SAFETY DATA SHEET

Section 1. Identification of the material and the supplier

Product:	**TOMAHAWK 200 EC**
Chemical Name of Active Ing:	[(4-amino-3,5-dichloro-6-fluoro-2-pyridinyl)oxy]acetic acid methyl heptyl ester
Product Use:	Herbicide
Restriction of Use:	Refer to Section 15
New Zealand Supplier:	ADAMA New Zealand Ltd
Address:	Level 1/93 Bolt Road Tahunanui, Nelson
Telephone:	+64 3 543 8275
Email:	nzorders@adama.com
Emergency Telephone:	**0800 764 766 (National Poison Centre)**
Date of SDS Preparation:	2 July 2019

Section 2. Hazards Identification

This substance is hazardous according to the *Hazardous Substances (Classification) Notice 2017*

EPA Approval No: HSR000512

Pictograms

Irritant Chronic Ecotoxic

Signal Word: **DANGER**

HSNO Classification	Hazard Code	Hazard Statement	GHS Category
3.1D	H227	Combustible liquid.	Flam. Liq. 4
6.1E (asp)	H304	May be fatal if swallowed and enters airways.	Asp. Tox. 1
6.4A	H319	Causes serious eye irritation.	Eye Irrit. 2A
9.1A	H410	Very toxic to aquatic life with long lasting effects.	Aquatic Chronic 1
9.2A	H421	Very toxic to the soil environment.	

Prevention Code	Prevention Statement
P102	Keep out of reach of children.
P103	Read label before use.
P210	Keep away from heat, sparks, open flames or hot surfaces. No smoking.
P264	Wash hands thoroughly after handling.
P273	Avoid release to the environment.

P280	Wear protective clothing as detailed in Section 8.

Response Code	Response Statement
P101	If medical advice is needed, have product container or label at hand.
P331	Do NOT induce vomiting.
P391	Collect spillage.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P305 + P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313	If eye irritation persists: Get medical advice/attention.
P370 + P378	In case of fire: Use carbon dioxide, water spray, foam and dry chemical for extinction.

Storage Code	Storage Statement
P405	Store locked up.
P403 + P235	Store in a well-ventilated place. Keep cool.

Disposal Code	Disposal Statement
P501	Wherever possible completely use material by using according to label instructions. Dispose of unwanted product and wastes from spillages as hazardous substances in accordance with local and national regulations using a licensed waste disposal company. Triple rinse containers and add rinsate to spray tank before puncturing and offering for recycling or landfill. Do not allow product to enter waterways. Do not burn product or container.

Section 3. Composition / Information on Ingredients

Ingredients	Wt %	CAS NUMBER.
Fluroxypyr-meptyl	28 - 30	81406-37-3
Solvent naphta (petroleum), heavy arom.	64 - 69	64742-94-5

Section 4. First Aid Measures

Routes of Exposure:

If in Eyes — Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

If on Skin — Remove contaminated clothing. Gently wash skin with water and soap for 15 minutes or until chemical is removed. If skin irritation occurs: Get medical advice/ attention.

If Swallowed — Do NOT induce vomiting. Rinse mouth with water. Give plenty of water to drink. If vomiting occurs give further water. Immediately call a POISON CENTER or doctor/physician.

If Inhaled — Remove person to fresh air. Remove contaminated clothing and loosen remaining clothing. Allow person to assume most comfortable position and keep warm. Keep at rest until fully recovered. Apply artificial respiration if not breathing. Get medical advice if breathing becomes difficult.

Most important symptoms and effects, both acute and delayed
Symptoms:
Ingestion: Not applicable
Inhalation: Not applicable
Skin: Not applicable
Eye: Causes serious eye irritation.

Chronic: May be fatal if swallowed and enters airways (aspiration).

Notes to Doctor: There is no specific antidote. Treat symptomatically and give supportive therapy.

