MATERIAL SAFETY DATA SHEET

Date of Issue: December 2012
MSDS No. FMC/OME2900/1

SECTION 1 IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: FMC Omethoate 290 Miticide

Other Names: Omethoate. Group 1B Insecticide. Organphosphorus pesticide.
Use: Agricultural insecticide.
Company: FMC Crop Protection Pty Ltd.
Address: Unit 26, 8 Metroplex Avenue, Murarrie, Qld 4172
Telephone Number: 07 3908 9222 **Fax Number:** 07 3908 9221
Emergency Telephone Number: 1800 033 111 (All hours - Australia wide).

SECTION 2 HAZARDS IDENTIFICATION

Classified as Hazardous according to criteria of the Safe Work Australia.
Classified as a Dangerous Good according to the ADG Code.

Risk phrases:	R21	Harmful in contact with skin.
	R25	Toxic if swallowed.
	R36	Irritating to eyes.
	R43	May cause sensitisation by skin contact.
Safety Phrases:	S2	Keep out of reach of children.
	S13	Keep away from food, drink and other animal foodstuffs.
	S20	When using do not eat or drink.
	S23	Do not breathe vapour or spray.
	S24/25	Avoid contact with skin and eyes.
	S36/37/39	Wear suitable protective clothing, gloves and eye/face protection.

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

CHEMICAL	*CAS NUMBER*	*PROPORTION*
Omethoate	1113-02-6	290 g/L
1-methoxy-2-propyl acetate	108-65-6	760 g/L

SECTION 4 FIRST AID MEASURES

Ingestion: Wash out mouth with water. Keep patient at rest and seek medical advice immediately. Activated charcoal may be advised. Transport patient to doctor or hospital quickly. If advised by doctor or Poisons Information Centre, atropine tablets may be administered. DO NOT attempt to give anything by mouth to a semi-conscious or unconscious person.

Eye: Rinse eyes immediately with clean water until chemical is removed and obtain medical aid.

Skin: Immediately remove contaminated clothing Wash affected areas with soap and water. Seek medical aid. If advised by doctor or Poisons Information Centre, atropine tablets may be administered. Remove all contaminated clothing and decontaminate before re-use.

Inhalation: If inhaled, remove to fresh air and keep at rest. Obtain medical advice. If advised by doctor or Poisons Information Centre, atropine tablets may be administered.

SECTION 4 FIRST AID MEASURES (Continued)

Medical Attention: This product contains omethoate, which is an organophosphorous compound, and as such it is a cholinesterase inhibitor.

Symptoms of poisoning:

Mild intoxication causes headache, blurred vision, weakness, sweating, mild chest pain, nausea and vomiting. Severe intoxication causes cyanosis (blueness of the skin, as from lack of oxygen), muscular twitching, spasms, miosis (pinpoint pupils) and respiratory paralysis.

Onset of symptoms may be delayed. Cholinesterase inhibition sometimes persists for several weeks.

Treatment:

Basic aid, decontamination, symptomatic treatment and if necessary administration of antidote.

Antidote: Atropine sulphate, possibly in conjunction with Toxogonin or obidoxime (PAM). Monitor respiratory, cardiac and central nervous system function. Monitor red blood cell and plasma cholinesterase levels. Administer oxygen if necessary. Watch for pulmonary oedema and delayed neurological symptoms.

Contraindications:

Adrenergic derivatives.

SECTION 5 FIRE FIGHTING MEASURES

Specific Hazard: Flash point 42-45°C. Flammable liquid. Eruption of containers is likely if confined at high temperatures. Intact containers exposed to excessive heat should be cooled with water to reduce drum pressure.

Extinguishing media: Extinguish fire using foam blanket, carbon dioxide or dry agent. If not available, use waterfog or fine water spray but ensure all runoff is contained

Hazards from combustion products: There is a risk of an explosion from this product if commercial quantities are involved in a fire. If involved in a fire, it will emit toxic fumes of cyanides, hydrogen chloride and possibly carbon oxides. Firefighters to wear self-contained breathing apparatus and suitable protective clothing if risk to of exposure to vapour or smoke.

Precautions for fire-fighters and special protective equipment: Isolate fire area. Evacuate downwind. Wear full protective clothing and self-contained breathing apparatus. Do not breathe or contact smoke, gases or vapours generated.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Emergency procedures: Isolate and post spill area. Wear cotton overalls buttoned to the neck and wrist and a washable hat, elbow length PVC gloves and face shield and impervious footwear. If there is a significant chance that vapours or mists are likely to build up in the cleanup area, the use of a respirator is recommended. In the case of spillage, stop leak if safe to do so, and contain spill. Large spills should be dyked or covered to prevent dispersal. Vacuum, shovel or pump spilled material into an approved container and dispose of as listed below. Keep out unprotected persons and animals.

Material and methods for containment and cleanup procedures: To decontaminate spill area, tools and equipment, wash with detergent and water and add the solution to the drums of wastes already collected and label contents. Absorb, as above, any excess liquid and add both solutions to the drums of waste already collected. Dispose of drummed wastes, including decontamination solution in accordance with the requirements of Local or State Waste Management Authorities.

