TITAN BROMOXYNIL MA SELECTIVE HERBICIDE

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name	Titan Bromoxynil MA Selective Herbicide
Product Code	-
Other Names	-
Product Use	Agricultural Insecticide
Company Name	Titan Ag Pty Ltd
Address	3/14 Narabang Way Belrose NSW 2085
Telephone Number	02 9986 2943
Emergency Telephone	02 9986 2943

2. HAZARDS IDENTIFICATION

HAZARDOUS SUBSTANCE. NON DANGEROUS GOODS.
Classified as hazardous according to the criteria of ASCC.

Hazards	Xn - Harmful
Risk Phrases	R20/21/22 - Harmful by inhalation, in contact with skin and if swallowed. R63 - Possible risk of harm to the unborn child. R65 - Harmful: May cause lung damage if swallowed.
Safety Phrases	S2 - Keep out of reach of children. S23 - Do not breathe vapour/spray (appropriate wording to be specified by the manufacturer). S24 - Avoid contact with skin. S36/37 - Wear suitable protective clothing and gloves. S62 - If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label. S63 - In case of accident by inhalation: remove casualty to fresh air and keep at rest.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient (common name)	CAS Number	Proportion
MCPA (present as the ethyl hexyl ester)	26544-20-7	20%
bromoxynil (present as the n-octanoyl ester)	1689-99-2	20%
liquid hydrocarbon	64742-94-5	34.3%
other ingredients deemed not to be hazardous	proprietary	to 100%

4. FIRST AID MEASURES

Inhalation If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention if symptoms persist.

Ingestion	If swallowed, do not induce vomiting. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into lungs. Can cause chemical pneumonitis and pulmonary oedema. Symptoms of pulmonary oedema can be delayed up to 48 hours after exposure. Seek immediate medical attention.
Skin	Remove contaminated clothing and wash affected areas with soap and water. Seek medical attention if symptoms persist. Launder clothing before reuse.
Eyes	In case of eye contact, check for and remove any contact lenses. Immediately irrigate eyes with plenty of running water for at least 15 minutes, keeping eyelids open. Seek medical attention if symptoms persist.

5. FIRE FIGHTING MEASURES

	For major fires call the Fire Brigade. Ensure that an escape path is available from any fire.
Suitable Extinguishing Media	Water fog, foam, carbon dioxide and dry chemical.
Hazardous Combustion Products	Hydrogen bromide, hydrogen chloride, hydrogen cyanide and possibly other compounds of bromine, chlorine and nitrogen.
Firefighting Equipment	Wear ASCC approved self-contained breathing apparatus and full protective clothing.
Unusual Fire or Explosion Hazards	**Combustible product – C1.** There is a moderate risk of an explosion if commercial quantities of this product are involved in a fire. Violent steam generation or eruption may occur if direct water stream is applied 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.
Hazchem Code	Not allocated

6. ACCIDENTAL RELEASE MEASURES

Spills	In the event of a major spill, prevent spillage from entering drains or water courses. Wear full protective clothing. Contain spill and absorb with earth, clay, sand, or other absorbent material and collect into labelled containers for disposal. Launder protective clothing before re-use.

7. HANDLING AND STORAGE

Handling	Avoid contact with eyes and skin. Do not inhale spray mist. Use of safe work practices is recommended. Observe good personal hygiene.
Storage	Store in the closed, original container in a dry, well ventilated area, as cool as possible. Do not store for prolonged periods in direct sunlight. Keep container tightly sealed and do not store with seed,

fertilisers or foodstuffs. Make sure that the product does not come into contact with strong oxidising agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Standards (ASCC)	**Hydrocarbon (total):** TWA: 17ppm / 100 mg/m^3 STEL: - ppm / - mg/m^3
Engineering Controls	Local exhaust ventilation is recommended when vapours and mists can be released in excess of established airborne exposure limits.
Respiratory Protection	Use an ASCC approved full face supplied air respirator if high airborne concentrations of the material are present. See Australian Standards AS/NZS 1715 and 1716 for more information.
Eye Protection	Protective glasses or goggles and face shield.
Skin Protection	Elbow-length gloves and protective clothing.
Hygienic Practices	Food, beverages and tobacco products should not be stored or consumed where this material is in use. Provide eyewash fountains and safety showers in close proximity to points of potential exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Dark brown liquid.
Odour	Solvent odour.
Solubility in Water	Dispersable
Boiling Point	190-270°C for solvent
Freezing Point	No information available
Vapour Pressure	0.19mPa at 25°C (bromoxynil octanoate) 0.48mPa at 2)°C (MCPA present as the ethyl hexyl ester)
Vapour Density (Air = 1)	~ 5 for solvent
Specific Gravity	1.07-1.09
pH	No information available
Volatile Component	30-40%
Odour Threshold	No information available
Evaporation Rate	No information available
Autoignition Temperature	No information available
Flash Point	75°C
Upper Flammability Limit	0.6% for solvent
Lower Flammability Limit	7% for solvent
Octanol / Water Partition Coefficient	Kow Log P is 5.4 for bromoxynil octanoate Kow Log P is 5.7 for MCPA present as the ethyl hexyl ester

