

## Material Safety Data Sheet (MSDS)

### Clethodim 2EC

SN Amtide HER02702

#### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: clethodim 24%EC  
Chemical Family: Sulfonyl urea Herbicide  
Manufacturer Ningbo Tide. Imp. & Exp. Co., Ltd.

(A Division of Tide Group)

#### 2. COMPOSITION /INFORMATION ON INGREDIENTS

Ingredient	CAS number	W/W, %
Clethodim	99129-21-2	24%

#### 3. HAZARDS IDENTIFICATION

##### EMERGENCY OVERVIEW:

##### WARNING: - CAUSES EYE IRRITATION

- HARMFUL IF SWALLOWED OR INHALED
- DO NOT GET IN EYES, ON SKIN, OR ON CLOTHING
- AVOID BREATHING VAPOR OR SPRAY MIST
- ASPIRATION HAZARD
- FLAMMABLE
- KEEP OUT OF REACH OF CHILDREN

##### ACUTE HEALTH HAZARDS

**Signs and Symptoms of Systemic Effects:** Signs of toxicity from short-term exposure to test animals given lethal or near-lethal doses included lethargy, ataxia, irregular breathing, lacrimation and loose stools. Inhalation of this product may cause nasal and respiratory irritation, central nervous system effects including dizziness, weakness, fatigue, nausea, headache and possible unconsciousness, and even death. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

**Eye:** this product may cause prolonged and/or substantial irritation following eye contact.

**Skin:** this product is expected to cause moderate skin irritation.

**Ingestion:** Ingestion of this product may cause gastrointestinal irritation, nausea,

vomiting and diarrhea. Because of the low viscosity of this product, it can directly enter the lungs if swallowed (aspiration) or when vomiting.

**Inhalation:** Exposure to very high concentrations may result in respiratory irritation. Signs and symptoms may include nasal discharge, sore throat, coughing and difficulty in breathing.

#### **4. FIRST AID MEASURES**

If poisoning occurs, immediately contact a doctor or Poisons Information Centre, and follow the advice given. Show this Material Safety Data Sheet to the doctor.

If in Eyes:

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.

If Swallowed:

Call poison control center or doctor immediately for treatment advice. Have a 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.

If on Skin or Clothing:

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.

Inhalation:

Remove person from contaminated atmosphere. If breathing difficulty or discomfort occurs and persists, contact a medical doctor.

**NOTES TO MEDICAL DOCTOR:** This material contains light hydrocarbon liquid and an aspiration hazard may exist.

#### **5. FIRE FIGHTING MEASURES**

Extinguishing media: Foam CO<sub>2</sub> or dry chemical. Soft stream water fog only if necessary. Contain all runoff.

**FIRE/EXPLOSION HAZARDS:** Slightly combustible. This material may support combustion at elevated temperatures.

**FIRE FIGHTING PROCEDURES:** Isolate fire area. Evacuate downwind. Wear full protective clothing and self-contained breathing apparatus. Do not breathe smoke, gases or vapors generated.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Carbon monoxide and/or carbon dioxide, oxides of nitrogen, chlorine and hydrogen chloride.

## 6. ACCIDENTAL RELEASE MEASURES

### **For Spills on Land:**

**Containment:** Avoid runoff into storm sewers and ditches that lead to waterways. Contain spilled liquids with dry sorbents.

**Cleanup:** Clean up spill immediately. Absorb spill with inert materials (such as dry sand or earth), then place in a chemical waste container. Wash area with soap and water. Pick up wash liquid with additional absorbent and place in a disposable container.

### **For Spills on Water:**

**Containment:** This material forms an emulsion in water. Stop or reduce contamination of any water. Isolate contaminated water.

**Cleanup:** Remove contaminated water for removal or treatment.

## 7. HANDLING AND STORAGE

It is a violation of federal law to use this product in a manner inconsistent with its labeling. Read entire label. Use strictly in accordance with label precautionary statements and directions. **DO NOT USE OR STORE** near flame, sparks or hot surfaces. **USE ONLY IN WELL VENTILATED AREA.** Keep container closed. **DO NOT** weld, heat or drill container. Replace cap or bung. Emptied container still contains hazardous or explosive vapor or liquid. Before entry into confined spaces that may have contained hazardous material, determine concentrations and take appropriate measures for personal protection. Material presents a hazard that may require personal protective equipment for entry. Keep pesticide in original container. Do not store or transport near food or feed.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### PERSONAL PROTECTIVE EQUIPMENT

#### EYES AND FACE:

For splash, mist or spray exposure, wear chemical protective goggles or a face shield.

**PROTECTIVE CLOTHING:**

Depending upon concentrations encountered, wear coveralls or long-sleeved uniform and head covering. For larger exposures as in the case of spills, wear full body cover barrier suit, such as a PVC suit. Leather items - such as shoes, belts and watchbands - that become contaminated should be removed and destroyed. Launder all work clothing before reuse (separately from household laundry).

**GLOVES:**

Wear chemical protective gloves made of materials such as nitrile or Viton® brand. Thoroughly wash the outside of gloves with soap and water prior to removal. Inspect regularly for leaks.

