Section 1: Identification: Product identifier and chemical identity

Product Identifier:	**CHOICE JACKAL HERBICIDE**
Other Means of Identification:	Agricultural herbicide. Grow Choice product code number: 366 AVPMA registered number: 84401
Recommended Use:	For the control of certain broadleaf weeds in winter cereals and pastures as specified in the Directions for Use table on the label.
Details of manufacturer or importer:	**Grow Choice Pty Ltd** ABN 36 161 264 884
Address:	**113 Fitzroy Street** **TAMWORTH NSW 2340** **AUSTRALIA**
Website:	**www.growchoice.com.au**
Phone Number:	**(02) 6766 3979**
Emergency Phone Number:	**24 hours - 1800 033 111**

Section 2: Hazards identification

Classification of the substance or mixture in accordance with Australian GHS Regulation:

Acute toxicity (inhalation): Category 3
H331 Toxic if inhaled.

Acute toxicity (oral): Category 4
H302 Harmful if swallowed

Aspiration hazard: Category 1
H304 May be fatal if swallowed and enters airways.

Skin corrosion/irritation: Category 2
H315 Causes skin irritation

Serious eye damage/irritation: Category 2
H319 Causes serious eye irritation

Skin Sensitisation: Category 1
H317 May cause an allergic skin reaction

STOT SE: Category 3
H335 May cause respiratory irritation

Reproductive toxicity: Category 1B
H360Df May damage unborn child. Suspected of damaging fertility.

Acute aquatic toxicity: Category 1
H400 Very toxic to aquatic life.

Chronic aquatic toxicity: Category 1
H410 Very toxic to aquatic life with long lasting effects.

Flammable Liquids: Category 4
H227 Combustible liquid.

Label elements:	Hazard label for supply/use required.	
Hazardous components which must be listed on the label:	Active constituents: 250g/L Bromoxynil present as the octanoate; 25g/L Diflufenican Solvents: 397g/L liquid hydrocarbons; 175g/L N-Methyl-Pyrrolidone	
Signal word:	Hazard	
Hazard statements:	H227	Combustible liquid.
	H302	Harmful if swallowed.
	H331	Toxic if inhaled.
	H315	Causes skin irritation.
	H319	Causes serious eye irritation.
	H317	May cause an allergic skin reaction.
	H360Df	May damage the unborn child. Suspected of damaging fertility.
	H335	May cause respiratory irritation.
	H304	May be fatal if swallowed and enters airways.
	H410	Very toxic to aquatic life with long lasting effects.
Precautionary statements:	P201	Obtain special instructions before use.
	P202	Do not handle until all safety precautions have been read and understood.
	P210	Keep away from flames and hot surfaces. No smoking.
	P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
	P264	Wash hands thoroughly after handling.
	P270	Do not eat, drink or smoke when using this product.
	P271	Use only outdoors or in a well-ventilated area.
	P272	Contaminated work clothing should not be allowed out of the workplace.
	P273	Avoid release to the environment.
	P280	Wear protective gloves/protective clothing/eye protection/face protection.
	P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
	P302+P352	IF ON SKIN: Wash with plenty of water.
	P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
	P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P308+P313	IF exposed or concerned: Get medical advice/attention.
	P321	Specific treatment (see on this label).
	P330	Rinse mouth.
	P331	Do NOT induce vomiting.
	P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
	P337+P313	If eye irritation persists: Get medical advice/attention.
	P362+P364	Take off contaminated clothing and wash it before reuse.
	P370+P378	In case of fire: Use to extinguish: CO2, powder or water spray.
	P391	Collect spillage.
	P403+P233	Store in a well-ventilated place. Keep container tightly closed.
	P403+P235	Store in a well-ventilated place. Keep cool.
	P405	Store locked up.
	P501	Dispose of contents/container in accordance with local/regional/ national regulations.

