptoms appear following exposure: The person should stop work immediately, remove contaminated clothing and wash the affected skin with water (and soap if available) and flush the area with large volumes of water. If the eyes are affected they should be thoroughly washed with large volumes of clean water. Vomiting should not be induced following ingestion of emulsifiable concentrate formulations, but may be induced in a fully conscious person, if granule formulations have been ingested. In the event of collapse, artificial respiration should be given.

Following dermal or oral exposure treatment is symptomatic. Vomiting should not be induced following ingestion of emulsifiable concentrate formulations unless the risk of pulmonary complications from the accompanying solvents can be avoided. Activated charcoal may be given to reduce the extent of absorption. Residues must be thoroughly washed from skin and eyes. Treatment is symptomatic for irritation or allergic dermatitis.

DIRECTIONS OF USE

Used on soybean, brassica, maize, sugar-cane and cotton crops as a pre-planting application or as a post-emergence at the 1-2 leaf stage. Requires moisture for activation. Emulsifiable concentrates are frequently tank-mixed with other

herbicides and fertilizers.

STABOR 480
2.5-3 lb a.i.
2.5-3 qt

COMMENTS: Preplant incorporate. Injury may occur under cold, wet soil conditions.

Unintended effects:

Phytotoxic to sugar beet and cucurbits.

DISPOSAL METHODS

Do not dispose of undiluted chemicals on site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush, or puncture and bury empty containers in a local authority landfill. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt.

STORAGE CONDITION

Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight. Store in a locked room or place away from children, animals, food, feedstuffs, seed and fertilizers. Triple or preferably pressure rinse containers before disposal. Add rinsing to spray tank.

For More Details including effects on environment email contact@ivorychem.com with Subject "STABOR 480 DETAILS"

More Details:

TOXICOLOGICAL EFFECTS

- **Toxicology – Mammals: Absorption route:** Alachlor is readily absorbed from the gastrointestinal tract and, to a lesser extent from the skin. No published data are available on the extent of absorption following inhalation exposure.
- **Mode of action:** No published information available.
- **Excretion products:** Metabolism of alachlor in the rat is fairly rapid and complex because of extensive enterohepatic recirculation. Excretion is primarily as mercapturic acid, glucuronide and sulphate conjugates in the urine and faeces. Approximately 89% of an oral dose is recovered in the urine and faeces within 10 days. However, a significant portion is

eliminated in 48 hours. Elimination is characterized in 2 phases: a rapid phase with a half-life of 0.2 to 10 hours, a slow phase with a half-life of 5-16 days. Urinary excretion accounted for some 50% of the total and elimination as CO₂ is minimal. In contrast, metabolism in the monkey is less complex; more than 90% of an intravenous dose is recovered in the excreta within two days. Approximately 90% of the total is recovered in the urine.

- **Toxicity, single dose:** Oral LD₅₀, Rat 930 - 1360 mg (technical)/kg b.w. Dermal LD₅₀, Rabbit 13,300 mg (technical)/kg b.w. In rats exposed to lethal amounts of alachlor, death was preceded by weakness, salivation, tremors, collapse and coma.
- **Primary irritation:** A slight irritant effect on rabbit skin and eyes was observed following acute exposure. Alachlor was a skin sensitizer in repeated exposures (see Section 2.1.5).
- **Toxicity, repeated dose:** Dermal: A strong dermal sensitization was seen in guinea-pigs challenged with a dermal dose two weeks after four dermal applications of alachlor.
- **Accumulation of compound:** Pharmacokinetic and metabolism studies indicate that alachlor does not bioaccumulate following repeated administrations.
- **Dietary studies:** Short-term: Ninety-day administration of 200 mg/kg diet had no adverse effect on rats or dogs. At 2000 mg/kg diet some reduction in the growth rate was observed. In dogs dietary exposure to doses of 5-75 mg/kg b.w./day for six months induced hepatic fatty degeneration and biliary hyperplasia in both sexes at doses, 25 mg/kg b.w./day. An increase in absolute and relative liver weights was observed, 5 mg/kg b.w./day in male dogs and, 25 mg/kg b.w./day in females.
- **Long-term:** A two year feeding study at levels equivalent to 14-126 mg/kg b.w./day produced toxicity in Long Evans rats at all dose levels. The major lesions were uveal degeneration and hepatotoxicity. Examination of a satellite 126 mg/kg b.w./day dose group, following exposure for less than a life-time demonstrated that the ocular condition, once established, was irreversible. In a second two year dietary study in rats a no-effect level for uveal degeneration was established as 2.5 mg/kg b.w./day for rats. In a one-year

study in dogs by the oral route a no-effect-level of 1 mg/kg b.w. was established.

