

1: Identification of the Substance and Supplier

Product Name	NUVOS
Recommended Use	Insecticide
Company Details	Orion Crop Protection Ltd Unit 1, 15 Sir Gil Simpson Drive, Harewood, Christchurch, 8053 PO Box 39 071, Harewood, Christchurch, 8545
Web Address	www.orioncp.co.nz
Email Address	orders@orioncp.co.nz
Telephone Number	(03) 928 2386 (office hours), 0800 674 6627 (free phone)
Emergency Telephone	0800 CHEMCALL (0800 243 622) (24 hours)
National Poison Centre	0800 POISON (0800 764 766) (24 hours)
Date of Issue/Revision	June 2014

2: Hazards Identification

Hazard Pictograms



Priority Identifiers:

Toxic, Combustible Liquid, Ecotoxic, Keep Out of Reach of Children

HSNO Classes:

Secondary Identifiers:

3.1D	Combustible liquid
6.1A	May be fatal if swallowed, inhaled or absorbed through the skin
6.4A	May cause eye irritation
6.5B	May cause an allergic skin reaction
6.7B	May be carcinogenic
6.8A	May cause reproductive/developmental damage from repeated ingestion
6.9A	May cause nervous system damage from repeated exposure at high doses
9.1A	Very toxic to aquatic organisms
9.3A	Very toxic to terrestrial vertebrates
9.4A	Very toxic to terrestrial invertebrates

3: Composition/ Information on Ingredients

Ingredient	CAS No	Content (% w/v)
Dichlorvos (active ingredient)	62-73-7	77
1,2-benzenedicarboxylic acid dibutyl ester	84-74-2	16
Other ingredients, surfactants, etc	Proprietary	Remainder

4: First Aid Measures

Skin Contact:	In case of contact, immediately wash affected area with soap and water. Wash contaminated clothing before reuse. Seek medical advice if irritation persists.
Eye Contact:	Hold eyes open and rinse with water for at least 15 minutes. Remove contact lenses if easy to do so. Seek medical advice immediately.
Ingestion:	Do not induce vomiting. Keep strictly at rest as continued movement enhances toxic effects. Seek medical advice immediately.
Inhalation:	Immediately move to fresh air and rest. Maintain half upright position if breathing is difficult. Seek medical advice immediately.
Workplace Facilities:	Hand wash facility. Eye wash facility.
Advice to Doctor:	Nuvos is an organophosphorus insecticide, which inhibits cholinesterase activity, and interferes in nerve pulse transmission. On set of symptoms may be delayed for several hours. Atropine is the specific antidote and may be given immediately by qualified staff, at a level of 2 - 5mg (intravenously or intramuscularly), every 20 minutes until atropinisation occurs. Considerable amounts of atropine may be necessary. Atropine must NOT be given to cyanosed patients; administer oxygen first. Do NOT use opiates or barbiturates. If convulsions occur, administer diazepam (10mg intravenously). Take venous blood sample for determination of blood

National Poison Centre

cholinesterase activity. Cholinesterase reactivators (Pralidoxime) should, if possible, be given at the same time as atropine. They are not effective after 24 hours post exposure and are not substitutes for atropine. Pralidoxime should be administered at: Mild poisoning: 1g in 2 - 3ml water (intramuscularly), Severe poisoning: 2g in 30ml water (intravenously).
0800 POISON (0800 764 766) (24 hours)

5: Fire-Fighting Measures

Fire/Explosion Hazard	Flammable liquid and vapour. Explosive concentrations of vapours may form in enclosed or poorly ventilated areas
HAZCHEM Code	2X
ERP Guide No	35
Extinguishing Media	Water spray, foam, dry chemical or CO2. Avoid water jet.
Fire Fighting Instructions	During a fire, toxic fumes may be emitted. Wear self-contained breathing apparatus. Contain runoff.

6: Accidental Release Measures

Caution: Floors may be slippery if wet. Eliminate all ignition sources and naked lights. Use non-sparking equipment. Leave and/or avoid entering confined spaces. When dealing with spills wear personal protective clothing and equipment as described in section 8. Respiratory protection (with organic vapour cartridge) required for any spill other than minor. Prevent further spillage or leakage. Keep bystanders away. Absorb spillage with inert material such as spill kit, sand or cat litter. Collect and place in a sealable container for disposal. Wash down affected area with water and detergent. Absorb and collect washings for disposal. Dispose of safely to a suitable landfill.