**WORK HYGIENIC PRACTICES:**

Clean water should be available for washing in case of eye or skin contamination. Wash skin prior to eating, drinking or using tobacco. Shower at the end of the workday.

**RESPIRATORY:**

For splash, mist or spray exposure wear, as a minimum, a properly fitted half-face or full-face air-purifying respirator which is approved for pesticides (U.S. NIOSH/MSHA, EU CEN or comparable certification organization). Respirator use and selection must be based on airborne concentrations.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance: brown liquid

Odor: Odorless

Melting Point: 185-188°C

Vapor pressure:  $2.8 \times 10^{-9}$  mPa (25°C)

pKa: 5.2

Water solubility: 1.38 g/l, (20°C)

**10. STABILITY AND REACTIVITY**

Chemical Stability: Stable at normal temperatures and storage conditions.

Incompatibility with Other Materials: None reasonably foreseeable.

Decomposition: Decomposition will not occur.

Polymerization: Polymerization will not occur.

## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity:

Ingestion LD<sub>50</sub>: > 5000 mg/kg in rats (Very low toxicity)

Oral: for male 3510 mg/kg; for female 2900 mg/kg

Skin absorption LD<sub>50</sub>: > 5000 mg/kg in rabbits (Slight toxicity)

Inhalation 4-hr LC<sub>50</sub>: > 4.4 mg/L in rats (Very low toxicity by inhalation)

Non-irritant to skin and eyes.

**SUBCHRONIC:** Compound-related effects, noted at high doses of Clethodim Technical in sub chronic toxicity studies conducted in mice, rats, and dogs, were decreased body weights, increased liver size (increased liver weights and hypertrophy) and anemia (decreased hemoglobin, hematocrit, or erythrocyte counts).

**CHRONIC/CARCINOGENICITY:** In chronic studies with Clethodim Technical in the mouse, rat, and dog, similar effects as seen in subchronic have been noted. No treatment related increases in neoplasm were observed in any study.

**TERATOLOGY/DEVELOPMENTAL TOXICITY:** Developmental toxicity in rats and rabbits was observed only at maternally toxic dose levels of Clethodim Technical.

**REPRODUCTION:** No reproductive toxicity was observed in a study with rats exposed to Clethodim Technical for two generations.

**MUTAGENICITY:** Clethodim Technical was negative in the following genotoxicity assays: microbial reverse mutation (Ames Assay), in vitro chromosome aberration assay in Chinese Hamster Ovary Cells, in vivo chromosome aberration assay in Rat Bone Marrow Cells and in vivo Unscheduled DNA Synthesis Assay. Clethodim Technical does not present a genetic hazard to intact animal systems.

## 12. ECOLOGICAL INFORMATION

**Avian Toxicity:** The acute toxicity of Clethodim Technical to birds is very low.

Bobwhite quail oral: LD50 > 2 g/kg

Bobwhite quail dietary: LC50 > 6,000 ppm

Mallard duck dietary: LC50 > 6,000 ppm

No reproductive effects were observed in mallard ducks exposed to 1,000 ppm of Clethodim Technical. In Bobwhite quail, a slight decrease in viability of embryos of eggs from females exposed to 1,000 ppm was observed. A NOEL was established at 300 ppm of this study.

**Aquatic Organism Toxicity:** Clethodim Technical is only slightly toxic to freshwater fish and practically nontoxic to Daphnia.

Rainbow Trout: 96-hour LC50 = 67 mg/L

Bluegill Sunfish: 96-hour LC50 = 120 mg/L

Daphnia magna: 48-hour LC50 > 120 mg/L

**Other Non-Target Organism Toxicity:** Clethodim Technical was found to be nontoxic to adult worker bees at the highest dose tested, 100 micrograms/bee.

## 13. DISPOSAL CONSIDERATIONS

All drums may be returned to the manufacturer provided they are clean, serviceable, have bungs and plugs in place and are free of surface chemical residues. Unserviceable drums should be triple rinsed with water, have the liner removed (where applicable) and be crushed to prevent re-use. Disposal of drums and liners may be permitted into a tip after approval from the local authority.

**DISPOSAL METHOD:** Open dumping or burning of this material or its packaging is prohibited. If spilled material cannot be disposed of by use according to label instructions, an acceptable method of disposal is to incinerate in accordance with local, state and national environmental laws, rules, standards and regulations. However, because acceptable methods of disposal may vary by location and regulatory requirements may change, the appropriate agencies should be contacted prior to disposal.

**EMPTY CONTAINER:** Non-returnable containers that held this material should be cleaned, prior to disposal, by triple rinsing. Containers which held this material may be cleaned by being triplerinsed, and recycled, with the rinsate being incinerated. Do not cut or weld metal containers. Vapors that form may create an explosion hazard.

## 14. TRANSPORT INFORMATION

This herbicide has not been regulated by any transportation agency.

**15. REGULATORY INFORMATION**

This product had been registered according to Requirements of the Pesticide Registration Document, Ministry of Agriculture, PRC.

**16. OTHER INFORMATION**

Please contact us through mail to the followed mailbox for any other questions: Info@tide-china.com, Regdept@tide-china.com

**DISCLAIMER**

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.