Section 1 - Identification of Chemical Product and Company

Statement of Hazardous Nature
This product is classified as: Hazardous according to the criteria of NOHSC Australia.
Not a Dangerous Good according to the Australian Dangerous Goods (ADG) Code.

Emergency Response: 1800 033 111
Sipcam Pacific Australia Pty Ltd
Suite 11/23-31 Gheringhap St
Geelong, Victoria, 3220 AUSTRALIA

Phone: (03)5223 3746
Fax (03)5223 3756
ACN 073 176 888

Substance: Active ingredient is an aryloxyphenoxy propionic acid derived herbicide.
Trade Name: Ovation 500
Product Use: Agricultural herbicide for use as directed on product label.
Creation Date: **June, 2002**
Revision Date: **June, 2002**

Section 2 – Composition/Information on Ingredients

Ingredients	CAS No	Conc,%	TWA (mg/m^3)	STEL (mg/m^3)
Diclofop-methyl	51338-27-3	50	not set	not set
N-Methyl-2-pyrrolidone	872-50-4	8	not set	not set
Hydrocarbon solvent	64792-94-5	39	not set	not set
Other non hazardous ingredients	secret	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 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 should not be exceeded for more than 15 minutes and should not be repeated for 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 3 - Hazards Identification

Risk Phrases: R22, R36. Harmful if swallowed. Irritating to eyes.
Safety Phrases: S20, S25. When using, do not eat or drink. Avoid contact with eyes.
SUSDP Classification: S6
ADG Classification: None allocated. Not a Dangerous Good.
UN Number: None allocated

Emergency Overview

Physical Description & colour: Clear yellow liquid.
Odour: Hydrocarbon/solvent odour.
Major Health Hazards for Diclofop-methyl: The acute oral LD_{50} for rats ranged between 563-693 mg/kg (in sesame oil). The acute dermal LD_{50} for female rats was greater than 2,000 mg/kg. The no effect level (NEL) for a 90-day feeding to rats was 12.5 mg/kg and 8 mg/kg for a 15-month feeding to dogs. The acute percutaneous LD_{50} for rats was greater than 5,000 mg/kg. The acute inhalation toxicity for rats exposed to technical Diclofop-methyl was greater than 3.83 mg/l/hour. Rats exposed to a formulated product containing Diclofop-methyl had an oral LD_{50} value of greater than 2,000 mg/kg. The acute dermal LD_{50} for exposure to the same product was greater than 5,000 mg/kg. The inhalation LC_{50} in rats for a 36%EC formulation of Diclofop-methyl over a four-hour period was 8.3 mg/l air.

Potential Health Effects

See section 11 for Chronic exposure studies.

Inhalation
Short term exposure: This product may be irritating, but is unlikely to cause anything more than mild transient discomfort.

Skin Contact:
Short term exposure: This product may be irritating, but is unlikely to cause anything more than mild transient discomfort.

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.

Ingestion:
Short term exposure: Available data shows that this product is harmful, but symptoms are not available.

Carcinogen Status:

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

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 and is available at all times. Have this MSDS with you when you call.

Inhalation: If irritation is experienced, remove victim from area and allow to breath fresh air. If irritation persists, call a doctor or poisons information centre.
Skin Contact: Irritation is unlikely. However, if irritation does occur, flush with lukewarm, gently flowing water for 5 minutes or until chemical is removed.
Eye Contact: Quickly and gently blot or brush away product. 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.
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: This product is classified as a C1 combustible product. There is no risk of an explosion from this product under normal circumstances if it is involved in a fire. Violent steam generation or eruption may occur upon application of direct water stream on hot liquids.
Fire decomposition products from this product may be toxic if inhaled. Take appropriate protective measures.
Extinguishing Media: Preferred extinguishing media are carbon dioxide, dry chemical, foam, water fog.
Fire Fighting: When fighting fires involving significant quantities of this product, wear a splash suit complete with self contained breathing apparatus.

Flash point:	Not flammable.
Upper Flammability Limit:	No data.
Lower Flammability Limit:	No data.
Autoignition temperature:	No data.
Flammability Class:	C1

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 face mask, face shield and gauntlets. All skin areas should be covered. See above under Personal Protection regarding Australian Standards relating to personal protective equipment. Suitable materials for protective clothing include PVC, Viton. 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. Avoid using sawdust or other combustible material. Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage, and dispose of promptly. 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: Note that his product is combustible and therefore, for Storage, meets the definition of Dangerous Goods in some states. We suggest you consult your state's Dangerous Goods laws in order to clarify your obligations regarding the storage of this product.