Do NOT allow spilled product or wash solution to enter sewers, drains, dams, creeks or any other waterways.

SECTION 7 HANDLING AND STORAGE

Precautions for Safe Handling: Ensure containers are kept closed until using product. Product and spray are poisonous if absorbed by skin contact, inhaled or swallowed. Will irritate the eyes. Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. Avoid contact with eyes and skin. DO NOT inhale spray mist.

SECTION 7 HANDLING AND STORAGE (Continued)

When preparing spray and using the prepared spray, wear cotton overalls buttoned to the neck and wrist and a washable hat, elbowlength PVC gloves and face shield and impervious footwear. If clothing becomes contaminated with product remove clothing immediately. If product on skin, immediately wash area with soap and water. If product in eyes, wash 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, face shield or goggles and contaminated clothing.

Conditions for Safe Storage: DO NOT store near (or allow to contact) fertilizers, fungicides or pesticides. Store in the closed original container, in a cool well ventilated area, out of direct sunlight. Store in a room or place away from children, animals, food, feed stuffs, seed and fertilizers. Not classified as a Dangerous Good. This product is classified as a flammable liquid Refer to state regulations for storage and transport requirements. Do not store or use near naked flame, or heat sources. Do not cut or weld container. This product is a Schedule 6 Poison (S6) and must be stored, transported and sold in accordance with the relevant Health Department regulations.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

National Exposure Standards:
No exposure guidelines have been established for this product by Safe Work Australia, however the following guideline is for the solvent in this product.

Atmospheric Contaminant	Exposure Standard (TWA)	Exposure Standard (STEL)
1-methoxy-2-propyl acetate	274 mg/m³ (50 ppm)	548 mg/m³ (100 ppm)

TWA = Time-Weight Average. STEL = Short Term Exposure Level.

Biological Limit Values:
No biological limit allocated.

Engineering controls:
Use in well ventilated areas only. Use local exhaust at all process locations. Ventilate all transport vehicles prior to unloading. Keep containers closed when not in use.

Personal Protective equipment (PPE):
General: When preparing spray and using the prepared spray, wear cotton overalls buttoned to the neck and wrist and a washable hat, elbow length PVC gloves and face shield and impervious footwear. If clothing becomes contaminated with product remove clothing immediately. If product on skin, immediately wash area with soap and water. If product in eyes, wash 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, face shield or goggles and contaminated clothing.

Respiratory Protection: Generally not required. Do not inhale vapour or spray mist. Use of a respirator may be required in certain circumstances. If an inhalation risk exists, wear a properly fitted half-face or full-face air-purifying respirator which is approved for pesticides (Australian Standards).

Personal Hygiene: Clean water should be available for washing in case of eye or skin contamination. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each days use wash gloves, face shield or goggles and contaminated clothing.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear colourless liquid.
Odour:	Aromatic, chemical.
pH:	3.2 to 4.2 (10% in water).
Vapour Pressure:	3.3×10^{-5} hPa at 20ºC (omethoate); 0.49 kPa at 20ºC (solvent).
Freezing/melting point:	Not available.
Solubility:	Emulsifies in water.
Specific Gravity:	Approximately 1.1 at 20ºC.
Flash Point:	42 - 45ºC. (Flammable liquid).
Auto-ignition Temperature:	332ºC (omethoate); 333ºC (solvent).
Poison Schedule:	This product is a schedule 6 (S6) poison.

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: Product is considered stable in ambient conditions for a period of at least 2 years after manufacture.

Conditions to avoid: Do not store for prolonged periods in direct sunlight. Avoid all sources of ignition.

Incompatible materials: Keep away from strong oxidising agents, alkaline materials and acids.

Hazardous decomposition products: If involved in a fire, it will emit toxic fumes of hydrogen cyanide, carbon monoxide, phosphorus pentoxide, sulfur dioxide and nitrogen oxides may be formed.

Hazardous reactions: No special considerations. Hazardous polymerisation is not possible.

SECTION 11 TOXICOLOGICAL INFORMATION

No specific data is available for this product as no toxicity tests have been conducted on this product. Information presented is our best judgement based on similar products and/or individual components. As with all products for which limited data is available, caution must be exercised through the use of protective equipment and handling procedures to minimise exposure.

Potential Health Effects:

The active ingredient in this product, omethoate, is an anticholinesterase compound. Symptoms typical of cholinesterase inhibition (for all routes of entry):

Mild Cases
Headache, blurred vision, weakness, sweating, mild chest pain, nausea and vomiting.

Severe Cases
Cyanosis (blueness of the skin, as from lack of oxygen), muscular twitching, spasms, miosis (pinpoint pupils) and respiratory paralysis. These symptoms commence from one to three hours after excessive exposure.

Ingestion: Poisonous if swallowed. LD_{50} rat: approximately 100 mg/kg (similar product).

Skin: Poisonous if absorbed by skin contact. Irritating to the skin. May defat the skin. LD_{50} rat: approximately 1000 mg/kg (similar product). Omethoate is a skin sensitiser (guinea pig).