Section 5. Fire Fighting Measures

Hazard Type	Combustible Liquid
Hazards from products	Chloride compounds, Fluoride compounds and nitrogen oxides.
Suitable Extinguishing media	Dry chemical, water spray, foam, carbon dioxide.
Precautions for firefighters and special protective clothing	Self-contained breathing apparatus and total protection required in enclosed areas.
HAZCHEM CODE	**3Z**

Section 6. Accidental Release Measures

Wear suitable protective clothing, gloves and eye/face protection. Evacuate all unnecessary personnel. Shut off ignition sources. Keep away from: open flame, sparks and heat

Environmental precautions
In the event of a major spill, prevent spillage from entering into drains and water courses.

Methods and material for containment and cleaning up
Absorb remainder in sand or other inert material. Dispose of in an authorised waste collecting point.

Section 7. Handling and Storage

Precautions for Handling:

- Read label before use.
- Keep away from heat, sparks, open flames or hot surfaces. No smoking.
- Ventilation required.
- Wash hands thoroughly after handling.
- Avoid release to the environment.
- Wear protective clothing as detailed in Section 8.

Precautions for Storage:

- Store away from incompatible materials listed in Section 10.
- Keep out of reach of children.
- Store locked up.
- Store in a well-ventilated place. Keep cool.
- Store in original, unopened container in cool, dry place, well ventilated place, out of direct sunlight and away from stockfeed or foodstuffs.
- As a Class 9 Substance with Ecotoxicity Classifications storage of ADAMA Tomahawk Herbicide must be carried out in such a manner as to prevent contamination of waterways. It is recommended that The New Zealand Standard for the Management of Agrichemicals (NZS 8409:2004) is followed as a means of meeting the secondary containment provisions of the HSNO Emergency Management Regulations. Do not store with incompatible substances.
- Packaging: Multi-layer high-density polyethylene extrusion blow containers.
  Resin-lined metal drums.

Section 8 Exposure Controls / Personal Protection

WORKPLACE EXPOSURE STANDARDS (provided for guidance only)

Substance	TWA ppm	TWA mg/m3	STEL ppm	STEL mg/m3

No ingredients have exposure limits

Workplace Exposure Standard – Time Weighted Average (WES-TWA).The time-weighted average exposure standard designed to protect the worker from the effects of long-term exposure. Workplace Exposure Standard – Short-Term Exposure Limit (WESSTEL). The 15-minute average exposure standard. Applies to any 15- Minute period in the working day and is designed to protect the worker against adverse effects of irritation, chronic or irreversible tissue change, or narcosis that may increase the likelihood of accidents. The WES-STEL is not an alternative to the WES-TWA; both the short-term and time-weighted average exposures apply. Workplace Exposure Standards and Biological Exposure Indices NOV 2017 9TH EDITION.

Engineering Controls
Ventilation required.

Personal Protection Equipment

Eyes	Safety goggles or face shield.
Hands and Skin	Chemical resistant gloves. Wear suitable protective clothing.
Respiratory	Respiratory protection is not required if good ventilation is maintained.
General	When handling do not eat, drink or smoke. Wash hands thoroughly after handling. Wash clothing separately before re-use.

Section 9 Physical and Chemical Properties

Appearance	Amber liquid
Odour	Aromatic (solvent)
Odour Threshold	Not applicable
pH	5 - 7 CIPAC, MT 75
Boiling Point	~200°C (Water)
Melting Point	Not applicable
Flash Point	65°C closed cup
Flammability	Combustible
Upper and Lower Exposure Limits	0.6% - 7% Volume
Vapour Pressure	7 x 104 mPa @ 20°C (solvent)
Density	0.992 +/-0.015 g/mL @ 20°C (Fluroxypyr-meptyl)
Solubilities in water	0.9 ppm @ 20oC (Fluroxypyr-meptyl) 91 ppm @ 20oC (Fluroxypyr)
Octanol/water partition coefficient	log = 4.5 (Fluroxypyr-meptyl)
Auto-ignition Temperature	> 450 °C (solvent)
Explosive properties	Solvent (vapours) – may form explosive mixture with air.
Viscosity	Not applicable
Molecular weight:	Not applicable
Decomposition point:	Not applicable
Surface tension mN/m:	Not applicable

Section 10. Stability and Reactivity

Stability of Substance	This product is stable under normal conditions.
Conditions to Avoid	Direct sunlight, sources of heat, open flame.
Incompatible Materials	Oxidizing agents, acids and alkali.