Make sure that containers of this product are kept tightly closed. Keep away from combustible materials. Make sure that the product does not come into contact with substances listed under "Materials to avoid" 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**.

Exposure Limits	**TWA (mg/m^3)**	**STEL (mg/m^3)**

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

The ADI for Diclofop-methyl is set at 0.002mg/kg/day. The corresponding NOEL is set at 0.25mg/kg/day. ADI means Acceptable Daily Intake and NOEL means No-observable-effect-level. Values taken from Australian ADI List, January 2001.

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

Eye Protection: Protective glasses or goggles must be worn when this product is being used. Failure to protect your eyes may lead to severe harm to eyes or to general health. Emergency eye wash facilities must also be available in an area close to where the 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: PVC, Viton.

Respirator: If there is a significant chance that vapours or mists are likely to build up in the area where this product is being used, we recommend that you use a respirator. It should be fitted with a type G cartridge, suitable for agricultural chemicals. Otherwise, not normally necessary.

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

Section 9 - Physical and Chemical Properties:

Physical Description & colour:	Clear yellow liquid.
Odour:	Hydrocarbon/solvent odour.
Boiling Point:	Above 120°C at 100kPa
Freezing/Melting Point:	No specific data. Liquid at normal temperatures.
Volatiles:	No data.
Vapour Pressure:	No data.
Vapour Density:	No data.
Specific Gravity:	1.13 approx
Water Solubility:	Emulsifiable.
pH:	No data.
Volatility:	No data.
Odour Threshold:	No data.
Evaporation Rate:	No data.
Coeff Oil/water distribution:	No data
Autoignition temp:	No data.

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: This product should be kept in a cool place, preferably below 30°C. Keep away from sources of sparks or ignition.
Incompatibilities: strong oxidising agents.
Fire Decomposition: 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. Hydrogen chloride gas, other compounds of chlorine. Water. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death. Hydrogen cyanide poisoning signs and symptoms are weakness, dizziness, headache, nausea, vomiting, coma, convulsions, and death. Death results from respiratory arrest. Hydrogen cyanide gas acts very rapidly; symptoms and death can both occur quickly.
Polymerisation: This product is unlikely to undergo polymerisation processes.

Section 11 – Toxicological Information

Toxicity for Diclofop-methyl: Acute Toxicity: The acute oral LD_{50} for rats ranged between 563-693 mg/kg (in sesame oil). The acute dermal LD_{50} for female rats was greater than 2,000 mg/kg. The no effect level (NEL) for a 90-day feeding to rats was 12.5 mg/kg and 8 mg/kg for a 15-month feeding to dogs. The acute percutaneous LD_{50} for rats was greater than 5,000 mg/kg. The acute inhalation toxicity for rats exposed to technical Diclofop-methyl was greater than 3.83 mg/l/hour. Rats exposed to a formulated product containing Diclofop-methyl had an oral LD_{50} value of greater than 2,000 mg/kg. The acute dermal LD_{50} for exposure to the same product was greater than 5,000 mg/kg. The inhalation LC_{50} in rats for a 36%EC formulation of Diclofop-methyl over a four-hour period was 8.3 mg/l air. Inhalation: a rate of 4,800 ml of a 5% solution in a 4 cubic meter container for four hours was studied. Deaths occurred with rabbits, but not with rats, guinea pigs or cats at this high rate. The 4-hr LC_{50} for rats was 8,274 mg/m3. The acute dermal LD_{50} for rabbits was reported to be 640 mg/kg. A Diclofop-methyl study on rabbits indicated no skin irritation at 24, 48 and 72 hours. Eye irritation in rabbits was found to be zero at 3, 7, or 24 hours. Other studies have reported eye irritation in rabbits as corneal opacity spots and conjunctival irritation in both rinsed and non-rinsed groups. Reversibility was observed in all but one animal in each group at 7 days. A 10% solution produced corneal opacity in some of the animals that was completely reversible in 72 hours. The acute dermal LD_{50} for rabbits was found to be 640 mg/kg.
Chronic Toxicity: In 2-year feeding trials the NEL for rats was 20 mg/kg diet. The 15 month NEL for dogs was 8 mg/kg diet. Repeated absorption of chlorinated diphenyl ethers has resulted in liver damage in animals.
Reproductive Effects The NEL in a three-generation study of technical Diclofop-methyl in rats was greater than 30 ppm.
Teratogenic Effects: In a rat teratology study, the teratogenic No-Observable-Effect-Level (NOEL) was 100 ppm, the highest dose tested. A rabbit teratology study reported a teratogenic NOEL of 3 mg/kg/day, the highest dose tested, and a NOEL for fetotoxicity of 3.0 mg/kg/day.
Mutagenic Effects: Ames assay testing revealed no mutagenic effects using four bacterial strains with and without enzyme activation in dose ranges up to 5 miligrams. A micronucleus test in mice indicated no mutagenic effect in a strain with known sensitivity. In a dominant lethal assay, the NOEL was greater than 100 mg/kg. No impairment in fertility of the male mice and no difference in the number of live and dead implantations in the female animals were noted.
Carcinogenic Effects: No information was available.
Organ Toxicity: No information was available.
Fate in Humans and Animals: Diclofop-methyl is metabolized in mammals via hydroxylation. Chlorophenoxy compounds are absorbed across the gut wall, lung and skin. They are not significantly stored in fat and urinary excretion is the principal route of elimination. Elimination as a conjugate is within 96 hours.

