MATERIAL SAFETY DATA SHEET OF
DIAZINON 95% TC

1. IDENTIFICATION OF THE CHEMICAL PRODUCT AND COMPANY

Supplier: SHANGHAI MINGDOU AGROCHEMICAL CO., LTD
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Product name: Diazinon 95% TC

2. COMPOSITION/INFORMATION ON INGREDIENTS

Formulation Type: technical
Active Ingredients: diazinon
Chemical Abstracts name: O,O-diethyl O-[6-methyl-2-(1-methylethyl)-4-pyrimidinyl] phosphorothioate
CAS NO.: 333-41-5
Molecular Formula: C_{12}H_{21}N_{2}O_{3}PS
Molecular Weight: 304.3
Structural Formula:

<table>
<thead>
<tr>
<th>INGRIDIENT</th>
<th>CAS NO</th>
<th>PURITY</th>
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<tbody>
<tr>
<td>diazinon</td>
<td>333-41-5</td>
<td>≥95%</td>
</tr>
<tr>
<td>others</td>
<td>Not available</td>
<td>≤5%</td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

More important danger for the man: inhibition of acetylcholinesterase and problem accumulation
Dangers for the environment: maybe bio-concentrate in fish
Physical-chemical dangers: product oxide of phosphorus, sulfur and nitrogen

4. FIRST AID MEASURES

General: If poisoning is suspected, immediately contact the poison information centre, doctor or nearest
hospital. Have the product container, label or Material Safety Data Sheet with you when going for treatment. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given.

**Skin:** wash with soap and water.

**Eyes:** flush with plenty of water for at least 15 minutes. See medical attention if irritation develops or persists.

**Inhalation:** move to fresh air. Do not breathe spray mist.

**Ingestion:** if oral contamination, drink 1-2 glasses of water and milk. Call physician/poison control center immediately.

**Antidote:** atropine and toxogonin

### 5. FIRE FIGHTING MEASURES

**Extinguishing media**

To be used: dry chemical, foam, carbon dioxide.

Don’t use: not applicable.

**Particular risk:** not applicable.

**Measures of personal protection:** safety glasses or goggles, rubber gloves, shoes plus socks, long-sleeved shirt, and long pants.

### 6. ACCIDENT RELEASE MEASURES

**Personal cautions:** safety glasses or goggles, rubber gloves, shoes plus socks, long-sleeved shirt, and long pants.

**Cleaning methods**

EX: clear the material in time. Transfer to a properly labeled deposit that will be closed and sealed until the recovery of elimination of the product.

**Environmental cautions**

EX: prevent the contamination of the floor and of beds of water.

### 7. HANDLING AND STORAGE

**Handling:** do not apply to humans, their clothing, or bedding. Do not contaminate food or use on household tanks.

**Storage:** store in original container only in cool, dry, well-ventilated, secure area out of reach of children and animals.

**Fire and explosion protection:** the area must be far from fire and flammable materials.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION
TWA: 0.1 mg/m³ (8 hrs)

Personal protective equipment

**Respiratory protection:** approved respirator

**Protective gloves:** rubber gloves

**Eye protection:** goggles

**Industrial hygiene:** use good industrial hygiene. Wear face shield or goggles, elbow length PVC gloves, cotton overalls buttoned to the neck and wrist, washable hat and half face respirator with dust and vapor cartridge.

After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water.

9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** yellow liquid.

**Vapour pressure and reference temperature:** $1.2 \times 10^1$ mPa (25 °C).

**Boiling point:** 83-84 °C/0.0002 mmHg; 125 °C/1 mmHg.

**S.g./density:** 1.11 (20 °C)

**Melting point:** Not available.

**Flash point:** $\geq 62$ °C.

**Solubility:** In water 60 mg/l (20 °C). Completely miscible with common organic solvents, e.g. ethers, alcohols, benzene, toluene, hexane, cyclohexane, dichloromethane, acetone, petroleum oils.