Hazardous Decomposition Products	Chloride compounds, Fluoride compounds and nitrogen oxides.

Section 11 Toxicological Information

Acute Effects:

Swallowed	Not applicable. LD50 (rat)= 2,000 mg/kg
Dermal	Not applicable. LD50 (rat) > 2,000 mg/kg
Inhalation	Not applicable. LC50 (rat) > 5.2 mg/L (4 hours)
Skin	Not applicable.
Eye	Causes serious eye irritation.

Chronic Effects:

Carcinogenicity	Not applicable.
Reproductive Toxicity	Not applicable.
Germ Cell Mutagenicity	Not applicable.
Aspiration	May be fatal if swallowed and enters airways.
STOT/SE	Not applicable.
STOT/RE	Not applicable.

Common name:	**Fluroxypyr-meptyl**
Chronic toxicity:	NOAEL (rat): = 80 mg/kg/day; mice = 320 mg/kg/day
Carcinogenicity:	EPA : Not classified EU : Not classified IARC : Not classified NOEL = 1,000 mg/kg/day (mice) NOEL = 320 mg/kg/day (rat)
Mutagenicity:	Not mutagenic
Other information:	Teratogencity: Not teratogenic in animal experiments NOAEL = 1,000 mg/kg/day (rat)

Section 12. Ecotoxicological Information

HSNO Classes: 9.1A = Very toxic to aquatic life with long lasting effects.
9.2A = Very toxic to the soil environment.

Persistence and degradability	No data available
Bioaccumulation	No data available
Mobility in Soil	No data available
Other adverse effects	No data available

Ecotoxicity:

Fish

LC50 (96 hours) rainbow trout > 100 mg/L (Fluroxypyr)
golden orfe > 100 mg/L (Fluroxypyr)
rainbow trout > 0.9 mg/L, solubility limit (Fluroxypyr-meptyl)
golden orfe > 0.9 mg/L, solubility limit (Fluroxypyr-meptyl)

Daphnia magna

EC50 (48 hours) > 100 mg/L (Fluroxypyr)
>0.9 mg/L, solubility limit (Fluroxypyr-meptyl)

Birds

Bobwhite quail LD50 > 2,000 mg/kg (Fluroxypyr-meptyl & Fluroxypyr)
Mallard duck LD50 > 2,000 mg/kg (Fluroxypyr-meptyl & Fluroxypyr)

Bees
Oral LD50 > 100 µg/bee (Fluroxypyr-meptyl)
Contact LD50 > 100 µg/bee (Fluroxypyr-meptyl)
Contact LD50 > 25 µg/bee (Fluroxypyr)

Harmful to aquatic organisms. Not toxic: birds and Bees

Common name:	**Fluroxypyr-meptyl**
Mobility:	Soil – moderately mobile (Fluroxypyr)
Persistence/degradability:	**Soil** The product is not persistent. Half-life time (t½): 5-9 days (Fluroxypyr) < 7 days (Fluroxypyr-meptyl) Degradation is primarily via: Microorganisms. (Fluroxypyr-meptyl) Hydrolysis (Fluroxypyr-meptyl) **Water** DT50 = 1-3 days (Fluroxypyr-meptyl)

Do not allow to enter waterways.

Section 13. Disposal Considerations

Disposal Method: Triple rinse empty container and add rinsate to spray tank. Burn in an appropriate incinerator, if circumstances such as wind direction permit. Otherwise crush or puncture and bury in a suitable landfill, or if appropriate, recycle.

