

MATERIAL SAFETY DATA SHEET

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Date of Issue: May 2013
MSDS No. FMC/MCPA+PIC/1

SECTION 1 IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: FMC MCPA + Picloram Herbicide

Other Names: MCPA + Picloram, a Group I Herbicide. Phenoxy herbicide.
Use: Agricultural herbicide for cereal and linseed crops.
Company: FMC Crop Protection Pty Ltd.
Address: 5 Palmer Place, 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.
Not classified as a Dangerous Good according to the ADG Code.**

Risk phrases: R22 Harmful if swallowed.
R41 Risk of serious damage to eyes.

Safety Phrases: S13 Keep away from food, drink, and animal feeding stuffs.
S2 Keep out of reach of children.
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:

<i>CHEMICAL</i>	<i>CAS NUMBER</i>	<i>PROPORTION</i>
MCPA as the potassium salt	5221-16-9	420 g/L
Picloram as the potassium salt	2545-60-0	26 g/L
Other ingredients (considered non-hazardous)		Balance

SECTION 4 FIRST AID MEASURES

Ingestion: If poisoning occurs, contact a Doctor or Poisons Information Centre. Phone 131 126. If swallowed do NOT induce vomiting. Wash mouth out with water. Give water or milk (if available) to drink.

Skin: Wash affected areas thoroughly with soap and water. Remove contaminated clothing and launder before re-use. If skin is irritated, seek medical advice.

Eye: If in eyes, hold eyelids open and wash with copious amounts of water until chemical is removed. Ensure irrigation under eyelids by occasionally lifting them. Do not try to remove contact lenses unless trained. If irritation persists, seek medical attention.

Inhalation: Remove affected person to fresh air until recovered. If symptoms develop or persist, seek medical advice.

Advice to Doctor: Due to the irritant properties of this product, swallowing may result in the ulceration of the mouth, stomach and gastrointestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. It is suggested that endotracheal/esophageal control if lavage is conducted. No specific antidote. Treat symptomatically taking account of the clinical condition of the patient.

SECTION 5 | FIRE FIGHTING MEASURES

Specific Hazard: Combustible liquid (C1). Flash point approximately 93°C.

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

Hazards from combustion products: Product will decompose when burnt and will emit toxic fumes. Eruption of closed containers is likely if subjected to high temperatures. Intact containers exposed to excessive heat should be cooled with water to reduce drum pressure.

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, goggles and half face piece respirator. Contain spill and absorb with clay, sand, soil or proprietary absorbent (such as vermiculite). 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: Harmful if swallowed. Attacks eyes. Will irritate the skin. Avoid contact with eyes and skin. If product in eyes, wash out immediately with water. Do not inhale spray mist. When preparing the spray and using the prepared spray, wear cotton overalls buttoned to the neck and wrist, a washable hat, elbow-length PVC gloves and face shield or goggles. 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 C1 (Combustible Liquid) for the purpose of storage and handling, in accordance with the requirements of AS 1940. Refer to state regulations for storage and transport requirements. 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:**

Exposure guidelines have not been established for this product by Safe Work Australia.

Biological Limit Values:

No biological limit allocated.

Engineering controls:

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

SECTION 8 | EXPOSURE CONTROLS / PERSONAL PROTECTION (Continued)**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 goggles. After use and before eating, drinking or smoking, wash hands, arms, and face thoroughly with soap and water. Avoid contact with eyes and skin.

Personal Hygiene: If product in eyes, wash it out immediately with water. Clean water should be available for washing in case of eye or skin contamination. Wash skin before eating, drinking or smoking. Shower at the end of the workday.

SECTION 9 | PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Brown to black liquid.
Odour:	Mild.
Decomposition Temperature:	No data available.
Boiling Point:	No data available.
Solubility in Water:	Soluble in water.
Specific Gravity:	Approximately 1.2.
Flash Point:	Approximately 93°C.
Flammability:	Combustible liquid C1.
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. Exposure to elevated temperatures can cause product degradation and generation of gases during this process may cause pressure on closed systems.

Incompatible materials: Strong acids, strong bases and strong oxidising agents.

Hazardous decomposition products: On burning will emit toxic fumes.

Hazardous reactions: No special considerations. Will not polymerise

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.

Ingestion: Harmful if swallowed. Acute Oral LD₅₀ 1590 mg/kg (female rats). Harmful if swallowed. Swallowing may cause gastrointestinal irritation or ulceration.

Eye: This product will cause severe irritation to the eyes. Possible eye damage if not washed off immediately.

Skin: This product will irritate the skin and may be sensitising to sensitive individuals. Acute dermal LD₅₀ > 1,000 - 2,000 mg/kg (female rats).

Inhalation: When applying the product as a spray, avoid breathing in spray mist. Inhalation of mists or sprays may produce respiratory irritation.

CHRONIC TOXICITY:

Mutagenic effects: MCPA is reportedly weakly mutagenic to bone marrow and ovarian cells of hamsters, but negative results were reported for other mutagenic tests. It was negative in a bacterial test system (both with and without metabolic activation), negative in spot tests, and negative in host-mediated tests. It produced no detectable increase in chromosomal aberrations in house flies. Some irregularities occurred in gene transfer during cell division in brewer's yeast, although at levels which caused massive cell death. It appears that the compound poses little or no mutagenic risk.

SECTION 11 TOXICOLOGICAL INFORMATION (Continued)

The preponderance of data shows picloram to be non-mutagenic in in-vitro tests and in animal studies.

