



Material Safety Data Sheet (MSDS)
Kafil 25 EC

IDENTIFICATION OF THE SUPPLIER:

AGRO CHEMICALS INDUSTRIES LTD
JORDAN AMMAN
P.O.Box 183020 Amman 11118 Jordan
Tel. +962 6 5548224/5
Fax. +962 6 5548220
E-mail info@aci.com.jo

PRODUCT IDENTIFICATION:

Common Name: Permethrin 25% w/v
Trade Name: Kafil 25 EC
Type of formulation : Emulsifiable Concentrate (EC)
Chemical Name: (3-phenoxyphenyl)methyl 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate
Chemical Formula: C₂₁H₂₀Cl₂O₃
Molecular Weight: 391.3

PRODUCT COMPOSITION:

Active Ingredient:	% w/v	CAS #
Permethrin	25%	[52645-53-1]
Inert ingredient:		
Emulsifier	13%	--
Solvent	Up to 100%	--

HAZARDS IDENTIFICATION:

Statement of Hazardous Nature

This product is classified as: Hazardous according to the criteria of ASCC Australia.

Not a Dangerous Good according to the Australian Dangerous Goods (ADG) Code.



Risk Phrases: R22, R65, R36/38. Harmful if swallowed. Harmful: May cause lung damage if swallowed. Irritating to eyes and skin.

Safety Phrases: S20, S46, S24/25, S36/37. When using, do not eat or drink. If swallowed, contact a doctor or

Poisons Information Centre immediately and show this container or label.

Avoid contact with skin and eyes. Wear suitable protective clothing and gloves.

SUSDP Classification: S6

ADG Classification: None allocated. Not a Dangerous Good.

UN Number: None allocated

FIRST-AID MEASURES:

Ingestion

give 1-2 glass of water, induce vomiting if the victim is conscious . Call a physician and/or transport to emergency facility immediately.

Eye Contact

Immediate and continuous irrigation with flowing water for at least 15 minutes is imperative. Prompt medical consultation is essential.

Skin Contact

Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Wash contaminated clothing before reuse.

Inhalation

Remove to fresh air. Consult a physician.

Symptom: Fibrillation and inability to regulate the movements of the parties and voluntary muscles, with general weakness

Antidote: No specific antidote in known, Treated the patient according to symptoms

FIRE-FIGHTING MEASURES: -

Fire and Explosion Hazards:

There is a slight risk of an explosion from this product if commercial quantities are involved in a fire. Violent steam generation or eruption may occur upon application of direct water stream on hot liquids. Vapours from this product are heavier than air and may accumulate in sumps, pits and other low-lying spaces, forming potentially explosive mixtures. They may also flash back considerable distances.

Fire decomposition products from this product may be toxic if inhaled. Take appropriate protective measures.



Extinguishing Media: Preferred extinguishing media are carbon dioxide, dry chemical, foam, water fog.

Fire Fighting: When fighting fires involving significant quantities of this product, wear a splash suit complete with self contained breathing apparatus.

Flash point: Not flammable.

Flammability Class: C1 (calculated)

ACCIDENTAL RELEASE:

Accidental release: In the event of a major spill, prevent spillage from entering drains or water courses.

Immediately call the Fire Brigade. Wear full protective clothing including eye/face protection. All skin areas should be covered. See above under Personal Protection regarding Australian Standards relating to personal protective equipment. Suitable materials for protective clothing include rubber, PVC. Eye/face protective equipment should comprise as a minimum, protective goggles. If there is a significant chance that vapours or mists are likely to build up in the cleanup area, we recommend that you use a respirator. Usually, no respirator is necessary when using this product. However, if you have any doubts consult the Australian Standard mentioned above.

