



Section 1 - Identification of The Material and Supplier

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Chemical nature: Methidathion is an organophosphorus based insecticide ingredient.
Trade Name: Suprathion 400 EC Insecticide
Product Use: Agricultural insecticide for use as directed on label.
Creation Date: June, 2002
This version issued: August, 2012

Section 2 - Hazards Identification

Statement of Hazardous Nature

This product is classified as: Hazardous according to the criteria of SWA Australia.

Dangerous according to the Australian Dangerous Goods (ADG) Code.

Risk Phrases: R10, R28, R38, R20/21. Flammable. Very toxic if swallowed. Irritating to skin. Harmful by inhalation and in contact with skin.

Safety Phrases: S20, S24, S29, S33, S38. When using, do not eat or drink. Avoid contact with skin. Do not empty into drains. Take precautionary measures against static discharges. In case of insufficient ventilation, wear suitable respiratory equipment.

SUSMP Classification: S7

ADG Classification: Class 6.1: Toxic substances. Sub Risk: Class 3: Flammable liquids.)

UN Number: 3017, ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point not less than 23 °C

Emergency Overview

Physical Description & colour: Green coloured liquid.

Odour: Mild, characteristic odour.

Major Health Hazards: very toxic if swallowed, harmful by inhalation and in contact with skin, Signs and symptoms associated with mild exposures to organophosphate and carbamate pesticides include: headache, fatigue, dizziness, loss of appetite with nausea, stomach cramps and diarrhoea; blurred vision associated with excessive tearing; contracted pupils of the eye; excessive sweating and salivation; slowed heartbeat, often fewer than 50 per minute; rippling of surface muscles just under the skin. These symptoms may be mistaken for those of flu, heat stroke or heat exhaustion, or upset stomach. Moderately severe organophosphate and carbamate insecticide poisoning cases exhibit all the signs and symptoms found in mild poisonings, but in addition, the victim: is unable to walk; often complains of chest discomfort and tightness; exhibits marked constriction of the pupils (pinpoint pupils); exhibits muscle twitching; has involuntary urination and bowel movement. Severe poisonings are indicated by incontinence, unconsciousness and seizures.

Potential Health Effects

See section 11 for Chronic exposure studies.

Inhalation

Short term exposure: Symptoms are described fully above.

Skin Contact:

Short term exposure: Symptoms are described fully above.

Eye Contact:

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

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**Ingestion:**

Short term exposure: Symptoms are described fully above.

Carcinogen Status:

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

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

IARC: Xylene is Class 3 - unclassifiable as to carcinogenicity to humans.

Section 3 - Composition/Information on Ingredients

Ingredients	CAS No	Conc, %	TWA (mg/m ³)	STEL (mg/m ³)
Methidathion	950-37-8	40	not set	not set
Xylene	1330-20-7	56	350	655
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 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.

If swallowed, splashed on skin or inhaled, contact a Poisons Information Centre or a doctor at once. Remove any contaminated clothing and wash skin thoroughly. If swallowed, use of activated charcoal may be advised.

Inhalation: If inhalation occurs, contact a Poisons Information Centre, or call a doctor at once. Remove source of contamination or move victim to fresh air. If breathing is difficult, oxygen may be beneficial if administered by trained personnel, preferably on a doctor's advice. DO NOT allow victim to move about unnecessarily. Symptoms of pulmonary oedema can be delayed up to 48 hours after exposure.

Skin Contact: If significant skin contact occurs, wash gently and thoroughly with water (use non-abrasive soap if necessary) for 10 minutes or until chemical is removed. Under running water, remove contaminated clothing, shoes and leather goods (e.g. watchbands and belts). Contact a Poisons Information Centre, or call a doctor.

Eye Contact: No effects expected. If irritation does occur, flush contaminated eye(s) with lukewarm, gently flowing water for 5 minutes or until the product is removed.

Ingestion: If swallowed, rinse mouth thoroughly with water and contact a Poisons Information Centre. Urgent hospital treatment is likely to be needed. Give activated charcoal if instructed.

Section 5 – Fire Fighting Measures

Fire and Explosion Hazards: This product is classified as a flammable liquid. There is a moderate risk of an explosion from this product if commercial quantities are involved in a fire. Firefighters should take care and appropriate precautions. Violent steam generation or eruption may occur upon application of direct water stream on hot liquids. Vapours from this product are heavier than air and may accumulate in sumps, pits and other low-lying spaces, forming potentially explosive mixtures. They may also flash back considerable distances. Fire decomposition products from this product are likely to be toxic if inhaled. Take appropriate protective measures.

