

SECTION 1 - IDENTIFICATION OF THE MATERIAL AND SUPPLIER

UPL Australia Limited
Suite 416, Level 4, 14 Lexington Drive
Norwest Business Park, Bella Vista, NSW 2153

Telephone (02)8824 7277

Fax (02)8814 6469

Chemical nature: Pendimethalin is a 2,6-dinitroaniline derivative.
Trade Name: **Fist HydroCap Herbicide**
APVMA Code: 80856
Product Use: Agricultural herbicide for use as described on the product label.
Creation Date: **February, 2016**
This version issued: **February, 2016** and is valid for 5 years from this date.
Poisons Information Centre: Phone 13 1126 from anywhere in Australia

SECTION 2 - HAZARDS IDENTIFICATION

Statement of Hazardous Nature

This product is classified as: N, Dangerous to the environment. Hazardous according to the criteria of SWA.

Not subject to the ADG Code when transported in Australia by Road or Rail in packages 500kg(L) or less; or IBCs (refer to SP AU01). However if transported by Air or Sea, this provision does not apply. Then the product is classed as Dangerous (Class 9 Environmentally Hazardous) by IATA and IMDG/IMSBC respectively. See details below and in Section 14 of this SDS.

SUSMP Classification: S5

ADG Classification: Class 9: Miscellaneous Dangerous Goods.

UN Number: 3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Pendimethalin).



GHS Signal word: WARNING

Hazardous to aquatic environment Short term/Chronic Category 1

HAZARD STATEMENT:

H410: Very toxic to aquatic life with long lasting effects.

PREVENTION

- P102: Keep out of reach of children.
- P261: Avoid breathing fumes, mists, vapours or spray.
- P262: Do not get in eyes, on skin, or on clothing.
- P272: Contaminated work clothing should not be allowed out of the workplace.
- P273: Avoid release to the environment.
- P281: Use personal protective equipment as required.

RESPONSE

- P363: Wash contaminated clothing before reuse.
- P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P302+P352: IF ON SKIN: Wash with plenty of soap and water.
- P333+P313: If skin irritation or rash occurs: Get medical advice.
- P391: Collect spillage.
- P370+P378: Not combustible. Use extinguishing media suited to burning materials. Alcohol resistant foam is the preferred firefighting medium but, if it is not available, normal foam can be used.

STORAGE

- P410: Protect from sunlight.
- P402+P404: Store in a dry place. Store in a closed container.
- P403+P235: Store in a well-ventilated place. Keep cool.

DISPOSAL

- P501: Dispose of contents and containers as specified on the registered label.

SAFETY DATA SHEET

Emergency Overview

Physical Description & colour: Yellow-orange liquid.

Odour: No odour.

Major Health Hazards: Pendimethalin is slightly to practically nontoxic by ingestion, with reported oral LD₅₀ values of 1050 mg/kg to greater than 5000 mg/kg in rats. It is slightly to practically nontoxic by skin exposure, with reported dermal LD₅₀ values of greater than 2000 mg/kg. It is not a skin irritant or sensitizer in rabbits or guinea pigs, but it causes mild eye irritation in rabbits. The inhalation 4-hour LC₅₀ for technical Pendimethalin in rats is 320 mg/L, indicating practically no toxicity via this route. Some formulated products may show slight toxicity by inhalation, and may have a greater capacity to cause skin irritation. Inhalation of dusts or fumes may be mildly to moderately irritating to the linings of the mouth, nose, throat, and lungs.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	CAS No	Conc, %	TWA (mg/m ³)	STEL (mg/m ³)
Pendimethalin	40487-42-1	456g/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 SDS 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) until chemical is removed.

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. Obtain medical advice if irritation becomes painful or lasts more than a few minutes. Take special care if exposed person is wearing contact lenses.

Ingestion: If product is swallowed or gets in mouth, do NOT induce vomiting; wash mouth with water and give some water to drink. If symptoms develop, or if in doubt contact a Poisons Information Centre or a doctor.

SECTION 5 - FIRE FIGHTING MEASURES

Fire and Explosion Hazards: The major hazard in fires is usually inhalation of heated and toxic or oxygen deficient (or both), fire gases. There is no risk of an explosion from this product under normal circumstances if it is involved in a fire.

This product is likely to decompose only after heating to dryness, followed by further strong heating.

Fire decomposition products from this product may be toxic if inhaled. Take appropriate protective measures.

Extinguishing Media: Not combustible. Use extinguishing media suited to burning materials. Alcohol resistant foam is the preferred firefighting medium but, if it is not available, normal foam can be used. 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 little danger of a violent reaction or explosion if significant quantities of this product are involved in a fire. Recommended personal protective equipment is full fire kit and breathing apparatus.

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.