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under normal storage conditions.
Incompatible Materials	Oxidising agents. Avoid chlorates, nitrates, nitric acid, organic peroxides and potassium chlorate.
Hazardous Decomposition Products	Hydrogen bromide, hydrogen chloride, hydrogen cyanide and possibly other compounds of bromine, chlorine and nitrogen.

Hazardous Polymerization	Will not occur.
Conditions to Avoid	No information available.

11. TOXICOLOGICAL INFORMATION

Toxicity	**MCPA (present as the ethyl hexyl ester):** Oral LD_{50} (rat) = 2235mg/kg Dermal LD_{50} (rat)> 2000mg/kg Inhalation LC_{50} (rat) > 3.1mg/L – 4 hour **Bromoxynil octanoate:** Oral LD_{50} (rat) = 365mg/kg Dermal LD_{50} (rat)> 2000mg/kg Inhalation LC_{50} (rat) > 0.72mg/L – 4 hour
Routes of Exposure	Inhalation, ingestion, eye and skin
Health effects from likely routes of exposure	Inhalation: Breathing vapour can cause headaches, dizziness and nausea. Breathing in high concentrations can cause central nervous system depression, loss of coordination, impaired judgement and unconsciousness. Ingestion: Harmful if swallowed. Can cause nausea, vomiting, abdominal pain, diarrhea, blurred vision, profuse sweating and muscle twitching. Aspiration into the lung from vomiting may cause chemical pneumonitis or pulmonary oedema. Eye: May cause eye irritation. Skin: May cause skin irritation.
Effects of Overexposure	MCPA (present as the ethyl hexyl ester) is a skin sensitiser. Prolonged skin contact with the concentrate can cause deffating of the skin and may result in dermatitis. Chronic overexposure can cause weight loss and damage to liver and kidneys.
Existing Conditions Aggravated by Exposure	No information available.
Carcinogenicity	No (ASCC, NTP, IARC)

12. ECOLOGICAL INFORMATION

Ecotoxicity	**MCPA (present as the ethyl hexyl ester):** **Aquatic organisms:** LC_{50} (rainbow trout) = 1.15mg/L LC_{50} (bluegill sunfish) = 1.66 mg/L **Bromoxynil octanoate:** **Aquatic organisms:** LC_{50} (rainbow trout) = 0.041mg/L LC_{50} (*Daphnia magna*) = 0.046 mg/L **Bees:** LD_{50} > 100µg/bee It is not toxic to bees. Harmful to fish and other aquatic organisms.

Mobility	Bromoxynil has a low persistence in soil. In sandy soil, the half-life is about 10 days. Not readily biodegradable.

13. DISPOSAL CONSIDERATIONS

Disposal methods and containers	Instructions concerning the disposal of this product and its containers are given on the product label. Dispose according to applicable local and state government regulations.
Special precautions for landfill or incineration	Please consult your state Land Waste Management Authority for more information.

14. TRANSPORT INFORMATION

Not classified as a dangerous good according to the Australian Code for the Transport of Dangerous goods by road or rail.

UN Number	Not applicable
Proper Shipping Name	Not applicable
Dangerous Goods Class	Not applicable
Hazchem Code	Not applicable
Packing Group	Not applicable
Special Precautions	Not applicable

15. REGULATORY INFORMATION

MCPA, bromoxynil and liquid hydrocarbon are listed in the Australian Inventory of Chemical Substances (AICS).

SUSDP Classification: 6

16. OTHER INFORMATION

Last Revision of MSDS	Rev 1.0 (04/03/2008)
Prepared by	MSDS.COM.AU Pty Ltd www.msds.com.au
Abbreviations Used	IARC: International Agency for Research on Cancer ASCC: Australian Safety and Compensation Council NTP: National Toxicology Program (U.S.) OSHA: Occupational Safety and Health Administration (U.S.) STEL: Short term exposure limit TWA: Time weighted average

Emergency Contacts

Titan Ag Pty Ltd	**02 9986 2943**
Titan Ag Pty Ltd – Emergency Number	**02 9986 2943**
Police and Fire Brigade	**000**
Poisons Information Centre	**13 11 26**

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Please read instructions / label before using product.