Stop leak if safe to do so, and contain spill. Absorb onto sand, vermiculite or other suitable absorbent material. If spill is too large or if absorbent material is not available, try to create a dike to stop material spreading or going into drains or waterways. Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage, and dispose of promptly. After spills, wash area preventing runoff from entering drains. If a significant quantity of material enters drains, advise emergency services. Full details regarding disposal of used containers, spillage and unused material may be found on the label. If there is any conflict between this MSDS and the label, instructions on the label prevail. Ensure legality of disposal by consulting regulations prior to disposal. Thoroughly launder protective clothing before storage or re-use. Advise laundry of nature of contamination when sending contaminated clothing to laundry.

HANDLING AND STORAGE:

Handling: Keep exposure to this product to a minimum, and minimise the quantities kept in work areas.

The measures detailed below under "Storage" should be followed during handling in order to minimise risks to persons using the product in the



workplace. Also, avoid contact or contamination of product with incompatible materials listed in Section stability and reactivity.

Storage: This product is a Scheduled Poison. Observe all relevant regulations regarding sale, transport and storage of this class of poison. Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight.

Make sure that the product does not come into contact with substances listed under "Materials to avoid" in Section stability and reactivity.

Some liquid preparations settle or separate on standing and may require stirring before use. Check packaging - there may be further storage instructions on the label.

PERSONAL PROTECTION/SAFTETY:

Exposure Guidelines

None established for the preparation.

Chlorpyrifos: ACGIH Threshold Limit Value (TLV) is 0.2 mg/m³ TWA-8 hours (skin). Supplier recommendation for solvent is 100 ppm

Engineering Controls

Use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

Respiratory Protection

When airborne exposure guidelines and/or comfort levels may be exceeded, use an approved air-purifying respirator.

For emergency conditions, use an approved positive-pressure selfcontained breathing apparatus.

Hand/Skin Protection

For brief contact, no precautions other than clean body-covering clothing and chemical resistant gloves should be needed. When prolonged or frequently repeated contact could occur, use protective clothing impervious to this material.

For emergency conditions: Use protective clothing impervious to this material. Selection of specific items will depend on operation.

Eye/Face Protection

Use chemical goggles. If vapour exposure causes eye discomfort, use a full-face supplied-air respirator



PHYSICAL AND CHEMICAL PROPERTIES:

Appearance	: yellow liquid
Density	: 0.95 g/ml \pm 0.05
Water solubility	: emulsifiable
Flash point	: 45 °C

STABILITY AND REACTIVITY:

Reactivity: This product is unlikely to react or decompose under normal storage conditions. However, if you have any doubts, contact the supplier for advice on shelf life properties.

Conditions to Avoid: Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight.

Incompatibilities: strong acids, strong bases, strong oxidising agents.

Fire Decomposition: Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. Water.

Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death.

Polymerisation: This product is unlikely to undergo polymerisation processes

TOXICOLOGICAL INFORMATION:

Toxicity as technical:

Acute toxicity: Permethrin is harmful to non-harmful via the oral route, with a reported LD50 for technical Permethrin in rats of 430 to 4000 mg/kg. Via the dermal route, it is not harmful, with a reported dermal LD50 in rats of over 4000 mg/kg, and in rabbits of greater 2000 mg/kg. Permethrin caused mild irritation of both the intact and abraded skin of rabbits. It also caused conjunctivitis when it was applied to the eyes. The 4-hour inhalation LC50 for rats was greater than 23.5 mg/L, indicating practically no inhalation toxicity. The toxicity of Permethrin is dependent on the ratio of the isomers present; the cis-isomer being more toxic.

Chronic toxicity: No adverse effects were observed in dogs fed Permethrin at doses of 5 mg/kg/day for 90 days.

Rats fed 150 mg/kg/day for 6 months showed a slight increase in liver weights. Very low levels of Permethrin in the diet of chickens (0.1 ppm for 3 to 6 weeks after hatching) have been reported to suppress immune system activity.

Reproductive effects: The fertility of female rats was affected when they received very high oral doses of 250 mg/kg/day of Permethrin during the 6th



to 15th day of pregnancy. It is not likely that reproductive effects will be seen in humans under normal circumstances.