10. STABILITY AND REACTIVITY

**Conditions to avoid:** fire, heat and high temperature

**Products to avoid:** acid and alkaline pesticides

**Thermal decomposition:** 120 °C

**Hazardous decomposition products:** oxides of nitrogen, hydrogen, carbon, sulfur, and phosphorous.

**Hazardous reaction:** none

11. TOXICOLOGICAL INFORMATION

**Contact with the skin:** weakness, headaches, salivation, sweating, and nausea.

**Contact with the eyes:** eyes become red, blurred vision, non-reactive pinpoint pupils and pain.

**Inhalation:** weakness, headaches, and tightness in the chest, abdominal cramps and salivation.

**Ingestion:** salivation, sweating, nausea, vomiting, diarrhea, abdominal cramps, and slurred speech.

**Sharp toxicity:** not applicable.

**Chronic toxicity:** Chronic effects have been observed at doses ranging from 10 mg/kg/day for swine to 1000 mg/kg/day for rats. Inhibition of red blood cell cholinesterase, and enzyme response occurred at lower doses in the rats. Enzyme inhibition has been documented in red blood cells, in blood plasma, and in brain cells at
varying doses and with different species.

**Reproductive effects:** No data are currently available.

**Teratogenic effects:** The data on teratogenic effects due to chronic exposure are inconclusive. One study has shown that injection of diazinon into chicken eggs resulted in skeletal and spinal deformities in the chicks. Bobwhite quail born from eggs treated in a similar manner showed skeletal deformities but no spinal abnormalities. Acetylcholine was significantly affected in this latter study. Tests with hamsters and rabbits at low doses (0.125 0.25 mg/kg/day) showed no developmental effects, while tests with dogs and pigs at higher levels (1.0 10.0 mg/kg/day) revealed gross abnormalities.

**Mutagenic effects:** While some tests have suggested that diazinon is mutagenic, current evidence is inconclusive.

**Carcinogenic effects:** Diazinon is not considered carcinogenic. Tests on rats over a 2-year period at moderate doses (about 45 mg/kg) did not cause tumor development in the test animals.

**Organ toxicity:** Diazinon itself is not a potent cholinesterase inhibitor. However, in animals, it is converted to diazoxon, a compound that is a strong enzyme inhibitor.

**Sensisation:** not applicable

12. **ECOLOGICAL INFORMATION**

**Effects on birds:** Birds are quite susceptible to diazinon poisoning. Bird kills associated with diazinon use have been reported in every area of the country and at all times of the year. Geese and mallard ducks may be exposed to LC$_{50}$ concentrations in very short periods of time after application (from 15 to 80 minutes depending on the application rate of the pesticide). Birds are significantly more susceptible to diazinon than other wildlife. LD$_{50}$ values for birds range from 2.75 mg/kg to 40.8 mg/kg.

**Effects on aquatic organisms:** Diazinon is highly toxic to fish. In rainbow trout, the diazinon LC$_{50}$ is 2.6 to 3.2 mg/L. In hard water, lake trout and cutthroat trout are somewhat more resistant. Warm water fish such as fathead minnows and goldfish are even more resistant with diazinon LC$_{50}$ values ranging up to 15 mg/L. There is some evidence that saltwater fish are more susceptible than freshwater fish. Bioconcentration ratios range from 200 in minnows to 17.5 for guppies. These studies show that diazinon does not bioconcentrate significantly in fish.

**Effects on other organisms:** Diazinon is highly toxic to bees.

13. **DISPOSAL CONSIDERATION**

Product: dispose of in compliance with all state and local laws and regulations.

14. **TRANSPORT INFORMATION**

MARINE POLLUTANT: Diazinon - Severe Marine Pollutant.
15. REGULATORY INFORMATION

Keep locked up out of reach of children and other, unauthorized persons. Keep away from food, drink and animal feeding stuffs.

Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Do not get in eyes, on skin or on clothing. Do not breathe dust, vapor or spray mist.

In case of accident of if you feel unwell, seek medical advice immediately.

This material and its container must be disposed of in a safe way.

16. OTHER INFORMATION

This MSDS summarizes our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of the how the product will be handled and used in the workplace including in conjunction with other products.

If clarification or further information is needed to ensure that an appropriate risk assessment can be made the user should contact the company.

END OF MSDS