SAFETY DATA SHEET

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. Because of the environmentally hazardous nature of this product, special care should be taken to restrict release to waterways or drains. 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 SDS 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 SDS 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. 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/m ³)	STEL (mg/m ³)
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Exposure limits have not been established by SWA for any of the significant ingredients in this product.

The ADI for Pendimethalin is set at 0.1mg/kg/day. The corresponding NOEL is set at 12mg/kg/day. ADI means Acceptable Daily Intake; NOEL means No-observable-effect-level. Data from Australian ADI List, June 2014.

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: 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: If you believe you may have a sensitisation to this product or any of its declared ingredients, you should 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: 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.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES:

Physical Description & colour:	Yellow-orange liquid.
Odour:	No odour.
Boiling Point:	Approx 100°C at 100kPa
Freezing/Melting Point:	No data. Liquid at usually encountered temperatures.
Volatiles:	No data.
Vapour Pressure:	2.37 kPa at 20°C (water vapour pressure).

SAFETY DATA SHEET

Vapour Density:	No data.
Specific Gravity:	1.1705 at 20°C.
Water Solubility:	No data.
pH:	7.7 (as supplied).
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: Protect this product from light. Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight.

Incompatibilities: No particular Incompatibilities.

Fire Decomposition: This product is likely to decompose only after heating to dryness, followed by further strong heating. Combustion forms carbon dioxide, and if incomplete, carbon monoxide and possibly smoke. Water is also formed. May form nitrogen and its compounds, and under some circumstances, oxides of nitrogen. Occasionally hydrogen cyanide gas in reducing atmospheres. May form oxides of sulfur (sulfur dioxide is a respiratory hazard) and other sulfur compounds. Most will have a foul odour. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death.

Polymerisation: Polymerisation reactions are unlikely; they are not expected to occur.

SECTION 11 - TOXICOLOGICAL INFORMATION

There is no data to hand indicating any particular target organs.

Toxicity: Chronic toxicity: Increases in alkaline phosphatase level and liver weight were produced in dogs fed 50 mg/kg/day for 2 years, but not at a dose of 12.5 mg/kg/day. In a 90-day feeding study of rats, no effects were observed at doses of 40 mg/kg/day.

Reproductive effects: In a three-generation reproductive study of rats tested at levels up to 250 mg/kg/day, there were slightly fewer offspring and they showed decreased weight gain from weaning to maturity. No effects were observed at 30 mg/kg/day. This evidence suggests that Pendimethalin is unlikely to cause reproductive effects in humans under normal circumstances.

Teratogenic effects: No birth defects and no toxic effects on foetuses occurred when pregnant rats were given 500 mg/kg/day, the highest dose tested. No foetotoxic or teratogenic effects were seen at the highest dose tested (60 mg/kg/day) in a teratology study with rabbits, although maternal toxicity was seen at 30 mg/kg/day. It does not appear that Pendimethalin is teratogenic.

Mutagenic effects: Several mutagenicity studies, including tests on live animals and mammalian and bacterial cell cultures, have all indicated that Pendimethalin has no mutagenic activity.

Carcinogenic effects: Pendimethalin did not increase tumor formation in mice given dietary doses of 75 mg/kg/day over an 18-month period. This evidence suggests that Pendimethalin is not carcinogenic.

Organ toxicity: Chronic exposure to Pendimethalin has resulted in increased liver weights in test animals.

Fate in humans and animals: Pendimethalin is largely unabsorbed from the gastrointestinal tract, and excreted unchanged in the faeces. Pendimethalin, which does become absorbed into the bloodstream from the gastrointestinal tract, is rapidly metabolized in the kidneys and liver and is then excreted as metabolites via urine. One day after administration to rats, 90% of a 37 mg/kg dose was recovered in faeces and urine. After 4 days this figure was 96%. Lower doses resulted in almost 100% excretion within 4 days. Tissue burdens of the compound were on the order of 0.3 mg/kg, with slightly higher concentrations in the body fat.

Classification of Hazardous Ingredients

Ingredient	Risk Phrases
Pendimethalin	Conc>=1%: Xi; R43
<ul style="list-style-type: none"> Skin sensitisation - category 1 Hazardous to the aquatic environment (acute) - category 1 Hazardous to the aquatic environment (chronic) - category 1 	

Note that the Pendimethalin in this product is encapsulated and tests have shown the product to NOT be a sensitiser.

SAFETY DATA SHEET

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: Classified as a potential sensitiser by skin contact. Exposure to a skin sensitiser, once sensitisation has occurred, may manifest itself as skin rash or inflammation, and in some individuals this reaction can be severe. In addition 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 may be irritating to eyes, but is unlikely to cause anything more than mild transient discomfort.

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. However, this product may be irritating to mucous membranes but is unlikely to cause anything more than transient discomfort.

