

Section 1 - Identification of Chemical Product and Company

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Chemical nature: Dicamba is a benzoic acid derivative, present here as the dimethylamine salt.**Trade Name:** **Cheminova Dicamba 500 SL Selective Herbicide****Product Use:** Agricultural herbicide for use as described on the product label.**APVMA:** **60348****Section 2 - Hazards Identification****Statement of Hazardous Nature**

This product is classified as: Xn, Harmful. Xi, Irritating. Hazardous according to the criteria of SWA.

Not a Dangerous Good according to the Australian Dangerous Goods (ADG) Code.

Risk Phrases: R22, R36. Harmful if swallowed. Irritating to eyes.**Safety Phrases:** S20, S23, S36, S61, S24/25. When using, do not eat or drink. Do not breathe spray mists. Wear suitable protective clothing. Avoid release to the environment. Refer to special instructions/Safety Data Sheets. Avoid contact with skin and eyes.**SUSDP Classification:** S6**ADG Classification:** None allocated. Not a Dangerous Good under the ADG Code.**UN Number:** None allocated**Emergency Overview****Physical Description & Colour:** Clear colourless liquid.**Odour:** Mild but characteristic odour.**Major Health Hazards:** Symptoms of poisoning with Dicamba include loss of appetite (anorexia), vomiting, muscle weakness, slowed heart rate, shortness of breath, central nervous system effects (victim may become excited or depressed), benzoic acid in the urine, incontinence, cyanosis (bluing of the skin and gums), and exhaustion following repeated muscle spasms. In addition to these symptoms, inhalation can cause irritation of the linings of the nasal passages and the lungs, and loss of voice. This product is harmful if swallowed, eye irritant.**Potential Health Effects****Inhalation:****Short Term Exposure:** Available data indicates that this product is not harmful. However product may be mildly irritating, although unlikely to cause anything more than mild transient discomfort.**Long Term Exposure:** No data for health effects associated with long term inhalation.**Skin Contact:****Short Term Exposure:** Available data indicates that this product is not harmful. It should present no hazards in normal use. However product may be irritating, but is unlikely to cause anything more than mild transient discomfort.**Long Term Exposure:** No data for health effects associated with long term skin exposure.**Eye Contact:****Short Term Exposure:** This product is an eye irritant. Symptoms may include stinging and reddening of eyes and watering which may become copious. Other symptoms may also become evident. If exposure is brief, symptoms should disappear once exposure has ceased. However, lengthy exposure or delayed treatment may cause permanent damage.**Long Term Exposure:** No data for health effects associated with long term eye exposure.**Ingestion:**

Short Term Exposure: Significant oral exposure is considered to be unlikely. Available data shows that this product is harmful; see symptoms above. However, this product is an oral irritant. Symptoms may include burning sensation and reddening of skin in mouth and throat. Other symptoms may also become evident, but all should disappear once exposure has ceased.

Long Term Exposure: No data for health effects associated with long term ingestion.

Carcinogen Status:

SWA: No significant ingredient is classified as carcinogenic by SWA.

NTP: No significant ingredient is classified as carcinogenic by NTP.

IARC: No significant ingredient is classified as carcinogenic by IARC.

Section 3 - Composition/Information on Ingredients

Ingredients	CAS No	Conc,%	TWA (mg/m ³)	STEL (mg/m ³)
Dicamba (as the dimethylamine salt)	1918-00-9	500g/L	not set	not set
Other non hazardous ingredients	secret	10-30%	not set	not set
Water	7732-18-5	to 100%	not set	not set

This is a commercial product whose exact ratio of components may vary slightly. Minor quantities of other non hazardous ingredients are also possible.

The SWA TWA exposure value is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. The STEL (Short Term Exposure Limit) is an exposure value that may be equalled (but should not be exceeded) for no longer than 15 minutes and should not be repeated more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. The term "peak" is used when the TWA limit, because of the rapid action of the substance, should never be exceeded, even briefly.

Section 4 - First Aid Measures**General Information:**

You should call The Poisons Information Centre if you feel that you may have been poisoned, burned or irritated by this product. The number is 13 1126 from anywhere in Australia (0800 764 766 in New Zealand) and is available at all times. Have this MSDS with you when you call.

Inhalation: No first aid measures normally required. However, if inhalation has occurred, and irritation has developed, remove to fresh air and observe until recovered. If irritation becomes painful or persists more than about 30 minutes, seek medical advice.

