

CHEMSTARR LLC
MATERIAL SAFETY DATA SHEET
ACEPHATE 90% SP

Revision Date: 03.28.2005



1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Product information

Product name	Acephate 90% SP
EPA Reg. No.	81964-3
Chemical class	Organophosphate
Manufacturer	Zhejiang Tide CropScience Co., Ltd. (A Division of Tide Group)
Telephone	86-571-85270564, 85270003, 85270004
Telefax	86-571-85270005, 89937770
Emergency Telephone Numbers	1-800-424-9300

2. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS-No./EINEC S-No.	Symbol (s)	R-phrase (s)	Concentration [%]
Acephate	[30560-19-1]	2, 20, 24/25, 36	22	90.0%
Other*	N/A	N/A	N/A	10.0%

* Other ingredients, which are maintained as trade secrets, are any substances other than an active ingredient contained in this product.

3. HAZARDS IDENTIFICATION

Emergency Overview

CAUTION Harmful if swallowed
Causes eye irritation
Avoid breathing dust or spray mist
Avoid contact with eyes, skin or clothing
Keep out of reach of children

CHEMSTARR LLC
MATERIAL SAFETY DATA SHEET
ACEPHATE 90% SP

Revision Date: 03.28.2005



Potential Health Effects

Signs and Symptoms of Systemic Effects:

This product contains a cholinesterase inhibitor. Signs and symptoms that may be seen, usually within several hours of exposure, include but are not limited to, headaches, dizziness, weakness, constriction of the pupil, blurred or dark vision, excessive salivation or nasal discharge, profuse sweating, abdominal cramps, nausea, diarrhea and vomiting. Severe poisonings may result in incontinence, unconsciousness, convulsions and death.

Inhalation

Based on an evaluation of the ingredients and/or similar products, this product is expected to be minimal toxic when inhaled. The degree of injury will depend on the amount of material inhaled and the speed and thoroughness of the first aid measure. The expected adverse systemic health effects are described above.

Exposure to high concentrations of dust may result in respiratory irritation. Signs and symptoms may include, but not be limited to, nasal discharge, sore throat, coughing and difficulty in breathing.

Skin Contact:

This product is expected to cause brief and/or minor irritation. The degree of injury will depend on the amount and duration of contact and the speed and thoroughness of the first aid measure. The expected adverse health effects resulting from and exposure may include redness and possibly some minor swelling.

This product is not expected to cause allergic skin reactions.

Eye Contact:

This product is expected to cause minimal or no eye irritation. The degree of injury will depend on the amount and duration of contact and the speed and thoroughness of the first aid treatment. The expected adverse health effects resulting from an exposure may include redness and possibly some minor swelling.

Ingestion:

This product has been shown to be slightly toxic when ingested. The degree of injury will depend on the amount of material ingested and the speed and thoroughness of the first aid measure. The expected adverse systemic health effects are described above.

Carcinogen Status:

High doses of Acephate Technical have produced cancer in mice but there is no evidence that Acephate Technical causes cancer in humans. EPA has classified

CHEMSTARR LLC
MATERIAL SAFETY DATA SHEET
ACEPHATE 90% SP

Revision Date: 03.28.2005



Acephate as a Group C (possible) human carcinogen based on the cancer produced in female mice. This product is not listed as a carcinogen by the national toxicology program (NTP), the International Agency for Research on Cancer (IARC), or the Occupational Safety and Health Administration (OSHA).

4. FIRST AID MEASURES

Inhalation

Move person to fresh air.
If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.
Call a poison control center or doctor for further treatment advice.

Skin contact

Take off contaminated clothing.
Rinse skin immediately with plenty of water for 15-20 minutes.
Call a poison control center or doctor for treatment advice.

Eye contact

Hold eye open and rinse slowly and gently with water for 15-20 minutes.
Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
Call a poison control center or doctor for treatment advice.

Ingestion

Call a poison control center or doctor immediately for treatment advice.
Have person sip a glass of water if able to swallow.
Do not induce vomiting unless told to do so by the poison control center or doctor.
Do not give anything by mouth to an unconscious person.

Notes to physician

Acephate is a cholinesterase inhibitor. Measurement of blood cholinesterase activity may be useful in monitoring exposure but decisions regarding treatment will usually need to be made before test results are available. If signs of cholinesterase inhibition appear, atropine sulfate is antidotal. 2-PAM (PROTOPAM) is also antidotal and may be used in conjunction with atropine but should not be used alone.

5. FIRE FIGHTING MEASURES

Fire and Explosion Hazards:

There is no risk of an explosion from this product under normal circumstances if it is involved in a fire. Violent steam generation or eruption may occur upon application of direct water stream on hot liquids. This product, if scattered, may form flammable or explosive dust clouds in air. Fire decomposition products from this product may be toxic if inhaled. Take appropriate protective measures.

Suitable extinguishing media

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

Specific protective equipment for fire fighters

When fighting fires involving significant quantities of this product, wear a splash suit complete with self contained breathing apparatus. Do not scatter spilled material with high pressure water jets.