Extinguishing Media: Try to contain spills, minimise spillage entering drains or water courses.

Fire Fighting: If a significant quantity of this product is involved in a fire, call the fire brigade. There is a danger of a violent reaction or explosion if significant quantities of this product are involved in a fire. Recommended personal protective equipment is liquid-tight chemical protective clothing and breathing apparatus.

Flash point: Flammable

Upper Flammability Limit: 7%

Lower Flammability Limit: 1%

Autoignition temperature: No data.

Flammability Class: Flammable liquid

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Section 6 – Accidental Release Measures

Accidental release: In the event of a major spill, prevent spillage from entering drains or water courses. Evacuate the spill area and deny entry to unnecessary and unprotected personnel. Immediately call the Fire Brigade. Wear full protective chemically resistant clothing including face mask, face shield, gauntlets and self contained breathing apparatus. See above under Personal Protection regarding Australian Standards relating to personal protective equipment. Suitable materials for protective clothing include rubber, PVC. 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. Because of the toxicity of this product, special personal care should be taken in any cleanup operation. 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: This product is a Scheduled Poison. Observe all relevant regulations regarding sale, transport and storage of this class of poison. Store in a cool, well ventilated area. Check containers periodically for leaks. Containers should be kept closed in order to minimise contamination. Make sure that the product does not come into contact with substances listed under "Materials to avoid" in Section 10. If you keep more than 2500kg or L of Dangerous Goods of Packaging Group II, you may be required to license the premises or notify your Dangerous Goods authority. If you have any doubts, we suggest you contact your licensing authority in order to clarify your obligations. 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**, Occupational Protective Clothing: AS/NZS 4501 set 2008, Industrial Eye Protection: **AS1336** and **AS/NZS 1337**, Occupational Protective Footwear: **AS/NZS2210**.

SWA Exposure Limits	TWA (mg/m³)	STEL (mg/m³)
Xylene	350	655

The ADI for Methidathion is set at 0.01mg/kg/day. The corresponding NOEL is set at 0.1mg/kg/day. ADI means Acceptable Daily Intake and NOEL means No-observable-effect-level. Values taken from Australian ADI List, Sept 2011.

Ventilation: This product should only be used in a well ventilated area. If natural ventilation is inadequate, use of a fan is suggested.

Eye Protection: Eye protection such as protective glasses or goggles is recommended when this product is being used.

Skin Protection: Prevent skin contact by wearing impervious gloves, clothes and, preferably, apron. Make sure that all skin areas are covered. See below for suitable material types.

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

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.

Safety deluge showers should be provided near to where this product is being used.

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Section 9 - Physical and Chemical Properties:

Physical Description & colour:	Green coloured liquid.
Odour:	Mild, characteristic odour.
Boiling Point:	Not available.
Freezing/Melting Point:	No specific data. Liquid at normal temperatures.
Volatiles:	No data.
Vapour Pressure:	No data.
Vapour Density:	No data.
Specific Gravity:	0.94-0.98 at 20°C
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 heat, flames and sparks. Handle and open containers carefully.

Incompatibilities: oxidising agents.

Fire Decomposition: Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. Oxides of sulfur (sulfur dioxide is a respiratory hazard) and other sulfur compounds. Most will have a foul odour. Oxides of phosphorus and other phosphorus compounds. 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 is unlikely to undergo polymerisation processes.

Section 11 – Toxicological Information

Acute toxicity: Methidathion is highly toxic via the oral route, with reported acute oral LD₅₀ values of 25 to 54 mg/kg in the rat, and 18 to 25 mg/kg in the mouse. Other reported oral LD₅₀ values include 25 mg/kg in guinea pigs, 80 mg/kg in rabbits, and 200 mg/kg in dogs. It is highly toxic via the dermal route as well, with reported dermal LD₅₀ values of 85 to 94 mg/kg in the rat. Methidathion is only a mild skin irritant and is nonirritating to the eyes (in rabbits). Via the inhalation route, it may be slightly toxic, with a reported 4-hour inhalation LC₅₀ of 3.6 mg/L in rats. Effects due to acute Methidathion exposures are similar to those caused by other organophosphate pesticides, and may include nausea, vomiting, cramps, diarrhea, salivation, headache, dizziness, muscle twitching, difficulty breathing, blurred vision, and tightness in the chest. High acute exposure may cause intense breathing problems, including paralysis of the respiratory muscles.