Carcinogenic effects: All available evidence on MCPA indicates that the compound does not cause cancer. Forestry and agricultural workers occupationally exposed to MCPA in Sweden did not show increased cancer incidence. Picloram did not cause cancer in animal laboratory studies.

Reproductive effects: A two-generation rat study at doses of MCPA up to 15 mg/kg/day affected reproductive function. Even smaller amounts of the compound were toxic to the fetuses. Dogs receiving relatively small amounts of MCPA (8 and 16 mg/kg) for 13 weeks showed adverse sperm and testes changes. It is unlikely that humans will experience these effects under normal exposure conditions. Picloram did not interfere with reproduction in animal studies.

Teratogenic effects: Picloram did not cause birth defects or other effects in the foetus even at doses which caused toxic effects in the mother. MCPA has caused birth defects in laboratory animals only at doses toxic to the mother. Teratogenic effects in humans are unlikely at expected exposure levels.

Organ toxicity: Target organs identified in animal studies include the liver, bladder, kidneys, spleen, testes and thymus. Farm worker exposure to MCPA has resulted in reversible anaemia, muscular weakness, digestive problems, and slight liver damage.

Fate in humans and animals: MCPA is rapidly absorbed and eliminated from mammalian systems. Rats eliminated nearly all of a single oral dose within 24 hours, mostly through urine with little or no metabolism. In another rat study, three quarters of the dose was eliminated within 2 days. All was gone by 8 days. Humans excreted about half of a 5 mg dose in the urine within a few days.

SECTION 12 ECOLOGICAL INFORMATION

Environmental Toxicology: No data is available on this product. Picloram is moderately toxic to aquatic organisms on an acute basis (LC_{50} or EC_{50} is between 1 and 10 mg/L in most sensitive species tested). Material is practically non-toxic to birds on an acute basis (LD_{50} is >2000 mg/kg). Picloram is nontoxic to bees and earthworms. Based on information for MCPA acid, MCPA is very toxic to aquatic organisms ($LC_{50}/EC_{50}/LC_{50}$ below 1 mg/L on aquatic plants, the most sensitive species). MCPA is moderately toxic to fish (96h LC_{50} for trout = 50 mg/L, Fathead Minnow 28 day NOEC = 15 mg/L) and aquatic invertebrates (48 hr LC_{50} for daphnia > 190 mg/L). MCPA is practically non-toxic to birds on a dietary basis (LC_{50} > 5000 ppm), however it has moderate acute toxicity – LD_{50} for quail = 270 mg/kg. Bees: Non-toxic - MCPA acute oral and contact toxicity > 200 pg/bee. Earthworms: Acute LC_{50} = 325 mg/kg.

Environmental Fate: Picloram can stay active in soil for a moderately long time, depending on the type of soil, soil moisture and temperature. Picloram may exist at levels toxic to plants for more than 1 year after application at normal rates. The half-life of picloram in soil is reported to vary from 1 month under favorable environmental conditions to more than 4 years in arid regions. Picloram is degraded more rapidly under anaerobic than aerobic conditions and also degrades more rapidly at lower application rates. Breakdown caused by sunlight and microorganisms in the soil are the main ways in which picloram degrades in the environment. Picloram will dissipate more quickly in warm, wet weather. Alkaline conditions, fine textured clay soils, and a low density of plant roots can increase the persistence of picloram.

MCPA and its formulations are rapidly degraded by soil microorganisms and it has low persistence, with a reported field half-life of 14 days to 1 month, depending on soil moisture and soil organic matter. With less than 10% organic matter in soil, MCPA is degraded in 1 day and, with greater than 10% levels in soil, it takes 3 to 9 days to degrade. The half-life is 5 to 6 days in slightly acidic to slightly alkaline soils. MCPA readily leaches in most soils, but its mobility decreases with increasing organic matter. MCPA and its formulations show little affinity for soil. It is relatively stable to light breakdown, but can be rapidly broken down by microorganisms.

SECTION 13 DISPOSAL CONSIDERATIONS

Spills & Disposal: Isolate and post spill area. Wear prescribed protective clothing and equipment. Large spills should be dyked or covered to prevent dispersal. Keep out animals and unprotected persons. Keep material out of streams and sewers.

SECTION 13 DISPOSAL CONSIDERATIONS (Continued)

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: Triple or preferably pressure rinse containers before disposal. Add rinsings to tank mix. Do not dispose of undiluted chemicals on-site. If not recycling, break, crush, or puncture and deliver empty packaging for appropriate disposal to an approved waste management facility. If an approved waste management facility is not available, bury the empty packaging 500 mm below the surface in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots, in compliance with relevant Local, State or Territory government regulations. DO NOT burn empty containers or product.

SECTION 14 TRANSPORT INFORMATION

Road & Rail Transport: This product is exempt from classification as a Dangerous Good in packs less than 3,000 kg or litres under the Australian Code for the Transport of Dangerous Goods by Road and Rail. For bulk shipments this product is a class 9, UN 3082. (See special provision AU01).

Marine and Air Transport: This product is classified as a Marine Pollutant according to International Maritime Dangerous Goods (IMDG) Code and the International Air transport Association (IATA). If transporting by sea or air the following Dangerous Goods Classification applies:-
UN 3082, Class 9 (Miscellaneous Dangerous Goods), Packing Group III, Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Contains MCPA and Picloram). Hazchem code •3Z. Hazard Identification Number (HIN) 90.

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. 68707.

Product is not classified as a Dangerous Good according to the ADG Code (7th Ed).

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: 15 May 2013. 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. (2013).
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