7: Storage, Handling and Use

Storage:	Keep out of reach of children. Do not store near heat, flame or other source of ignition. Store in the original, tightly closed container, in a secure and well ventilated area away from feed or foodstuffs. Do not store in direct sunlight.
Handling and Use:	Keep out of reach of children. Avoid contact with eyes and skin. Avoid inhalation of vapour or spray mist. Avoid handling, mixing or use of the product or container near heat, flame or other source of ignition. Heavy vapours can flow along surfaces to distant ignition sources and flash back. Take precautionary measures against static discharge. Mix in a well ventilated area. Do not spray onto food or food contact surfaces. Do not use near air vents or ducts. When mixing or applying, wear protective clothing as described in section 8. Wash splashes of concentrate from skin immediately. Do not eat, drink or smoke while using. Wash hands and face after use. Wash protective clothing after use.
Approved Handler Tracking	Required.
Record Keeping	Required.
REI	Record of use must be kept if applied where members of the public may be lawfully present, or where it is likely to enter air or water and leave that place.
Site Requirements under the HSNO Act 1996 and HSNO Regulations:	Outdoors – Once spray has dried. Indoors – 12 hours (following thorough ventilation) <ul style="list-style-type: none"> 🌿 A location test certificate is not required 🌿 A hazardous atmosphere zone is not required 🌿 Fire extinguishers are required for more than 500 litres (2 fire extinguishers) 🌿 Signage is required for 50 litres or more 🌿 Emergency information is required for any quantity 🌿 An emergency plan is required for more than 100 litres 🌿 Secondary containment is required for more than 100 litres 🌿 Separation/Segregation from incompatible substances (classes 1, 2, 3.2, 4 and 5) is required.
Additional Requirements	All aspects of storage, handling, use, disposal and record keeping must be in accordance with NZS 8409:2004 'Management of Agrichemicals', and relevant local and regional council plans.

8: Exposure Control / Personal Protection

Tolerable Exposure Limit	None established.
Workplace Exposure Standards	Product – None established (Use lowest practicable level). Active ingredient - Dichlorvos 0.1 ppm / 0.9 mg/m ³ (8hr TWA) Excipients – 1,2-benzenedicarboxylic acid dibutyl ester 5 mg/m ³ (8hr TWA). Others - None established (Use lowest practicable level).
Engineering Controls	Limited given nature of use.
Personal Protection:	
Eye	Full face respirator.
Skin	Chemical resistant coveralls with hood tightly fitting at head, wrists and ankles (e.g., Tychem F suit), chemical resistant boots and chemical resistant gloves (barrier multilayer, nitrile, neoprene).
Respiratory	Respirator (organic vapour and particulate matter) when mixing or applying. Self contained breathing apparatus in enclosed or poorly ventilated areas.
Biological Monitoring	Regular users in direct contact (mixing and application) should undergo biological monitoring of cholinesterase activity. Consult with your GP or Occupational Health Adviser.

9: Physical and Chemical Properties

Form	Amber Clear liquid
Odour	Characteristic

Boiling Point	Not available
Flash Point	80 - 90°C (closed cup method)
Auto ignition Temperature	Not available
Explosive Limits	Not available. May form explosive mixture in enclosed or poorly ventilated areas
Density	1.316 g/mL (approx)
Vapour Pressure	2.1 x 10 ³ (dichlorvos)
Vapour Density	> 1 (heavier than air)
Solubility in Water	Emulsifiable
pH	Not available
Oxidising Properties	Not an oxidizer
Corrosive Properties	Not a corrosive

10: Stability and Reactivity

Stability	Stable under normal conditions.
Incompatibility	Avoid mixing with strong acids, alkalis, and oxidizing agents such as chlorine compounds, ammonium nitrate, etc.
Decomposition	Decomposition will not occur under normal conditions.
Dangerous Reactions	Products arising from combustion or thermal decomposition may be toxic, corrosive or flammable.

11: Toxicological Information

This section describes effects which could occur if this material is not handled in accordance with this data sheet.

Swallowed	Abdominal cramps, nausea, diarrhoea, vomiting, excessive sweating, headache, weakness, faintness, giddiness, small pupils, blurred vision and muscle twitching.
Eye	Irritation. May cause constriction of the pupil.
Skin	Mild irritation. Contact may induce an allergic response in susceptible individuals. Can be absorbed via the skin (see symptoms under 'swallowed' above).
Inhalation	Excessive sweating, headache, weakness, faintness, giddiness, small pupils, blurred vision and muscle twitching.