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 12 - ECOLOGICAL INFORMATION

Very toxic to aquatic organisms, may cause long-term adverse effects to the aquatic environment. This product is biodegradable. It will not accumulate in the soil or water or cause long term problems.

Effects on birds: Pendimethalin is slightly toxic to birds, with an acute oral LD₅₀ of 1421 mg/kg in mallard duck and 8-day dietary LC₅₀ values of greater than 3149 mg/kg in bobwhite quail, and greater than 10,900 mg/kg in mallard duck.

Effects on aquatic organisms: Pendimethalin is highly toxic to fish and aquatic invertebrates. The reported 96-hour LC₅₀ for Pendimethalin in bluegill sunfish is 199 µg/L, in rainbow trout is 138 µg/L, and in channel catfish is 420 µg/L. The 48-hour LC₅₀ in Daphnia magna, a small freshwater crustacean, is 280 µg/L. The bioconcentration factor for this compound in whole fish is 5100, indicating a moderate potential to accumulate in aquatic organisms.

Effects on other organisms: Pendimethalin is nontoxic to bees.

Environmental Fate:

Breakdown in soil and groundwater: Pendimethalin is moderately persistent, with a field half-life of approximately 40 days. It does not undergo rapid microbial degradation except under anaerobic conditions. Slight losses of Pendimethalin can result from photodecomposition and volatilization. Pendimethalin is strongly adsorbed by most soils. Increasing soil organic matter and clay is associated with increased soil binding capacity. It is practically insoluble in water, and thus will not leach appreciably in most soils, and should present a minimal risk of groundwater contamination.

Breakdown in water: Pendimethalin is stable to hydrolysis, but may be degraded by sunlight in aquatic systems. Pendimethalin may also be removed from the water column by binding to suspended sediment and organic matter. It is rapidly degraded under anaerobic conditions once precipitated to sediment.

Breakdown in vegetation: Pendimethalin is absorbed by plant roots and shoots, and inhibits cell division and cell elongation. Once absorbed into plant tissues, translocation is limited and Pendimethalin breaks down via oxidation. Pendimethalin is not absorbed by the leaves of grasses, and only very small amounts are taken up by plants from the soil. Residues on crops at harvest are usually below detectable levels (0.05 ppm).

SECTION 13 - DISPOSAL CONSIDERATIONS

Disposal: 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.

SAFETY DATA SHEET

SECTION 14 - TRANSPORT INFORMATION

Not subject to the ADG Code when transported by Road or Rail in Australia, in packages 500kg(L) or less; or IBCs, but classed as Dangerous by IATA and IMDG/IMSBC when carried by Air or Sea transport (see details below).

UN Number: 3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Pendimethalin).

Hazchem Code: •3Z

Special Provisions: 179, 274, 331, 335, AU01

Limited quantities: ADG 7 specifies a Limited Quantity value of 5 L for this class of product.

Dangerous Goods Class: Class 9: Miscellaneous Dangerous Goods.

Packaging Group: III

Packaging Method: P001, IBC03, LP01

Class 9 Miscellaneous Dangerous Goods shall not be loaded in the same vehicle or packed in the same freight container with Dangerous Goods of Class 1 (Explosives).

SECTION 15 - REGULATORY INFORMATION

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

The following ingredient: Pendimethalin, is mentioned in the SUSMP.

SECTION 16 - OTHER INFORMATION

This SDS 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 (7 th edition)
AICS	Australian Inventory of Chemical Substances
SWA	Safe Work Australia, formerly ASCC and NOHSC
CAS number	Chemical Abstracts Service Registry Number
Hazchem Code	Emergency action code of numbers and letters that provide information to emergency services especially firefighters
IARC	International Agency for Research on Cancer
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

THIS SDS SUMMARISES OUR BEST KNOWLEDGE OF THE HEALTH AND SAFETY HAZARD STATEMENT: INFORMATION OF THE PRODUCT AND HOW TO SAFELY HANDLE AND USE THE PRODUCT IN THE WORKPLACE. EACH USER MUST REVIEW THIS SDS IN THE CONTEXT OF HOW THE PRODUCT WILL BE HANDLED AND USED IN THE WORKPLACE.

IF CLARIFICATION OR FURTHER INFORMATION IS NEEDED TO ENSURE THAT AN APPROPRIATE RISK ASSESSMENT CAN BE MADE, THE USER SHOULD CONTACT THIS COMPANY SO WE CAN ATTEMPT TO OBTAIN ADDITIONAL INFORMATION FROM OUR SUPPLIERS. OUR 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.

Please read all labels carefully before using product.

This SDS is prepared in accord with the SWA document "Preparation of Safety Data Sheets for Hazardous Chemicals - Code of Practice" (December 2011)

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<http://www.kilford.com.au/> Phone (02)9251 4532

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