

Myclobutanil -MATERIAL SAFETY DATA SHEET

Manufacturer/information service:

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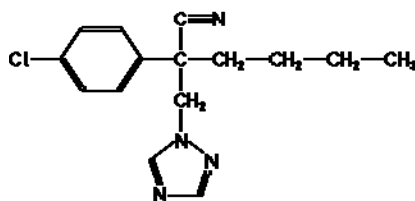
1. Chemical Product Identification

Product Name: Myclobutanil

Molecular Formula: C₁₅H₁₇ClN₄

Molecular Weight: 288.78

Structural Formula:



Chemical Name: (RS)-2-(4-chlorophenyl)-2-(1H-1,2,4-triazol-1-ylmethyl)hexanenitrile
(IUPAC)

Form: liquid

Colour: Brown or Yellow

Odour: Strongly pungent.

CAS No.: 88671-89-0

2. Composition / Information on Ingredients

Composition	CAS No.	Content %
Myclobutanil	88671-89-0	95.0
Other Ingredients		5.0

3. Hazards Identification

Primary Routes Of Exposure: Eye contact, skin contact, inhalation

Inhalation: Repeated or prolonged inhalation of dust is possibly harmful.

Eye Contact: Direct contact with material can cause the following: substantial irritation

Skin Contact: Prolonged or repeated skin contact can cause the following: slight skin irritation

Ingestion: Material is possibly harmful if swallowed.

Delayed Effects: Repeated overexposure to the active ingredient in this material can cause the following: adverse reproductive effects and embryofetotoxic effects.

4. FIRST AID MEASURES

Inhalation: Move subject to fresh air.

Eye Contact: Flush eyes with a large amount of water for at least 15 minutes. See a physician.

Skin Contact: Wash affected skin areas thoroughly with soap and water. Consult a physician if irritation persists.

Ingestion: If swallowed, give 2 glasses of water to drink. Consult a physician. Never give anything by mouth to an unconscious person.

Note to physician: If swallowed, careful evacuation of the stomach is advisable.

5. FIRE-FIGHTING MEASURES

Flash Point: 42°C (solvent)

Extinguishing Agents: Use the following extinguishing media when fighting fires involving this material: carbon dioxide, dry chemical, or water spray.

Personal Protective Equipment: Wear self-contained breathing apparatus and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal cautions:

Be careful to completely avoid skin or eye contact. Do not splatter on oneself or bystanders. Soak up liquid with absorbent and shovel into waste container. Safety glasses or goggles, rubber gloves, shoes plus socks, long-sleeved shirt, and long pants.

Cleaning methods:

Generously cover the contaminated areas with common, household detergent. Using a stiff brush and small amounts of water, work the detergent into the remaining spilled material forming slurry.

Land spill or leak:

Remove as much as possible by absorbing with inert material. Remove any contaminated soil. Place in closed, labeled containers and store in a safe place to await disposal. Seal drum and dispose of contaminated material in a facility permitted for hazardous waste.

Deactivating Chemicals: Bentonite, Fuller's Earth.

7. HANDLING AND STORAGE

Handling: Do not breathe spray mist. Take all precautions to avoid personal contact. Wear suitable protective clothing.

Store: Do not store this material near food, feed or drinking water. Store in a well ventilated

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Engineering Controls: If needed, use local exhaust to keep exposures to a minimum.

Eye/face protection: Chemical tight goggles, full faceshield in addition if splashing is possible.

Skin protection: Protective clothing as needed, impervious gloves, apron and arm covers. User should verify impermeability under normal conditions of use prior to general use.

Respiratory protection: Use MSHA-NIOSH approved respirator for pesticides. Where potential exposure under the use conditions necessitates higher level of protection, use a full-face positive pressure air supplied respirator.

Other/general protection: Eyewash station and safety shower in work area.

9. Physical and Chemical Properties

Appearance: Slight yellow solid

Odor: Odorless

Boiling point: 202-208°C.

Melting point: 63-68°C.

Vapor Pressure: 213×10^{-3} Pa

Specific gravity: 1.22 g/cc @ 23°C

Solubility in water: 142mg/l(25°C)

pH: Not applicable .

10. STABILITY AND REACTIVITY

Stability: Stable at room temperature.

Incompatibility Materials: strong oxidizing agents, particularly concentrated nitric acid.

Hazardous polymerization: Will not occur.

Conditions to avoid: Avoid contact with strong oxidizing agents, particularly concentrated nitric acid.

Combustion products of dry material: Carbon dioxide, carbon monoxide, chlorine, hydrogen chloride.; possible trace amounts of nitrogen oxides, and other toxic and noxious fumes.