Chronic toxicity: Beagle dogs fed small doses of the compound for 2 years experienced no compound related effects at or below the dose of 0.10 mg/kg/day. At doses of 0.4 mg/kg/day and above, the dogs experienced enzymatic changes and liver alterations. Inhibition of red blood cell cholinesterase, an enzyme, was observed only at the highest dose tested (1.6 mg/kg/day). Rats also have a low tolerance for the compound. Compound related effects were first noted in the rats at doses of 2 mg/kg and above and included cholinesterase inhibition in the blood and brain and some nerve related effects. At the highest dose of 5 mg/kg, the rats ate more food but had less body weight gain. They also developed skin lesions and foam in their lungs. Rhesus monkeys fed small amounts of the compound developed changes in blood cholinesterase activity at doses of 1 mg/kg/day and above. Humans ingesting very small amounts of the compound at doses of 0.11 mg/kg/day for 6 weeks had no noticeable clinical effects. A study of exposure levels of mixer/loaders of Methidathion in California showed that the greatest exposure potential to the compound was through the skin (dermal).

Reproductive effects: Moderate amounts of Methidathion caused a number of adverse reproductive effects. When male and female rats were fed moderate amounts of Methidathion over two successive litters, the parents experienced tremors, decreased food consumption and decreased ovary weights at 1.25 mg/kg/day. The low dose of 0.25 mg/kg/day disrupted mating behavior and also affected nursing offspring. At 2.5 mg/kg/day (the highest dose

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tested), stillbirths and decreased pup survival were observed. Reproductive effects in humans as a result of Methidathion exposure are unlikely under normal circumstances.

Teratogenic effects: Small to moderate amounts of Methidathion administered to pregnant rats and rabbits produced no birth defects in the offspring. The pregnant females experienced several compound related effects, most of which were typical of cholinesterase inhibition. The compound is unlikely to pose a developmental risk to humans.

Mutagenic effects: Methidathion did not induce any genetic changes in a number of tests for gene mutation, chromosomal aberrations, and DNA damage. The various gene mutation studies were conducted on hamster bone marrow cells, in mammalian cells, and on several species of bacteria. These data indicate that Methidathion is not mutagenic.

Carcinogenic effects: Methidathion caused malignant and benign liver tumors (adenomas) in male mice fed 2.5 mg/kg/day for 2 years. Additional tumors (carcinomas) were found in the male mice fed 5 mg/kg/day over the same period. This higher feeding level also produced numerous other signs of toxicity. Since these results apply to only one sex in one species, the carcinogenic potential of Methidathion is unclear.

Organ toxicity: Target organs in animal studies include the nervous system, liver, gall bladder, and ovaries.

Fate in humans and animals: Methidathion is rapidly absorbed, broken down, and eliminated in animals. Following absorption of the compound, the majority is lost as a breakdown product through the lungs. Between 30 and 50% of the ingested amount is eliminated (as breakdown products) in urine. Half of the initial amount of the compound is removed from mammals within 6 hours. The breakdown products of the parent compound are not of toxicological concern. Only very small amounts of various metabolic products of Methidathion have been detected in milk from cows and in chicken eggs.

Classification of Hazardous Ingredients

Ingredient	Risk Phrases
Methidathion	C \geq 25% T+ R28: R21
Xylene	Conc \geq 20%: Xn; R20/21; R38

Section 12 – Ecological Information

Effects on birds: Methidathion is highly toxic to birds following acute exposure. The reported oral LD₅₀ values for the compound are 23 mg/kg to 33 mg/kg in mallards, 8.41 mg/kg in Canadian geese, 33.2 mg/kg in the ring-necked pheasant, and 225 mg/kg in the chukar partridge.