- **Carcinogenicity:** In an 18 month feeding study with technical alachlor (26, 78 and 260 mg/kg b.w./day) an increased incidence of bronchio-alveolar tumours was observed in female CD-1 mice at 260 mg/kg b.w./day (the highest dose tested). No significant increase in tumour incidence was reported in male mice or in females at lower doses. The incidence of these tumours in the control group (female) was unusually low in comparison to historical control values and therefore, the lung adenomas were not considered to be treatment related. Two chronic feeding studies were conducted with alachlor in Long-Evans rats. The feeding levels used in the first study were equivalent to 14, 42 and 126 mg/kg b.w./day for 2 years. A dose-related increase was observed for nasal turbinate adenomas in both sexes. A significant increase in the incidence of malignant stomach tumors was also observed in both sexes at the highest feeding concentration. In addition, follicular cell tumours were increased in the thyroid of the male rats exposed to the highest dietary concentration. In the second study a complex dosing regimen was introduced: 126 mg/kg b.w./day for 5 to 6 months for some of the animals, the others remaining exposed for 2 years. In a second phase of the study, groups of rats received diets containing equivalents of 0.5, 2.5 and 15 mg/kg b.w./day for 2 years. The incidence of nasal turbinate adenomas was significantly elevated at 126 mg/kg b.w./day in both sexes. Malignant stomach tumours were also noted in females at this dose level. In addition, the follicular tumours of the thyroid were even more pronounced than in the first study.
- **Teratogenicity:** No teratogenic effect was observed following gavage administration of up to 400 mg/kg b.w./day to rats. A no effect level of 150 mg/kg b.w./day was established for maternal and foetotoxicity.
- **Mutagenicity:** Chromatid-type aberrations were observed in the bone-marrow of Wistar rats following a single intraperitoneal injection of 2.5 mg/kg b.w. of alachlor of an unspecified source. In a similar study, using technical alachlor, chromatid aberrations were not observed in rats at doses up to 1000 mg/kg b.w. No clastogenic effect was observed in Wistar rats following 280 days administration of 200 mg/kg diet. Cultured human lymphocytes showed a dose-dependent increase in aberrations following *in vitro* incubation at concentrations of 2-40 mg/litre. Alachlor was not mutagenic with or without metabolic activation in *Escherichia coli*, or in several strains of *Salmonella typhimurium*. Commercial grade alachlor was mutagenic without metabolic activation in *Saccharomyces cerevisiae* D4; technical alachlor only showed mutagenic activity in this strain following metabolic activation by *Zea mays* extract.
- **Reproduction:** A three generation reproduction study in rats gave a no-effect level of 10 mg/kg b.w./day. A dose of 30 mg/kg b.w./day caused renal toxicity in the adult F2 males and the F3 pups. The condition was characterized by discolouration of the kidneys, chronic nephritis and increased absolute and relative kidney weights.
- **Other:** Following administration of 14C-labelled alachlor to rats, radioactivity was observed in those organs with high blood perfusion and also in the eyes, brain, stomach and ovaries.
- **Toxicology – Man: Absorption:** Alachlor has the potential to be absorbed from the gastrointestinal tract and from intact skin. There are no published data available on the extent of absorption following inhalation exposure in man or animals.
- **Dangerous doses:** No published information available.
- **Observations on occupationally exposed workers:** No published information available.
- **Observations on exposure of the general population:** No published information available. If not used according to manufacturers' recommendations, the relative stability of alachlor could lead to contamination of foodstuffs, ground and surface waters.
- **Observations on volunteers:** Patch-tests with LassoR revealed that 5/21 volunteers showed a sensitization reaction to alachlor. All volunteers were agricultural workers, although three of the five sensitized subjects had no history of direct exposure to alachlor.
- **Reported mishaps:** No published information available.
- **Toxicity - Non-Mammalian Species:**
Fish: aquatic organisms. LC50 96 hour - Bluegill sunfish 2.8 mg/litre (technical).

