

# Triadimefon -MATERIAL SAFETY DATA SHEET

## Manufacturer/information service:

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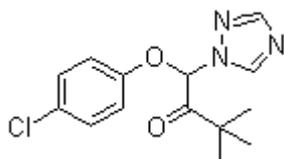
## 1. Chemical Product Identification

Product Name: Triadimefon

Molecular Formula: C<sub>14</sub>H<sub>16</sub>ClN<sub>3</sub>O<sub>2</sub>

Molecular Weight: 293.80

Structural Formula:



Chemical Name: 1-(4-chlorophenoxy)-3,3-dimethyl-1-(1H-1,2,4-triazol-1-yl)-2-butanone

Form: Solid

Color: Brow

Odor: Sharp, musty

CAS No.: .43121-43-3

## 2. Composition / Information on Ingredients

Composition	CAS No.	Content %
Triadimefon	.43121-43-3	95.0
Other ingredients		5.0

## 3. Hazards Identification

Harmful if inhaled or ingested, may be harmful if absorbed through skin.

## 4. First Aid Measures

If Inhaled: Remove to fresh air and keep warm and at rest. Seek medical advice as above immediately. Administer artificial respiration if breathing has stopped.

Skin contact: Carefully remove contaminated clothing. Wash affected areas with soap and water. Seek medical advice if at all worried.

Eye contact: Rinse eyes immediately with clean water for at least 15 minutes, holding eyes open. Consult an eye specialist.

Ingestion: Obtain immediate medical advice as above. If swallowed, do NOT induce vomiting. Rinse mouth and give a glass of water. DO NOT attempt to give anything by mouth to a semiconscious or unconscious person.

## **5. Fire-Fighting Measures**

Extinguishing media: Foam, dry chemical or water spray.

Hazards from combustion products: In a fire, formation of hydrogen chloride, hydrogen cyanide, amines, carbon monoxide and nitrogen oxides can be expected.

Precautions for fire fighters: The product is a Class C1 Combustible liquid. Firefighters should wear full protective gear, including self-contained breathing apparatus. Keep unnecessary people away. If it can be done safely, remove intact containers from the fire. Otherwise, use water spray to cool them. Avoid spraying directly into containers due to danger of boilover. Bund area with sand or earth to prevent contamination of drains or waterways. Dispose of fire control water or other extinguishing agent and spillage safely later. Do not release contaminated water into the environment.

## **6. Accidental Release Measures**

Avoid contact with spilled material or contaminated surfaces. Extinguish or remove possible sources of ignition. When dealing with spills do not eat, drink or smoke and wear protective clothing and equipment as described in Section 8 - personal protection. Keep people and animals away. Prevent spilled material from entering drains or watercourses. Contain spill and absorb with earth, sand, clay, or other absorbent material. Collect and store in properly labelled, sealed drums for safe disposal. Deal with all spillages immediately. If contamination of drains, streams, watercourses, etc. is unavoidable, warn the local water authority.

## **7. Handling and Storage**

Handling: Keep out of reach of children. Will irritate the eyes and skin. Avoid contact with eyes and skin. Do not inhale spray mist. If product in eyes, wash it out immediately with water. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves, goggles and contaminated clothing. Keep product away from ignition sources.

Storage: Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight.

## 8. Exposure Controls/Personal Protection

Engineering controls: Control process conditions to avoid contact. Use in a well-ventilated area only.

Personal protective equipment: Wear safety goggles. Wear cotton overalls buttoned to the neck and wrist and a washable hat. Wear elbow-length PVC or nitrile gloves. Wear an approved respirator suitable for organic vapour/mist if exposure to vapours or mists is likely or ventilation is inadequate.

## 9. Physical and Chemical Properties

PH: 3.0 to 4.0 (5% in water)

Vapour density: > 1.00(101.3 kPa/air=1) (hydrocarbon solvent)

Water Solubility: 260 mg/L @ 20°C

Solubility in Other Solvents: m.s. in most organic solvents

Melting Point: 82.3°C

Vapor Pressure: <0.1 mPa @ 20°C

Partition Coefficient: 3.1790

Adsorption Coefficient: 300

## 10. Stability and Reactivity

Chemical stability: Stable under normal conditions of use.

Conditions to avoid: Extreme heat.

Incompatible materials: Strong oxidising agents, acids.