Skin Contact: Wash gently and thoroughly with water (use non-abrasive soap if necessary) for 5 minutes or until chemical is removed.

Eye Contact: Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 20 minutes or until the product is removed, while holding the eyelid(s) open. Take care not to rinse contaminated water into the unaffected eye or onto the face. Obtain medical attention immediately. Take special care if exposed person is wearing contact lenses.

Ingestion: If swallowed, do NOT induce vomiting. Wash mouth with water and contact a Poisons Information Centre, or call a doctor.

Section 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.

Only small quantities of decomposition products are expected from this products at temperatures normally achieved in a fire. This will only occur after heating to dryness.

Fire decomposition products from this product are likely to be irritating if inhaled.

Extinguishing Media: Not Combustible. Use extinguishing media suited to burning materials.

Fire Fighting: If a significant quantity of this product is involved in a fire, call the fire brigade.

Flash point: Does not burn.

Upper Flammability Limit: Does not burn.

Lower Flammability Limit: Does not burn.

Autoignition temperature: Not applicable - does not burn.

Flammability Class: Does not burn.

Section 6 - Accidental Release Measures

Accidental release: In the event of a major spill, prevent spillage from entering drains or water courses. Wear full protective clothing including eye/face protection. All skin areas should be covered. See below under Personal Protection regarding Australian Standards relating to personal protective equipment. Suitable materials for protective clothing include rubber, PVC. Eye/face protective equipment should comprise as a minimum, protective goggles. If there is a significant chance that vapours or mists are likely to build up in the cleanup area, we recommend that you use a respirator. Usually, no respirator is necessary when using this product. However, if you have any doubts consult the Australian Standard mentioned below (section 8). Otherwise, not normally necessary.

Stop leak if safe to do so, and contain spill. Absorb onto sand, vermiculite or other suitable absorbent material. If spill is too large or if absorbent material is not available, try to create a dike to stop material spreading or going into drains or waterways. Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage, and dispose of promptly. Recycle containers wherever possible after careful cleaning. Refer to product label for specific instructions. After spills, wash area preventing runoff from entering drains. If a significant quantity of material enters drains, advise emergency services. Full details regarding disposal of used containers, spillage and unused material may be found on the label. If there is any conflict between this MSDS and the label, instructions on the label prevail. Ensure legality of disposal by consulting regulations prior to disposal. Thoroughly launder protective clothing before storage or re-use. Advise laundry of nature of contamination when sending contaminated clothing to laundry.

Section 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: This product is a Scheduled Poison. Observe all relevant regulations regarding sale, transport and storage of this schedule of poison. Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight. Make sure that the product does not come into contact with substances listed under "Incompatibilities" in Section 10. Some liquid preparations settle or separate on standing and may require stirring before use. Check packaging - there may be further storage instructions on the label.

Section 8 - Exposure Controls and Personal Protection

The following Australian Standards will provide general advice regarding safety clothing and equipment:

Respiratory equipment: **AS/NZS 1715**, Protective Gloves: **AS 2161**, Industrial Clothing: **AS2919**, Industrial Eye Protection: **AS1336** and **AS/NZS 1337**, Occupational Protective Footwear: **AS/NZS2210**.

SWA Exposure Limits

TWA (mg/m³)

STEL (mg/m³)

Exposure limits have not been established by SWA for any of the significant ingredients in this product.

The ADI for Dicamba is set at 0.03mg/kg/day. The corresponding NOEL is set at 3mg/kg/day. ADI means Acceptable Daily Intake and NOEL means No-observable-effect-level. Values taken from Australian ADI List, Dec 2006.

No special equipment is usually needed when occasionally handling small quantities. The following instructions are for bulk handling or where regular exposure in an occupational setting occurs without proper containment systems.

Ventilation: No special ventilation requirements are normally necessary for this product. However make sure that the work environment remains clean and that vapours and mists are minimised.

Eye Protection: Protective glasses or goggles should be worn when this product is being used. Failure to protect your eyes may cause them harm. Emergency eye wash facilities are also recommended in an area close to where this product is being used.

Skin Protection: You should avoid contact even with mild skin irritants. Therefore you should wear suitable impervious elbow-length gloves and facial protection when handling this product. See below for suitable material types.

Protective Material Types: We suggest that protective clothing be made from the following materials: rubber, PVC.

Respirator: Usually, no respirator is necessary when using this product. However, if you have any doubts consult the Australian Standard mentioned above. Otherwise, not normally necessary.