11. TOXICOLOGICAL INFORMATION

Acute studies

Oral LD50 – rat: 2290 mg/kg (female); 1600 mg/kg (male)

Oral LD50 – mouse: 1910 mg/kg (male; 1840 mg/kg (female)

Dermal LD50 – rabbit: >5000 mg/kg

Inhalation LC50 – rat: >5.1 mg/L for 4 hr.

Skin Irritation – rabbit: no irritation.

Eye irritation – rabbit: severe irritation (FIFRA Classification)
moderate irritation (EEC Classification)

Sensitization – guinea pig: Allergic response observed (FIFRA Classification)
Not a sensitizer (EEC Classification)

The following data is based on the active ingredient.

Reproductive/Developmental Effects

No evidence of teratogenicity was observed in studies with rats and rabbits.

Embryotoxicity was observed at 94 mg/kg/day and above in the rat developmental toxicity study; maternal toxicity was observed at 313 mg/kg/day and above. The overall NOEL was 31 mg/kg/day in rats.

Embryotoxicity was observed at 200 mg/kg/day in the rabbit developmental toxicity study; maternal toxicity was observed at 60 mg/kg/day and above. The overall NOEL was 20 mg/kg/day in rabbits.

Systemic toxicity was observed at 200 and 1000 ppm in the rat two-generation reproduction study; minimal reproductive effects and testicular atrophy were observed at 1000 ppm (50 mg/kg/day). The NOEL for reproductive effects was 200 ppm (10 mg/kg/day) in rats.

Chronic/Subchronic Toxicity Studies

Three 3-month oral toxicity studies are on file at DPR: a rat study by O'Hara and DiDonato (1984), a mouse study by Goldman and Harris (1986), and a dog study by McLaughlin and DiDonato (1984),. Short summaries of these studies were presented in the 1988 RCD. Detail

information is given in this section to provide a more complete reference to the toxicity database

listed in Table 1.

Table 1

Species	Endpoint	NOEL /(mg/kg/day)	LOEL /(mg/kg/day)	Remarks-DPR review
Rats	testis (wt atrophy); insufficient oncogenicity testing	2.5	9.9	
Rats	testis (wt, aspermato-genesis, atrophy); liver effects	None	125	
Mice	liver (wt & MFO necrosis, hypertrophy, vacuolization, enzymes); insufficient oncogenicity testing	13.7	70	NOEL at 2.7 mg/kg/day for MFO activity ; NOEL at 13.7mg/kg/day for liver effects
Dogs	liver (wt effects hypertrophy, enzyme); slight hematological	3.1	14.3	Overt NOEL at 100 ppm ;other liver effects at as low as 10 pp m (0.31-0.41 mg/kg/day)

12. ECOLOGICAL INFORMATION

Eco-Acute Toxicity (Technical Grade).

Bluegill sunfish (*Lepomis macrochirus*), 96 Hour LC50: 2.2 mg/l

Rainbow trout (*Salmo gairdner*), 96 Hour LC50: 3.9 mg/l

Daphnia magna, 48 Hour LC50: 10.2 mg/l

Eastern oyster, 96 Hour EC50: 0.72 mg/l

Mysid shrimp (*Mysidopsis bahia*), 96 Hour LC50: 240 pg/l

Algae (*Selenastrum capricornutum*), 120 Hour EC50: 0.91 mg/l

Algae (*Scenedesmus subspicatus*), 96 Hour EC50: 2.6 mg/l

Bobwhite quail, Dietary LC50: >5000 ppm

Bobwhite quail, LD50: 510 mg/kg

Mallard duck, Dietary LC50: >5000 ppm

Honeybee, LD50: >362 pg/bee

Environmental Fate:**Fate of pesticide in water****Surface and Underground water:****Hydrolysis:**

Myclobutanil is not hydrolyse at pH 5, 7 and 9 after 28days at 28°C.

Photolysis:

DT50 : 222 days (chlorine), 0.8 days (sensitization chlorine), 25 days (the pond water)

Evaporation: Not applicable

Fate of pesticide in soil**Accumulation degradation and Leaching**

Field-trial soil dissipation studies had half-lives in the range of 50 to 400 days and indicated no significant downward movement of residues. Field trials showed myclobutanil degrades much more rapidly outdoors on foliage; the foliar decline on turf has a half-life of approximately 7 days. Submitted environmental fate studies suggest that myclobutanil has low to moderate mobility potential in soil.

13. DISPOSAL CONSIDERATIONS

For disposal, incinerate this material at a facility that complies with local, state, and federal regulations.

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.