Fathead minnow 5.0 mg/litre (technical).
Rainbow trout 1.8 mg/litre (technical).
EC50 (48h) - Daphnia magna 10 mg/litre (technical). **Birds:** Acute LD50 Bobwhite quail 1536 mg/kg. LC50 (5 day) Mallard duck 5000 mg/kg diet. Bobwhite quail 5000 mg/kg diet

ECOLOGICAL EFFECTS

- **Effects on birds:** Alachlor is slightly to practically nontoxic to wildfowl. Alachlor has a 5-day dietary LC50 of greater than 5000 ppm in young mallard ducks and bobwhite quail [58]. The LD50 of alachlor in other mallard ducks was greater than 2000 mg/kg [63]. The LC50 of alachlor in pheasants is greater than 10,000 ppm [8].
- **Effects on aquatic organisms:** Alachlor is moderately toxic to fish. The LC50 (96-hour) for alachlor is 2.4 mg/L in rainbow trout, 4.3 mg/L in bluegill sunfish, 6.5 mg/L in catfish, and 4.6 mg/L in carp [1,8]. It is only slightly toxic to crayfish, with a LC50 (96-hour) of 19.5 mg/L [8,37]. The bioaccumulation factor in the channel catfish is 5.8 times the ambient water concentration, indicating that alachlor is not expected to accumulate appreciably in aquatic organisms [8].
- **Effects on other organisms:** Alachlor is not toxic to bees. It is practically nontoxic to earthworms [61].

ENVIRONMENTAL FATE

- **Breakdown in soil and groundwater:** Alachlor has a low persistence in soil, with a half-life of about 8 days [1,8]. The main means of degradation is by soil microbes [58]. It has moderate mobility in sandy and silty soils, and thus can migrate to groundwater [60]. The largest groundwater testing program for a pesticide, the National Alachlor Well Water Survey, was conducted throughout the last half of the 1980s. Over 6 million private and domestic wells were tested for the presence of alachlor. Less than 1% of all of the wells had detectable levels of alachlor [64]. In the wells where the compound was detected, concentrations ranged from 0.1 to 1.0 ug/L, with the majority having concentrations around 0.2 ug/L [64].
- **Breakdown in water:** Alachlor breaks down rapidly in natural water, primarily due to the action of microorganisms. The breakdown rate is much slower in water with no oxygen [58].

- **Breakdown in vegetation:** Absorption is primarily by germinating shoots and it is readily translocated throughout the plant [37]. Higher concentrations appear in the vegetative parts than in the reproductive parts of the plant. Alachlor is rapidly metabolized to water-soluble products in plants [19]. It is almost completely metabolized within 10 days [8].

PHYSICAL PROPERTIES AND GUIDELINES

Physical Properties:

- **Appearance:** Alachlor is a white or cream, combustible crystalline solid without odour.
- **Chemical Name:**
- **IUPAC name:** 2-chloro-2',6'-diethyl-N-methoxymethylacetanilide
- **CA name:** 2-chloro-N-(2,6-diethylphenyl)-N-(methoxymethyl)acetamide
- **CAS Number:** 15972-60-8
- **RTECS number:** AE1225000
- **Molecular Formula:** C₁₄H₂₀Cl₁NO₃.22
- **Molecular Mass:** 269.8
- **Water Solubility:** Not available
- **Solubility in Other Solvents:** Soluble in acetone, benzene, chloroform, ethanol, ether and ethyl acetate. Sparingly soluble in heptane. Solubility in water is 242 mg/litre at 25 °C.
- **Stability:** Hydrolysed by strong acids and alkali. Decomposes at 105 °C. Stable to ultra violet radiation.
- **Melting Point:** 39.5 - 41.5 °C
- **Vapor Pressure:** 2.9 mPa at 25 °C.
- **Partition Coefficient:** 2.8998 [58]
- **Adsorption Coefficient:** 170 [11]
- Corrosive to steel and black iron but not stainless steel or aluminium.



IVORYCHEM PTE LIMITED
15 Beach Road #02-09
Beach Centre
Singapore 189677

Tel: +65 63377765
Fax: +65 63377730
contact@ivorychem.com
www.ivorychem.com

Company Registration No 200405572W