Section 12 – Ecological Information

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

For Diclofop-methyl:

Effects on Birds: The acute oral LD_{50} to bobwhite quail was 4,400 mg/kg; and greater than 10,000 mg/kg for Japanese quail. The eight-day dietary LC_{50} value for coturnix quail was greater than 20,000 ppm; 13,000 ppm for bobwhite quail; and greater than 20,000 ppm for mallard ducks.
Effects on Aquatic Organisms: The 96-hour LC_{50} for technical Diclofop-methyl in rainbow trout was 0.35 mg/l water. The 96-hour LC_{50} in rainbow trout for a formulated product was 1.38 ppm; and 2.60 ppm for carp. The 48-hour LC_{50} in the crustacean Daphnia for a formulated product was 4.03 ppm.

Effects on Other Animals (Nontarget species): The LD_{50} for honeybees in a lab test of a formulated product indicated it was nontoxic at the highest dose tested; 48 kg/ha.

ENVIRONMENTAL FATE

Breakdown of Chemical in Soil and Groundwater: Under aerobic conditions, Diclofop-methyl hydrolyzes in a matter of days in the soil to 2-[4-(2',4'-dichlorophenoxy)phenoxy] propanoic acid which in turn is degraded relatively quickly with a half-life of 10 days in sandy soils and about 30 days in sandy clay soils. Small amounts of 4-(2,4 dichlorophenoxy)phenol are also produced. Field studies of application rates up to 3.4 kg active ingredient per hectare showed very low finite residues in soil. At harvest, small finite residues were present in the 0-7.5 cm soil level and rare small residues were present above the 15 cm level. These studies indicate that Diclofop-methyl does not leach downward or move laterally, and dissipates quickly in soil.

Breakdown of Chemical in Surface Water: No information was available.

Breakdown of Chemical in Vegetation: Diclofop-methyl is absorbed via the leaves and in damp soil there is slight absorption via the roots. The compound inhibits root growth.

Section 13 – Disposal Considerations

Disposal: Instructions concerning the disposal of this product and its containers are given on the product label. These should be carefully followed.

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 to be found in the public AICS Database.

Section 16 – Other Information

Much of the Information in this MSDS came from Extoxnet, a Pesticide Information Project of Cooperative Extension Offices of Cornell University, Oregon State University, the University of Idaho, and the University of California at Davis and the Institute for Environmental Toxicology, Michigan State University.

This MSDS contains only safety-related information. For other data see product literature.

Acronyms:

ADG Code	Australian Code for the Transport of Dangerous Goods by Road and Rail
AICS	Australian Inventory of Chemical Substances
CAS number	Chemical Abstracts Service Registry Number
Hazchem Number	Emergency action code of numbers and letters that provide information to emergency services especially firefighters
IARC	International Agency for Research on Cancer
NOHSC	National Occupational Health and Safety Commission
NOS	Not otherwise specified
NTP	National Toxicology Program (USA)
R-Phrase	Risk Phrase
SUSDP	Standard for the Uniform Scheduling of Drugs & Poisons
UN Number	United Nations Number

Contact Points:		**AUSTRALIA**
Police and Fire Brigade:	**Dial**	**000**
If ineffective:	**Dial**	**1100 (Exchange)**
For emergency response:	**Dial**	**1800 033 111**
National Poisons Information Centre:	**Dial 13 1126 (from anywhere in Australia)**	

Please read all labels carefully before using product.

This MSDS 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 MSDS 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. The responsibility for products sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available on request.

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