Section 3: Composition and information on ingredients

Chemical Nature	Mixtures – Mixture of substances listed below with non-hazardous additions.	
Chemical Name	**CAS No.**	**Concentration [%]**
Solvent naphtha (petroleum), heavy aroma [Aspiration Hazard 1, H304]	64742-94-5	30-40
Bromoxynil octanoate (ISO) [Acute Toxicity (Inhalation) 3, H331; Toxic to Reproduction 2, H361; Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Acute Toxicity (Oral) 4, H302; Skin Sensitisation 1, H31]	1689-99-2	34
N-methyl-2-pyrrolidone [Toxic to Reproduction 1B, H360D; Skin Corrosion/Irritation 2, H315; Serious Eye Damage/Irritation 2A, H319; STOT SE 3, H335; Flammable Liquids 4, H227]	872-50-4	10-20
Diflufenican [Aquatic Chronic 3, H41]	83164-33-4	2.3

Section 4: First aid measures

Description of necessary First Aid measures		In case of poisoning by any exposure route contact a doctor or Poisons Information Centre on 131 126. Have the product label or SDS with you when calling or going for treatment.
	Inhalation:	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention if breathing problems develop.
	Skin contact:	In case of skin contact, immediately remove contaminated clothing and wash affected areas with water and soap. Launder contaminated clothing before re-use. Seek medical attention if symptoms occur.
	Eye contact:	In case of eye contact, rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical attention.
	Ingestion:	If swallowed, DO NOT induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Do not give anything by mouth to an unconscious person. Seek immediate medical attention.
Symptoms caused by exposure		Sensitisation, irritation, nausea, vomiting, sweating, thirst, anxiety, hyperventilation, tachycardia, muscle twitching and convulsions.
Advice to Doctors	**Treatment:**	Treat symptomatically. If vomiting occurs, solvent present may cause pulmonary pneumonitis.

Section 5: Fire fighting measures

Suitable extinguishing equipment:	Water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Do not use high volume water jet.
Specific hazards arising from the chemical:	Combustible liquid. Hazardous combustion products include hydrogen bromide, hydrogen cyanide, hydrogen fluoride and oxides of nitrogen and carbon. Vapours may form explosive mixture with air. Closed containers may explode when exposed to extreme heat. Use water spray to cool fire exposed containers.

Special protective equipment and precautions for Fire Fighters:	When fighting a major fire wear self-contained breathing apparatus and protective equipment.
Further information:	STOP FIRE WATER FROM ENTERING DRAINS OR WATER BODIES.

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedure:	Wear Safe Work Australia approved self-contained breathing apparatus and full protective clothing. Evacuate all non-essential personnel from affected area. Do not breathe vapours. Ensure adequate ventilation. Extinguish all sources of ignition. Avoid sparks and open flames. No smoking.
Environmental precautions:	In the event of a major spill, prevent spillage from entering drains or water courses.
Methods for cleaning up or taking up:	Stop leak if safe to do so and absorb spill with sand, earth, vermiculite or some other absorbent material. Collect the spilled material and place into a suitable container for disposal. Ensure adequate ventilation.

Section 7: Handling and storage

Precautions for safe handling:	Use of safe work practices are recommended to avoid eye or skin contact and inhalation of vapours. Use only outdoors or in a well-ventilated area. Food, beverages and tobacco products should not be stored or consumed where this material is in use. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use. Provide eyewash fountains and safety showers in close proximity to points of potential exposure.
Requirements for safe storage:	Store only in the original container in a cool, dry and well ventilated area. Keep container tightly closed when not in use. Protect from direct sunlight, heat, sparks, open flames and other sources of ignition. Keep away from strong oxidising agents, acids and bases.

Section 8: Exposure controls and personal protection

Exposure Standards: **872-50-4N-methyl-2-pyrrolidon**	
NES	STEL: 309 mg/m³, 75 ppm TWA: 103 mg/m³, 25 ppm Sk

National Exposure Standards:	No exposure standards have been set for this product or the active ingredients. The manufacturer of the solvent has recommended an occupational exposure limit of 100 mg/m3; - ppm TWA, as total hydrocarbon. Safe Work Australia has set the following exposure standard for N-methyl pyrrolidone: TLV (TWA) 103 mg/m3, STEL 309 mg/m3. SK 'SK' notice - absorption through the skin may be a significant source of exposure. The exposure standard is invalidated if such contact should occur. Permissible Exposure Level (PEL) for diflufenican recommended by the manufacturer is 2.3 mg/m3.
Engineering controls:	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapour below occupational exposure standards.