Effects on aquatic organisms: The compound is very highly acutely toxic to aquatic organisms (both vertebrate and invertebrate); the reported LC₅₀ values of the compound are 10 to 14 µg/L in rainbow trout and 2 to 9 µg/L in bluegill sunfish. Tests on lobsters indicated that the combination of Methidathion and another organophosphate insecticide, phosphamidon, was more toxic than either compound separately or than would be expected if the toxicities were added together. Studies with bluegill sunfish indicate that there is only a slight potential that the compound would accumulate in fish tissues. Maximum levels of the residues of the pesticide after 1 month of exposure to very low concentrations in the water, 0.05µg/L, were 1.0µg/kg in the edible tissue, 3.9µg/kg in nonedible tissue, and 2.4µg/kg in whole fish. These concentrations indicate a low bioconcentration factor of 46 for whole fish. After 2 weeks in water without Methidathion, the concentration in whole fish fell by nearly 80%.

Effects on other organisms: Methidathion is slightly toxic to bees.

Environmental Fate:

Breakdown in soil and groundwater: Methidathion is of low persistence in the soil environment; reported field half-lives are 5 to 23 days, with a representative value of about 7 days. Breakdown of the compound in soil occurs through the action of soil microorganisms. Under alkaline conditions, Methidathion is rapidly degraded by chemical action. Methidathion and its breakdown products are poorly bound by soils, and so may be mobile. However, they have not been detected in any groundwater sources. This is probably due to the short half-life of the compound and its degradates.

Breakdown in water: No data are currently available.

Breakdown in vegetation: In plants, Methidathion is rapidly metabolized. Oranges sprayed at a rate of about 2.5 kilos per hectare had residues of the compound of about 0.1µg/ml. Within 2 days over 60% of the compound was removed from the outside of the fruit, and within 1 week, less than 1% of the compound remained.

Section 13 – Disposal Considerations

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

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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: 3017, ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point not less than 23 °C

Hazchem Code: •3W

Special Provisions: 61, 274

Limited quantities: ADG 7 specifies a Limited Quantity value of 100 ml for this class of product.

Packaging Group: II

Packaging Method: P001, IBC02

Class 6 Toxic Substances shall not be loaded in the same vehicle or packed in the same freight container with Classes 1 (Explosives), 3 (Flammable Liquids where the Flammable Liquid is nitromethane), 5.1 (Oxidising Agents where the Toxic Substances are Fire Risk Substances), 5.2 (Organic Peroxides where the Toxic Substances are Fire Risk Substances), 8 (Corrosive Substances where the Toxic Substances are cyanides and the Corrosives are acids), Foodstuffs and foodstuff empties. They may however be loaded in the same vehicle or packed in the same freight container with Classes, 2.1 (Flammable Gases), 2.2 (Non-Flammable, Non-Toxic Gases), 2.3 (Toxic Gases), 3 (Flammable liquids, except where the flammable liquid is nitromethane), 4.1 (Flammable Solids), 4.2 (Spontaneously Combustible Substances), 4.3 (Dangerous When Wet Substances), 5.1 (Oxidising Agents except where the Toxic Substances are Fire Risk Substances), 5.2 (Organic Peroxides except where the Toxic Substances are Fire Risk Substances), 7 (Radioactive Substances), 8 (Corrosive Substances except where the Toxic Substances are cyanides and the Corrosives are acids), 9 (Miscellaneous Dangerous Goods)

Section 15 – Regulatory Information

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

Section 16 – Other Information

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, 7th Edition
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
SWA	Safe Work Australia, formerly ASCC and NOHSC
NOS	Not otherwise specified
NTP	National Toxicology Program (USA)
R-Phrase	Risk Phrase
SUSMP	Standard for the Uniform Scheduling of Medicines & Poisons
UN Number	United Nations Number

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Contact Points:

Call Adama on (02)9431 7800

Fax: (02)9431 7700 and ask for the technical manager.

Police and Fire Brigade:

Dial 000

Emergency contact:

1800 024 973 (24 hours)

If ineffective:

**Dial Poisons Information Centre
(13 1126 from anywhere in Australia)**

The information contained in this Material Safety Data Sheet is provided in good faith and is believed to be correct at the date hereof. However, it is expected that individuals receiving the information will exercise their independent judgement in determining its appropriateness for a particular purpose. Adama Australia Pty Ltd makes no representation as to the accuracy or comprehensiveness of the information and to the full extent allowed by law excludes all liability whatsoever, whether with respect to negligence or otherwise, for any loss or damage arising from or connection with the supply or use of the information in this Material Safety Data Sheet.

Please read all labels carefully before using product.

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