Eyebaths or eyewash stations and safety deluge showers should be provided near to where this product is being used.

Section 9 - Physical and Chemical Properties:

Physical Description & colour:	Clear colourless liquid.
Odour:	Mild but characteristic odour.
Boiling Point:	Approximately 100°C at 100kPa.
Freezing/Melting Point:	No specific data. Liquid at normal temperatures.
Volatiles:	Water component.
Vapour Pressure:	2.37 kPa at 20°C (water vapour pressure).
Vapour Density:	No data.
Specific Gravity:	Approx 1.18
Water Solubility:	Completely soluble in water.
pH:	7.5-8.5
Volatility:	No data.
Odour Threshold:	No data.
Evaporation Rate:	No data.
Coeff Oil/water Distribution:	No data
Autoignition temp:	Not applicable - does not burn.

Section 10 - Stability and Reactivity

Reactivity: This product is unlikely to react or decompose under normal storage conditions. However, if you have any doubts, contact the supplier for advice on shelf life properties.

Conditions to Avoid: Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight.

Incompatibilities: strong acids, strong bases, strong oxidising agents.

Fire Decomposition: Only small quantities of decomposition products are expected from this products at temperatures normally achieved in a fire. This will only occur after heating to dryness. Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. Nitrogen and its compounds, and under some circumstances, oxides of nitrogen. Occasionally hydrogen cyanide gas in reducing atmospheres. Water. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death.

Polymerisation: This product will not undergo polymerisation reactions.

Section 11 - Toxicological Information

Toxicity: Acute toxicity: Dicamba is harmful by ingestion, by inhalation and dermal exposure. The oral LD₅₀ for Dicamba is 757 to 1707 mg/kg in rats, 1190 mg/kg in mice, 2000 mg/kg in rabbits, and 566 to 3000 mg/kg in guinea pigs. The dermal LD₅₀ in rabbits is greater than 2000 mg/kg. The inhalation LC₅₀ for Dicamba in rats is greater than 200 mg/L. Symptoms of poisoning with Dicamba include loss of appetite (anorexia), vomiting, muscle weakness, slowed heart rate, shortness of breath, central nervous system effects (victim may become excited or depressed), benzoic acid in the urine, incontinence, cyanosis (bluing of the skin and gums), and exhaustion following repeated muscle spasms. In addition to these symptoms, inhalation can cause irritation of the linings of the nasal passages and the lungs, and loss of voice. Most individuals who have survived severe poisoning from Dicamba have recovered within 2 to 3 days with no permanent effects. Dicamba is very irritating and corrosive, and can cause severe and permanent damage to the eyes. The eyelids may swell and the cornea may be cloudy for a week after Dicamba is splashed in the eyes. In some individuals, Dicamba is a skin sensitizer and may cause skin burns. There is no evidence that Dicamba is absorbed into the body through the skin.

Chronic toxicity: Doses of 25 mg/kg/day in the diet administered to rats for 2 years produced no observable effects on survival, body weight, food consumption, organ weight, blood chemistry, or tissue structure. Consumption of Dicamba at high levels over a long period of time has been shown to cause changes in the liver and a decrease in body weight in rats. In mice, some enlargement of liver cells has occurred.

Reproductive effects: In a three-generation study, Dicamba did not affect the reproductive capacity of rats. When rabbits were given doses of 0.5, 1, 3, 10, or 20 mg/kg/day of technical Dicamba from days 6 through 18 of pregnancy, toxic effects on the mothers, slightly reduced foetal body weights, and increased loss of foetuses occurred at the 10 mg/kg dose. These data suggest that Dicamba is unlikely to cause reproductive effects in humans at expected exposure levels.

Teratogenic effects: No teratogenic effects have been shown in lab animals such as rabbits and rats exposed to Dicamba.

Mutagenic effects: Dicamba has not been shown to be a mutagen.

Carcinogenic effects: Rats fed up to 25 mg Dicamba/kg/day for 2 years showed no increased incidence of tumours. This evidence suggests that Dicamba is not carcinogenic.

Organ toxicity: Chronic exposure can lead to the development of the same symptoms as described for acute exposure.

Fate in humans and animals: Dicamba was excreted rapidly by rats, mainly in the urine, when administered orally or subcutaneously; 1 to 4% was excreted in the faeces. Mice, rats, rabbits, and dogs excreted 85% of an oral dose as unmetabolized Dicamba in the urine within 48 hours of dosing. Eventually, between 90 and 99% of the dose was excreted unmetabolized in the urine. This indicates that Dicamba is rapidly absorbed into the bloodstream from the gastrointestinal tract. When Dicamba was ingested daily in the feed, the concentrations in different organs reached a steady state within 2 weeks. When daily intake stopped, storage in the organs declined rapidly. It is therefore concluded that Dicamba does not bioaccumulate in mammalian tissues.