FREE RECYCLING
AGRECOVERY
www.agrecovery.co.nz

Precautions and methods to avoid:
Avoid contamination of any water supply with product or empty container.

Section 14 Transport Information

This product is classified as a Dangerous Good for transport in NZ; NZS 5433:2012

Road and Rail Transport

UN No:	3082
Class-primary	9
Packing Group	III
Proper Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S, (Napta)

Air Transport

UN No:	3082
Class-primary	9
Packing Group	III
Proper Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S, (Napta)

Marine Transport

UN No:	3082
Class-primary	9

Packing Group	III
Proper Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S, (Napta)
Marine Pollutant	Yes

Special Provisions:

If the product's individual container is below 5L/kg, it can be transported as a non-DG as long as the product packaging is still labelled as per DG requirements and the driver is given safety information in accordance with Chapter 3.4 of the UNRTDG.

Section 15 Regulatory Information

This substance is hazardous according to the Hazardous Substances (Classification) Notice 2017

EPA Approval Code: HSR000512
HSNO Classification: 3.1D, 6.1E(asp), 6.4A, 9.1A, 9.2A

Refer to EPA website www.epa.govt.nz for controls document - HSR000512

HSW (HS) Regulations 2017	**Trigger Quantity/Regulation**
HSW(Hazardous substance) Regulations Part 4 Certified Handlers and supervision and training of workers	HSW Reg 4.5 – 4.6 Information, instruction, training and supervision.
Location Certificate	Not required
Signage Trigger Quantities (Schedule 3)	100L (9.1A)
Fire Extinguishers (Schedule 4)	500L – 2x required
Emergency Response Plan (Schedule 5)	100L (9.1A)
Secondary Containment (Schedule 5)	100L (9.1A)
Tracking (Schedule 26)	Not required
HSNO Additional Controls (Restrictions of use)	
77A	The substance must not be applied onto or into water.
Hazardous Property Controls Notice 2017	
HPC Notice Part 4 Clause 47	Equipment for class 9 substances must be appropriate
HPC Notice Part 4 Clause 48	Records of application of class 9 pesticides and plant growth regulators
HPC Notice Part 3	Hazardous substances in a place other than a workplace
HPC Notice Part 4 Subpart A	Site and storage controls for class 9 substances
HPC Notice Part 4 Subpart C	Qualifications required for application of class 9 pesticides
ACVM Act and Regulations	
ACVM Approval No See www.foodsafety.govt.nz for registration controls	P7327

Section 16 Other Information

Glossary

EC50	Median effective concentration.
EEL	Environmental Exposure Limit.
EPA	Environmental Protection Authority
HSNO	Hazardous Substances and New Organisms.
LC50	Lethal concentration that will kill 50% of the test organisms inhaling or ingesting it.
LD50	Lethal dose to kill 50% of test animals/organisms.

LEL	Lower explosive level.
OSHA	American Occupational Safety and Health Administration.
TEL	Tolerable Exposure Limit.
TLV	Threshold Limit Value-an exposure limit set by responsible authority.
UEL	Upper Explosive Level
WES	Workplace Exposure Limit

References:

1. EPA Hazardous Substances (Safety Data Sheets) Notice 2017
2. Workplace Exposure Standards and Biological Exposure Indices Nov 2017 edition.
3. Assigning a hazardous substance to a HSNO Approval (Aug 2013).
4. Transport of Dangerous goods on land NZS 5433:2012
5. HSW (Hazardous Substances) Regulations 2017

Disclaimer

This document has been issued by TCC (NZ) Ltd and serves as their Safety Data Sheet ('SDS'). It is based on information concerning the product which has been provided to TCC (NZ) Ltd or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer. While TCC (NZ) have taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, TCC (NZ) Ltd accept no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS

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Please contact the ADAMA, if further information is required.

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