Hazardous decomposition products: None under normal conditions. In a fire, formation of hydrogen chloride, hydrogen cyanide, amines, carbon monoxide and nitrogen oxides can be expected.

## 11. Toxicological Information

Acute:

Oral toxicity: LD50 rat: 1000 mg/kg

Dermal toxicity: LD50 rat: > 5000 mg/kg

Inhalation toxicity: LC50 rat: > 3.3 mg/L, dust (4 h)

Skin irritation: Slightly irritating (rabbit)

Mucous membrane irritation: Non irritating (rabbit)

Reproductive effects: Female rats fed up to 90 mg/kg/day of Bayleton over three generations showed a number of adverse effects. No effects were noted in the fetuses at maternal doses below 2.5 mg/kg/day. At the middle doses tested (around 15 mg/kg/day) the second-generation offspring experienced a decrease in weight gain. At the highest dose, the females experienced a reduction in body weight and a decrease in fertility. In another study conducted over two generations, the female rats showed decreased ovary weight at the 2.5 mg/kg/day dose. At 90 mg/kg/day reductions in litter size, reduced offspring viability and lower birth weight were observed in second-generation offspring. This evidence suggests it is unlikely that triadimefon will cause reproductive toxicity in humans under normal circumstances.

Teratogenic effects: The teratogenic potential of triadimefon is relatively low. Doses causing birth defects in rats were high enough to also produce maternal toxicity. Cleft palates were noted in the offspring of female rats fed moderate doses of 75 mg/kg/day for an unspecified time period. In a second study, no teratogenic effects were noted in the offspring of female rats fed 50 mg/kg/day of Bayleton in the form of an emulsion. In another teratogenic study in rats, rib deformities were noted at high maternal doses of 90 mg/kg/day. A study of occupationally-exposed female workers showed that the highest combined dermal and inhalation level of exposure for workers was around 60 ug which corresponds to approximately 0.008 mg/kg/shift for a 70 kg worker, a value considerably lower than the lowest dose that caused teratogenic effects in test animals. Thus, it is unlikely that triadimefon will cause birth defects in humans under normal circumstances.

Mutagenic effects: Six separate studies indicate that the Bayleton compound is nonmutagenic. Several other tests were inconclusive. It is unlikely that the compound poses a significant mutagenic risk.

Carcinogenic effects: In a 2-year dietary study with mice, the highest dose tested (600 mg/kg/day) did not produce significant increases in tumor incidence. Due to high mortality, the reliability of this data is suspect. Another 2-year dietary study in mice showed increased liver cell hypertrophy (which may be related to tumor formation) at doses of greater than 36 mg/kg/day in males and 6 mg/kg/day for females. Increased liver cell adenoma was detected at all levels, but carcinoma was not detected at any level in this study. Based on this evidence, no conclusion can be drawn about the overall carcinogenicity of triadimefon.

Organ toxicity: Triadimefon has been associated with changes in the liver, decreased kidney weights, and altered urinary bladder structure in laboratory animals exposed to 18 to 60 mg/kg/day. There is evidence that acute effects on the central nervous system may also occur.

## **12. Ecological and Ecotoxicological Information**

Fish toxicity:

LC50: 4.08 mg/L (96 h); trout (*Oncorhynchus mykiss*)

LC50: 64 mg/L (96 h); bluegill sunfish (*Lepomis macrochirus*)

Aquatic invertebrate toxicity:

EC50: 7.16 mg/L (48 h) *Daphnia magna*

Algae toxicity:

Growth rate IC50: 1.71 mg/L (96 h); green algae (*Desmodesmus subspicatus*)

Bird toxicity: Acute oral LD50: > 4000 mg/kg; mallard duck

### **13. Disposal Considerations**

Triple or preferably pressure rinse container before disposal. Add rinsings to spray tank. 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 container 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. Dispose of waste product through a reputable waste contractor.

### **14. Transport Information**

Not applicable.

### **15. Regulatory Information**

Not applicable.

### **16. Other Information**

All information and instructions provided in this Material Safety Data Sheet (MSDS) are based on the current state of scientific and technical knowledge at the date indicated on the present MSDS and are presented in good faith and believed to be correct. This information applies to the product as such. In case of new formulations or mixes, it is necessary to ascertain that a new danger will not appear. It is the responsibility of persons on receipt of this MSDS to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. If the recipient subsequently produce formulations containing this product, it is the recipients sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.