Teratogenic effects: Permethrin is reported to show no teratogenic activity.

Mutagenic effects: Permethrin is reported to show no mutagenic activity.

Carcinogenic effects: The evidence regarding the carcinogenicity of Permethrin is inconclusive.

Organ toxicity: Permethrin is suspected of causing liver enlargement of the liver and nerve damage. Effects on the immune system have been noted in animal studies.

Fate in humans and animals: Permethrin is efficiently metabolized by mammalian livers. Breakdown products, or "metabolites," of Permethrin are quickly excreted and do not persist significantly in body tissues. When Permethrin is administered orally to rats, it is rapidly metabolized and almost completely eliminated from the body in a few days.

Only 3 to 6% of the original dose was excreted unchanged in the faeces of experimental animals. Permethrin may persist in fatty tissues, with half-lives of 4 to 5 days in brain and body fat. Permethrin does not block, or inhibit, cholinesterase enzymes.

ECOLOGICAL INFORMATION:

Toxicity as technical:

Effects on birds: Permethrin is practically non-toxic to birds. The oral LD50 for a Permethrin formulation is greater than 9900 mg/kg in mallard ducks, greater than 13,500 mg/kg in pheasants, and greater than 15,500 mg/kg in Japanese quail.

Effects on aquatic organisms: Aquatic ecosystems are particularly vulnerable to the impact of Permethrin. A fragile balance exists between the quality and quantity of insects and other invertebrates that serve as fish food. The 48-hour

LC50 for rainbow trout is 0.0125 mg/L for 24 hours, and 0.0054 mg/L for 48 hours. The 48-hour LC50 in bluegill sunfish and salmon is 0.0018 mg/L. As a group, synthetic pyrethroids were toxic to all estuarine species tested. They had a 96-hour LC50 of less than or equal to 0.0078 mg/L for these species. The bioconcentration factor for Permethrin in bluefish is 715 times the concentrations in water and is 703 in catfish. This indicates that the compound has a low to moderate potential to accumulate in these organisms.

Effects on other organisms: Permethrin is extremely toxic to bees. Severe losses may be expected if bees are present at treatment time, or within a day thereafter. Permethrin is also toxic to wildlife. It should not be applied or allowed to drift, to crops or weeds in which active foraging takes place.



Environmental Fate:

Breakdown in soil and groundwater: Permethrin is of low to moderate persistence in the soil environment, with reported half-lives of 30 to 38 days. Permethrin is readily broken down, or degraded, in most soils except organic types. Soil microorganisms play a large role in the degradation of Permethrin in the soil. The addition of nutrients to soil may increase the degradation of Permethrin. It has been observed that the availability of sodium and phosphorous decreases when Permethrin is added to the soil. Permethrin is tightly bound by soils, especially by organic matter. Very little leaching of Permethrin has been reported. It is not very mobile in a wide range of soil types.

Because Permethrin binds very strongly to soil particles and is nearly insoluble in water, it is not expected to leach or to contaminate groundwater.

Breakdown in water: The results of one study near estuarine areas showed that Permethrin had a half-life of less than 2.5 days. When exposed to sunlight, the half-life was 4.6 days. Permethrin degrades rapidly in water, although it can persist in sediments. There was a gradual loss of toxicity after Permethrin aged for 48 hours in sunlight at 0.05 mg/L in water.

Breakdown in vegetation: Permethrin is not phytotoxic, or poisonous, to most plants when it is used as directed.

Some injury has occurred on certain ornamental plants. No incompatibility has been observed with Permethrin on cultivated plants. Treated apples, grapes, and cereal grains contain less than one mg/kg of Permethrin at harvest time.

DISPOSAL CONSIDERATIONS:

Disposal: Instructions concerning the disposal of this product and its containers are given on the product label.

These should be carefully followed

TRANSPORT INFORMATION:

ADG Code: This product is not classified as a Dangerous Good. No special transport conditions are necessary unless required by other regulations.