Flash point: Not flammable.

6. ACCIDENTAL RELEASE MEASURES

Environmental precautions

This pesticide is toxic to birds. For terrestrial uses, do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters.

Exposed treated seed may be hazardous to birds and other wildlife. Dispose of all excess treated seed and seed packaging by burial away from bodies of water.

This product and its degradate are highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area.

Methods for cleaning up

Land spills or leaks:

Containment: Reduce airborne dust. Avoid runoff into storm sewers or other bodies of water.

CHEMSTARR LLC
MATERIAL SAFETY DATA SHEET
ACEPHATE 90% SP

Revision Date: 03.28.2005



SN: TIC-INC00103

Cleanup: Cleanup spill immediately. Vacuum or sweep up material and place in a chemical waste container. Wash area with soap and water. Pick up wash liquid with additional absorbent and place in a chemical waste container.

For spills in water:

Containment: This material will disperse or dissolve in water. Stop the source of the release. Contain and isolate to prevent further contamination of the soil, surface water, or ground water.

Cleanup: Cleanup spill immediately. Absorb spill with inert material. Remove contaminated water for treatment or disposal.

Additional advice

Information regarding safe handling, see section 7.

Information regarding personal protective equipment, see section 8.

Information regarding waste disposal, see section 13.

7. HANDLING AND STORAGE

Handling:

Keep exposure to this product to a minimum, and minimise the quantities kept in work areas. Check Section 8 of this MSDS for details of personal protective measures, and make sure that those measures are followed. 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 10.

Storage:

Make sure that containers of this product are kept tightly closed. Keep pesticide in original container. Store in a cool, dry place away from excessive heat. Do not put concentrate or dilute into food or drink containers. Make sure that the product does not come into contact with substances listed under "Incompatibilities" in Section 10. Check packaging - there may be further storage instructions on the label.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Respiration/ventilation

CHEMSTARR LLC
MATERIAL SAFETY DATA SHEET
ACEPHATE 90% SP

Revision Date: 03.28.2005



Use this material only in well ventilated areas. Unless ventilation is adequate to keep airborne concentrations below recommended exposure standards, approved respiratory protection should be worn.

Eye protection

Do not get this material in your eyes. Eye contact can be avoided by wearing protective eyewear.

Skin protection:

Avoid contact with skin or clothing. Skin contact should be minimized by wearing protective clothing including gloves.

Hygiene measures

Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.

Users should remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Users should remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	White powder
Color	White
Odor	A characteristic odor (Sulfur Type)
PH	3.5-4.5
Melting point/range	85-88 °C
Boiling point/range	N/A
Flammability	Not flammable
Vapour pressure	0.226mPa at 24°C (Based on Acephate Technical)
Bulk Density	0.56±0.02g/mL

CHEMSTARR LLC
MATERIAL SAFETY DATA SHEET
ACEPHATE 90% SP

Revision Date: 03.28.2005



SN: TIC-INC00103

Water solubility	Soluble in water
------------------	------------------

10. STABILITY AND REACTIVITY

Chemical stability:	Stable at normal ambient temperatures. Acephate can degrade on prolonged exposure to elevated temperature or at alkaline pH.
Materials to avoid	Avoid contact with alkaline materials.
Decomposition	Contact with alkaline materials including hypochlorite oxidants may produce noxious gases.
Hazardous Polymerization	Will not occur

11. TOXICOLOGICAL INFORMATION

Acute toxicity: This product contains Acephate, a cholinesterase inhibitor. Acute overexposures by oral, dermal or inhalation routes may produce signs and symptoms of toxicity, usually within several hours of exposure, including but not limited to headaches, dizziness, weakness, constriction of the pupil, blurred or dark vision, excessive salivation or nasal discharge, profuse sweating, abdominal cramps, nausea, diarrhea and vomiting. Severe poisonings may result in incontinence, unconsciousness, convulsions and death.

Eye irritation:

No product specific data available. Acephate Technical produced minimal effects clearing within 24 hours (Toxicity Category □).

Skin irritation:

No product specific data available. Acephate Technical produced slight and transient irritation was present at 72 hours after exposure (Toxicity Category □).

Dermal toxicity:

The dermal LD₅₀ of Acephate Technical in rabbits is > 2 g/kg (Toxicity Category □).

CHEMSTARR LLC
MATERIAL SAFETY DATA SHEET
ACEPHATE 90% SP

Revision Date: 03.28.2005



SN: TIC-INC00103

Oral toxicity:

Acephate Technical, the oral LD₅₀ in male rats is 688 mg/kg, the oral LD₅₀ in female rats is 1127 mg/kg, the LD₅₀ for the combined sexes is 846 mg/kg (Toxicity Category □).

Inhalation toxicity:

No product specific data is available. The 4-hour LC₅₀ in rats of Acephate Technical, a similar product, is > 61.7 mg/L (Toxicity Category □). Exposure to high concentrations of dust in the air may result in respiratory irritation.