Respiratory protection:	If use conditions generate vapours or mists use respirator equipped for organic vapours. See Australian Standards AS/NZS 1715 and 1716 for more information.
Skin protection:	Elbow-length PVC or nitrile gloves, cotton overall buttoned to the neck and wrist and washable hat. See Australian Standards AS/NZS 2161, 2210.1 and 2210.2 for more information.
Eye and face protection:	Safety glasses with top and side shields or goggles. See Australian/New Zealand Standards AS/NZS 1336 and 1337 for more information.
Skin and body protection:	When preparing and using the product wear cotton overalls buttoned to the neck and wrist and a washable hat, elbow-length PVC gloves and face shield.
Hygiene measures:	After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash contaminated clothing and safety equipment.
General protective measures:	In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the abovementioned recommendations would apply.
Special training requirements:	Use only in area provided with appropriate exhaust ventilation.

Section 9: Physical and chemical properties

Appearance:	Clear, light yellow to dark brown liquid	**pH:**	4.2 (at 23°C – 10% solution)
Odour:	Hydrocarbon odour	**Boiling point:**	176-200°C (for solvent)
Auto-Ignition Temperature:	>200 °C (solvent)	**Explosive Properties:**	Lower limit: 0.6 Vol % Upper limit: 7 Vol %
Flash Point:	66°C	**Specific gravity:**	1.15
Volatile Component:	~60%	**Solubility in water:**	Forms an emulsion in water
Flammability:	Combustible liquid C1.		
Vapour pressure:	0.19 mPa @ 25°C for bromoxynil octanoate; 0.00425 mPa for diflufenican.	**Partitioning coefficient: n-octanol/water:**	Kow Log P is 5.4 for bromoxynil octanoate, 4.9 for diflufenican.

Section 10: Stability and reactivity

Chemical stability:	Stable under recommended storage conditions.
Possibility of hazardous reactions:	Keep away from strong oxidising agents, may react violently.
Conditions to avoid:	Heat, sparks, open flames and other sources of ignition.
Incompatible materials:	Acids, bases, strong oxidizing agents.
Hazardous decomposition products:	Hydrogen bromide, hydrogen cyanide, hydrogen fluoride and oxides of nitrogen and carbon.

Section 11: Toxicological information

Toxicity:

Health Effects from likely Routes of Exposure:

Inhalation:	Harmful if inhaled. Irritating to respiratory system.
Skin:	Irritating to skin and mucous membranes. May cause sensitisation by skin contact
Eye:	Causes eye irritation.

Ingestion:	Harmful if swallowed. Possible symptoms of exposure include: headache, nausea, dizziness and weakness. If aspirated into the lung, e.g. from vomiting, the presence of solvent may result in chemical pneumonitis or other lung damage.
Skin Corrosion / irritation:	Causes skin irritation. Prolonged contact with the concentrate can cause defatting of the skin and may result in dermatitis.
Respiratory or skin sensitisation:	Sensitisation possible through skin contact.
Reproductive toxicity:	May damage fertility or the unborn child. The solvent, N-methyl pyrrolidone (NMP), may cause effects on the cardiovascular and skeletal systems of developing embryos. Bromoxynil octanoate has been assigned R63 on the basis of studies, in rats, rabbits and mice which show reduced ossification and increased incidence of supernumerary ribs at doses (range 5-15 mg/kg/day) which are not toxic maternally. The significance of supernumerary ribs as an indicator of developmental toxicity and extrapolation to other species remain problematical.
Acute toxicity – oral:	LD50 (rat) 365 mg/kg for bromoxynil octanoate LD50 (rat) >5000 mg/kg for diflufenican
Acute toxicity - dermal:	LD50 (rat) >2000 mg/kg for bromoxynil octanoate LD50 (rat) >2000 mg/kg for diflufenican
Acute toxicity - inhalation:	LC50 (rat) (4hr) 0.76 mg/l for bromoxynil octanoate
Specific Target Organ Toxicity (STOT) - single exposure:	May cause respiratory irritation.
Specific Target Organ Toxicity (STOT) - repeated exposure:	Based on classification principles, the classification criteria are not met.
Aspiration hazard:	May be fatal if swallowed and enters airways.
Chronic health effects:	Chronic Overexposure: Weight loss and damage to liver and kidneys may be expected if exposure is excessive.
Existing conditions aggravated by exposure:	No information available.
Additional toxicological information:	The Australian Acceptable Daily Intake (ADI) for bromoxynil for a human is 0.003 mg/kg/day, set for the public for daily, lifetime exposure. This is based on the NOAEL of 0.3 mg/kg/day, the level determined to show no effects during long term exposure for the most sensitive indicators and the most sensitive species. The Australian Acceptable Daily Intake (ADI) for diflufenican for a human is 0.2 mg/kg/day, set for the public for daily, lifetime exposure. This is based on the NOAEL of 16.3 mg/kg/day.