Section 12 - Ecological Information

This product is biodegradable. It will not accumulate in the soil or water or cause long term problems.

Effects on birds: Dicamba is practically nontoxic to birds. The LD₅₀ for technical Dicamba in mallard ducks is 2009 mg/kg. The 8-day dietary LC₅₀ in mallards and in bobwhite quail is greater than 10,000 ppm.

Effects on aquatic organisms: Dicamba is of low toxicity to fish. The LC₅₀ (96-hour) for technical Dicamba is 135 mg/L in rainbow trout and bluegill sunfish, greater than 100 mg/L in grass shrimp, and greater than 180 mg/L in fiddler crab and sheepshead minnow. The LC₅₀ (48-hour) for Dicamba is 35 mg/L in rainbow trout, 40 mg/L in bluegill, 465 mg/L in carp, and 110 mg/L in *Daphnia magna*, a small freshwater crustacean.

Effects on other organisms: Dicamba poses little threat to wildlife. Dicamba is not toxic to bees.

Environmental Fate:

Breakdown in soil and groundwater: Dicamba is moderately persistent in soil. The half-life of Dicamba in soil is typically 1 to 4 weeks. Under conditions suitable for rapid metabolism, the half-life is less than 2 weeks. Metabolism by soil microorganisms is the major pathway of loss under most soil conditions. The rate of biodegradation increases with temperature and increasing soil moisture, and tends to be faster when soil is slightly acidic. When soil moisture increases above 50%, the rate of biodegradation declines. Dicamba slowly breaks down in sunlight. Volatilization from soil surfaces is probably not significant, but some volatilization may occur from plant surfaces. It is stable to water and other chemicals in the soil. Dicamba does not bind to soil particles and is highly soluble in water. It is therefore highly mobile in the soil and may contaminate groundwater. In humid areas, Dicamba will be leached from the soil in 3-12 weeks.

Breakdown in water: In water, microbial degradation is the main route of Dicamba disappearance. Photolysis may also occur. Aquatic hydrolysis, volatilization, adsorption to sediments, and bioconcentration are not expected to be significant.

Breakdown in vegetation: Dicamba is rapidly taken up by the leaves and roots of plants, and it is readily translocated to other plant parts. In some plant species, Dicamba accumulates in the tips of mature leaves. Desirable broadleaf plants such as fruit trees and tomatoes may be harmed during their growth and development stages. Residues of Dicamba on treated plants can disappear through exudation from the roots into the surrounding soil, metabolism within the plant, or by loss from leaf surfaces.

Section 13 - Disposal Considerations

Disposal: There are many pieces of legislation covering waste disposal and they differ in each state and territory, so each user must refer to laws operating in their area. In some areas, certain wastes must be tracked. The Hierarchy of Controls seems to be common - the user should investigate: Reduce, Reuse, and Recycle and only if all else fails should disposal be considered. Note that properties of a product may change in use, so that the following suggestions may not always be appropriate. The following may help you in properly addressing this matter for this product. Special help is available for the disposal of Agricultural Chemicals. The product label will give general advice regarding disposal of small quantities, and how to cleanse containers. However, for help with the collection of unwanted rural chemicals, contact ChemClear 1800 008 182 <http://www.chemclear.com.au/> and for help with the disposal of empty drums, contact DrumMuster <http://www.drummuster.com.au/> where you will find contact details for your area.

Section 14 - Transport Information

ADG Code: This product is not classified as a Dangerous Good. No special transport conditions are necessary unless required by other regulations.

Section 15 - Regulatory Information

AICS: All of the significant ingredients in this formulation are compliant with NICNAS regulations.

The following ingredient: Dicamba is mentioned in the SUSDP.

Section 16 - Other Information

This Material Safety Data Sheet summarises 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 SDS and consider the information in the context of 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 this company.

DISCLAIMER

This product must be used, stored and handled strictly as directed in accordance with the label and this Safety Data Sheet. To the extent permitted by law, Cheminova Australia Pty Ltd, the trademark owner, manufacturer and vendors of the product will not be liable for any loss or damage arising from use, storage or handling contrary to the product label and MSDS.