Note: Symptoms may be delayed for up to 24 hours or more following exposure

Acute Toxicity (Active Ingredient)	<ul style="list-style-type: none"> 🌿 Acute Oral LD50 (Rat) 50 mg/kg 🌿 Acute Dermal LD50 (Rat) 90 mg/kg 🌿 Inhalation LC50 (4 hr) (Rat) > 0.34 mg/l
Sensitisation Effects	Potential contact sensitizer in susceptible individuals
Mutagenic Effects	None
Carcinogenic Effects	There is no evidence of dichlorvos being a human carcinogen. However, dichlorvos is classed as a possible carcinogen because of limited evidence in some animal studies. Feeding studies in rats and mice over 103 weeks showed increased incidence of benign tumours and leukaemia. However, there were no tumours in other feeding studies in rats and dogs over 2 years.
Reproductive Effects	May cause reproductive effects
Teratogenic (Birth) Effects	May cause teratogenic effects
Systemic Effects	Interferes with cholinesterase, an enzyme essential for the correct functioning of the nervous system.

12: Ecotoxicity Information

This section describes effects which could occur if this material is not handled in accordance with this data sheet.

The following information is presented in respect of the active ingredient:

Ecotoxic Effects	<ul style="list-style-type: none"> 🌿 Acute Oral LD50 (Bobwhite quail) 24 mg/kg 🌿 LC50 (96 hr) (Rainbow trout) 0.2 mg/l 🌿 LC50 (48 hr) (Daphnia) 0.19 µg/l 🌿 Algae EC50 (5 day) 52.8 mg/l 🌿 Acute Oral LD50 (Bee) 0.29 µg/bee
Environmental Fate	Biodegradable. DT50 (soil) < 1 day
Partition Co-Efficient (Kow)	LogP = 1.9 (low)
Environmental Exposure Limit:	None established.

13: Disposal Considerations

Product	Dispose of product by using it in accordance with the label. Do not burn. Waste product should be disposed of to a suitable landfill. For disposal of large quantities contact Orion Crop Protection Ltd.
Container	Dispose of to a suitable landfill. Do not burn. Do not use packaging for any other purpose.

14: Transport Information

Dangerous Goods

UN Number	3018
Proper Shipping Name	ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC (DICHLORVOS 77%)
Class	6
Subsidiary Class	None
Packing Group	III
Additional Information	MARINE POLLUTANT
MTQ (Non-Commercial)	50 litres
Passenger Service Vehicle:	Must not be carried on passenger service vehicle.

15: Regulatory Information

HSNO Approval No	HSR000211
ACVM Registration No	P3590

16: Other Information

Glossary	
Approved Handler	For some hazardous substances, persons storing, handling and using must be trained and certified
DT50	Time (days) for 50% reduction in concentration
EC50	Concentration required to produce an effect in 50% of organisms
Environmental Exposure Limit	Maximum concentration limit of a substance in an environmental medium, e.g., water, soil.
ERP Guide	Dangerous Goods – Initial Emergency Response Guide SNZ HB 76:2008
HAZCHEM Code	Emergency action code for emergency services
HSNO	Hazardous Substances and New Organisms
LC50	Concentration that will kill 50% of organisms
LD50	Dose that will kill 50% of organisms
MTQ	Maximum Transport Quantity. The maximum amount of dangerous goods that can be transported by road by the user
Partition Co-Efficient Kow	Ratio of concentration between octanol and water. Values are given as the log value. A high value indicates a substance may bioaccumulate
Record Keeping	Includes a spray diary
REI	Restricted Entry Interval – The length of time after application before entry into the treated area is permitted without the use of protective equipment. For indoor environments, this time period commences once ventilation after treatment begins.
Safety Note	A brief document providing hazardous substance information for transport, storage and emergency management purposes
STEL	Short term exposure level
Tolerable Exposure Limit	Maximum concentration limit of a substance above which persons must not be exposed
Tracking	For some hazardous substances, a record must be kept of the transport, storage, sale and use of the product
TWA	Time weighted average
Workplace Exposure Standard	An occupational health standard limiting concentrations of specified substances to which persons are exposed
Wide Dispersive Use	A method of application involving equipment such as boom sprayers, mist blowers, vine sprayers, row sprayers, etc., as well as aerial application. Hand gunning within 30m of a property boundary is also classed as wide dispersive use. Knapsack sprayers are not classed as wide dispersive use

Please Note

Users must ensure that the most up to date version of this safety data sheet is used. This Safety Data Sheet summarises information on this product, and how to safely handle and use the product. Each user should familiarise themselves with the product label, Safety Note and Safety Data Sheet, and consider the information in the context of how the product will be handled and used, including in conjunction with other products. Orion Crop Protection Ltd assumes no responsibility for the accuracy, completeness or suitability of this information. The user is responsible for determining the suitability and accuracy of this information for their particular purposes. If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company. Always read the product label before use.