Eye: Irritating to the eyes.

Inhalation: Poisonous by inhalation. LC_{50} (rat) approximately 0.3 mg/L/4hr air (aerosol) (omethoate active ingredient).

Chronic: Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. The main health effects from repeated exposure would be toxic symptoms of cholinesterase inhibition as described above. Animal studies with omethoate have shown no evidence of oncogenic effect, no evidence of carcinogenic effects and no teratogenic potential.

The long term effects in animals noted for the solvent, 1-methoxy-2-propyl acetate, were headaches, dizziness and possible nausea. The solvent was not mutagenic in the Ames test, and did not cause teratological or other developmental effects.

SECTION 12 ECOLOGICAL INFORMATION

Environmental Toxicology: Harmful to fish. Golden orfe (*Leuciscus idus melanotus*) LC_{50} = 30 mg/L (96 h); rainbow trout (*Oncorhynchus mykiss*) LC_{50} = 9.1 mg/L (96 h). Very toxic to aquatic organisms may cause long-term adverse effects to the aquatic environment. *Daphnia magna* EC_{50} = 0.022 mg/L (48 h). Moderately toxic to green algae (*Scenedesmus subspicatus)* LC_{50}: 167.5 mg/L (72 h). Harmful to birds. Japanese quail LD_{50} = 79 - 84 mg/kg.

Environmental Properties: This product is very toxic to aquatic organisms. This product is biodegradable. It will not accumulate in the soil or water or cause long term problems. DT_{50} is approximately 2-3 days.

SECTION 13 DISPOSAL CONSIDERATIONS

Spills & Disposal: Isolate and post spill area. Wear prescribed protective clothing and equipment. Large spills should be dyked and covered to prevent dispersal. Keep out animals and unprotected persons. Keep material out of streams and sewers. Vacuum, shovel or pump waste into an approved drum. To decontaminate spill area, tools and equipment, wash with detergent and water and add the solution to the drums of wastes already collected and label contents. Dispose of drummed wastes, including decontamination solution in accordance with the requirements of Local or State Waste Management Authorities.

Disposal of empty containers: Shake empty bag into spray tank. Single rinse plastic bags before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals onsite. Puncture or shred and bury empty containers in a local authority landfill. If no landfill is available, bury the containers below 500mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and products not be burnt

SECTION 14 TRANSPORT INFORMATION

This product is classified as a Dangerous good with the following classification:
UN 3017.
Proper Shipping name: ORGANOPHOSPHOROUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE.
Class 6.1 (toxic), Sub-Class 3 (flammable).
Packaging Group III.
EPG Guide 17 – Dangerous Goods – Initial Emergency Response Guide.
Hazchem code: ●3W. Also considered as a Marine pollutant.

SECTION 15 REGULATORY INFORMATION

Classified as a hazardous substance according to criteria of the Safe Work Australia. (Xn - harmful, Xi - irritant).
Under the Standard for Uniform Scheduling of Medicines and Poisons (SUSMP), this product is a schedule 6 poison.
This product is registered under the Agricultural and Veterinary Chemicals Code Act 1994. Product Registration No. 68169.
Product is classified as a Dangerous Good according to the ADG Code (7^{th} Ed) Considered a Dangerous Good for air and sea transport.

Requirements concerning special training:
Check State or Territory regulations that require people who use pesticides in their job or business to have training in the application of the materials.

SECTION 16 OTHER INFORMATION

Issue Date: 17 December 2012. Valid for 5 years. (First issue).

Key to abbreviations and acronyms used in this MSDS:

ADG Code:	Australian Dangerous Goods Code (for the transport of Dangerous Goods by Road and Rail).
ASCC:	Australian Safety & Compensation Council (formally known as the National Occupational Health & Safety Commission (NOHSC)).
Carcinogen:	An agent which is responsible for the formation of a cancer.
Genotoxic:	Capable of causing damage to genetic material, such as DNA.
Lacrimation:	The production, secretion, and shedding of tears.
Lavage:	A general term referring to cleaning or rinsing.
NOHSC:	National Occupational Health and Safety Commission.
Pneumonitis:	A general term that refers to inflammation of lung tissue.
PPE:	Personal protective equipment.
Teratogen:	An agent capable of causing abnormalities in a developing foetus.

SECTION 16 OTHER INFORMATION (Continued)

TWA: The Time Weighted Average airborne concentration over an eight-hour working day, for a five day working week over an entire working life.

Safe Work Australia: Formally known as Australian Safety & Compensation Council (ASCC) which was formally known as the National Occupational Health & Safety Commission (NOHSC).

References

1. "Search Hazardous Substances". Safe Work Australia website. (2012).
2. "Approved Criteria for Classifying Hazardous Substances" 3rd Ed. NOHSC Australia. [NOHSC:1008 (2004)]. October 2004.
3. Standard for the Uniform Scheduling of Medicines and Poisons. No. 3. Medicines and Poisons Scheduling Secretariat. June 2012.

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.

End of MSDS