Skin sensitization:

Acephate Technical did not induce a positive skin sensitization reaction in the guinea pig using the maximization techniques.

Chronic/ carcinogenicity:

High doses of Acephate Technical have produced cancer in mice but there is no evidence that Acephate Technical causes cancer in humans. EPA has classified Acephate as a Group C (possible) human carcinogen based on the cancer produced in female mice. This product is not listed as a carcinogen by the national toxicology program (NTP), the International Agency for Research on Cancer (IARC), or the Occupational Safety and Health Administration (OSHA).

Teratology/developmental toxicity:

There is no evidence that Acephate Technical causes birth defects.

Reproduction:

There is no evidence that Acephate Technical causes reproductive effects in humans.

Mutagenicity:

Acephate Technical has been shown to have a weak potential to cause mutations when tested at high doses in microbes or cultured cells. However, the results of most in vivo assays indicate that Acephate Technical does not cause mutations in whole animals. Overall, Acephate is not considered to be a mutagenic hazard.

For a summary of the potential for adverse health effects from exposure to this product, refer to Section 3. For information regarding regulations pertaining to this product, refer to Section 15.

CHEMSTARR LLC
MATERIAL SAFETY DATA SHEET
ACEPHATE 90% SP

Revision Date: 03.28.2005



12. ECOLOGICAL INFORMATION

Ecotoxicity effect

Avian toxicity: Acephate Technical is moderately toxic to birds.

Oral LD₅₀ Mallard duck: 350 mg/kg

Oral LD₅₀ Pheasant: 140 mg/kg

Oral LD₅₀ Chickens: 852 mg/kg

In addition Acephate Technical in the diet causes adverse effects on reproduction in mallard ducks (No Effect Level greater than 5 ppm, but less than 20 ppm) and in bobwhite quail (No Effect Level greater than 20 ppm, but less than 80 ppm)

Aquatic organism toxicity:

Acephate Technical is practically non-toxic to freshwater fish. The 96-hours LC₅₀ for Acephate Technical was found to be higher than 1,000 ppm in rainbow trout, bluegill, and channel catfish. The following LC₅₀ values for Lancer 75 S soluble powder substantiate the low toxicity to fish:

Bluegill: 2,050 ppm

Black bass: 1,725 ppm

Catfish: 2,230 ppm

Mosquito fish: 6,000 ppm

Crayfish: 750 ppm

Other non-target organism toxicity:

Acephate Technical is highly toxic to bees. The acute LD₅₀ for bees is 1.2 µg/bee.

13. DISPOSAL CONSIDERATIONS

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: Do not reuse the outer bag. Dispose of outer bag in a sanitary landfill or by incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke.

14. TRANSPORT INFORMATION

D.O.T. Shipping name: Insecticide, dry, non-regulated

Technical shipping name: Acephate 90 %SP

RQ: NA

CHEMSTARR LLC
MATERIAL SAFETY DATA SHEET
ACEPHATE 90% SP

Revision Date: 03.28.2005



D.O.T. Hazard class:	NA
U.N./N.A. Number:	NA
Remarks:	None
Exemption requirement:	None

15. REGULATORY INFORMATION

Regulations under FIFRA:

All pesticides are governed under FIFRA (Federal Insecticide, Fungicide and Rodenticide Act). Therefore, the regulations presented below are pertinent only when handled outside of the normal use and applications of pesticides. This include waste streams resulting from manufacturing/formulation facilities, spills or misuse of products, and storage of large quantities of products containing hazardous or extremely hazardous substances.

Other U.S. federal regulations:

OSHA: NA

CERCLA RQ*: NA

RCRA**: NA

SARA title ☐:

Sara (313) chemicals: Acephate

Sara (313, 312): Immediate health effects: Yes

Chronic health effects: Yes

Sudden release of pressure: No

Reactivity hazard: No

Sara section 302: NA

This product is not listed as a carcinogen by the national toxicology program (NTP), the International Agency for Research on Cancer (IARC), or the Occupational Safety and Health Administration (OSHA).

State regulations:

Each state may promulgate standards more stringent than the federal government. This section cannot encompass an inclusive list of all state regulations. Therefore, the user should consult state or local authorities.

*RQ: Reportable Quantity.

**RCRA: Waste codes must be determined on a case-by-case basis (i.e. spill, processing waste etc.).

CHEMSTARR LLC
MATERIAL SAFETY DATA SHEET
ACEPHATE 90% SP

Revision Date: 03.28.2005



For information regarding potential adverse health effects from exposure to this product, refer to Section 3 and 11.

16. OTHER INFORMATION

	Health	Flammability	Reactivity	Others
NFPA Rating	1	1	1	None
Least	0			
Slight	1			
Moderate	2			
High	3			
Extreme	4			

These values are obtained using professional judgment and were not available in the guidelines or published evaluations prepared by the National Fire Protection Association.

Disclaimer of expressed and implied warranties

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the stability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, however arising, even if the company has been advised of the possibility of such damages.

Disclaimer:

CHEMSTARR LLC provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.