Section 12: Ecological information

Ecotoxicity:	
Persistence and degradability:	Not readily biodegradable (bromoxynil and diflufenican)
Bioaccumulative potential:	Bioconcentration factor (BCF): 230 (bromoxynil) Bioconcentration factor (BCF): 1.60 (diflufenican)
Mobility in soil:	DT50 - 1 d (bromoxynil) DT50 - 85.6 - 282 d (diflufenican)
Known harmful effects on the environment:	Harmful to fish and other aquatic organisms.
Other precautions:	Do not spray in high winds. Do not contaminate dams, waterways or sewers with this product or the containers which have held this product.

Environmental protection:	Marine pollutant. Spray drift can cause damage, read the label for more information.
Acute toxicity – fish:	The following is data for the active ingredient, bromoxynil octanoate. Toxic to fish. LC50 (96hr) for rainbow trout is 0.041 mg/l.
Acute toxicity – daphnia:	LC50 (48hr) for daphnia is 0.046 mg/l for bromoxynil octanoate. LC50 (48hr) for daphnia is 0.24 mg/l for diflufenican.
Acute toxicity to other organisms:	Bees: Not toxic to bees. LD50 >100 µg/bee.

Section 13: Disposal considerations

Product Disposal:	On site disposal of the concentrated product is not acceptable. Ideally, the product should be used for its intended purpose. If there is a need to dispose of the product, approach local authorities who hold periodic collections of unwanted chemicals (ChemClear®).
Container Disposal:	Do not use this container for any other purpose. Triple, or preferably, pressure rinse inner bladder or containers before disposal. Add rinsings to the spray tank. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush or puncture and deliver empty packaging for appropriate disposal at an approved waste management facility. If an approved waste management facility is not available, bury the empty packaging 500mm 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. drumMUSTER is the national program for the collection and recycling of empty, cleaned, non-returnable crop production and on-farm animal health chemical containers. If the label on your container carries the drumMUSTER symbol, triple rinse the container, ring your local Council, and offer the container for collection in the program. Returnable containers: empty contents fully into application equipment. Replace cap, close all valves and return to the point of supply for refill or storage.

Section 14: Transport information

Transport information:	It is good practice not to transport agricultural chemical products with food, food related materials and animal feedstuffs. Considered non-dangerous for road and rail transport (in packaging, including IBCs not greater than 3000L each) by the Australian Code for the Transport of Dangerous Goods by Road and Rail. Ref: ADG7; SP No. AU01.

For bulk shipments as Class 9, use UN 3082, HazChem code 2Z. 3082.

SEA TRANSPORT: IMDG			
Hazard class:	9	**Packing group:**	III
ID number:	UN 3082	**Proper shipping name:**	Environmentally Hazardous Substance, Liquid, N.O.S. (contains Bromoxynil)
Marine pollutant:	YES		

Section 15: Regulatory information

Poisons Schedule (SUSMP):	6
Packaging and labelling:	POISON KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTION BEFORE OPENING OR USING
Hazard category:	Toxic, irritant
Other information:	This product is registered with the Australian Pesticides and Veterinary Medicines Authority (APVMA). APVMA product number: 84401

Section 16: Any other relevant information

Date of preparation or last revision: July 2018

Source of Data: The information provided in this SDS is sourced from Grow Choice internal studies which have been conducted according to Regulatory requirements including OECD and CIPAC Guidelines and EC Directives. A comprehensive package of toxicological and environmental data for the active ingredients of this product has been submitted to the government health and environment authorities and has been evaluated by expert toxicologists and environmental scientists.

Note: This product is a registered agricultural chemical and must, therefore, be used in accordance with the container label directions

CONTACT POINT: Grow Choice Pty Ltd
(02) 6766 3979
24 HOUR EMERGENCY CONTACT: 1800 033 111

This Material Safety Data Sheet 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 SDS 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.

DISCLAIMER
This product complies with the specifications in its statutory registration. Implied terms and warranties are excluded. Grow Choice's liability for breach of the express or any non-excludable implied warranty is limited to product replacement or purchase price refund. The purchaser must determine suitability for intended purpose and take all proper precautions in the handling, storage and use of the product including those on the label and/or safety data sheet failing which Grow Choice shall have no liability.