SAFETY DATA SHEET

SECTION 1 – IDENTIFICATION OF THE CHEMICAL PRODUCT AND COMPANY

Product Name:	**Kenso Agcare Lobak Selective Herbicide**
Product Type:	Group 6 & 12 Herbicide
Company Name:	Kenso Corporation (M) Sdn Bhd
Address:	Level 1, 98 Commercial Road, Teneriffe, 4005 QLD.
Telephone Number:	(07) 3216 1188
Emergency Telephone Number:	000 (Police or Fire Brigade) **13 11 26 (Poisons Information Centre)**
Use:	For the control of certain broadleaf weeds in winter cereals and pasture.

SECTION 2 – HAZARDS IDENTIFICATION

Hazard Classification: Classified as hazardous according to criteria of Safe Work Australia.
Not classified as a Dangerous Good according to the ADG Code.

Classification of the Hazardous Chemical:
Flammable liquid – Category 4
Acute toxicity (Oral) – Category 4
Skin corrosion/ irritation – Category 2
Skin sensitization – Category 1
Serious eye damage/eye irritation – Category 2/2A
Acute toxicity (Inhalation) – Category 3
Specific target organ toxicity (Single exposure) – Category 3
Reproductive toxicity – Category 2
Hazardous to the aquatic environment, long term – Chronic 1

GHS Signal Word: **DANGER**

Hazard statements:
H227: Combustible liquid.
H302: Harmful if swallowed.
H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H319: Causes serious eye irritation.
H331: Toxic if inhaled.
H335: May cause respiratory irritation.
H361: Suspected of damaging fertility or the unborn child.
H410: Very toxic to aquatic life with long lasting effects.

Prevention:
P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.

	P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P261: Avoid breathing dust/fume/gas/mist/vapours/spray. P264: Wash contacted areas 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 and eye or face protection.
Response:	P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. P302+P352: IF ON SKIN: Wash with plenty of soap and 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. P311: Call a POISON CENTER or doctor/physician. P321: Specific treatment (see FIRST AID on this label) P330: Rinse mouth. 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 before reuse. P370+P378: In case of fire: Use water fog, foam, dry agent (carbon dioxide, dry chemical powder) to extinguish. P391: Collect spillage.
Storage:	P403+P233: Store in a well-ventilated place. Keep container tightly closed. P405: Store locked up.
Disposal:	P501: Dispose of contents/container as specified on the registered label
SUSMP Classification:	S7
ADG Classification:	N/A
UN Number:	N/A

Emergency Overview

Physical Description & colour: Dark brown liquid.
Odour: Strong ester odour.
Major Health Hazards: Harmful if inhaled or swallowed. Will irritate eyes, nose, throat and skin.

SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	CAS number	Proportion
Bromoxynil (present as the octanoate)	1689-99-5	25%
Diflufenican	29450-45-1	2.5%
Liquid hydrocarbon	64742-94-5	41.6%
N-Methyl-2-pyrrolidone	90438-79-2	15%
Inert ingredients	secret	to 100%

SECTION 4 – FIRST AID MEASURES

Inhalation:	Remove to fresh air, keep warm and at rest. Give artificial respiration or oxygen if breathing is shallow or stopped. Get medical attention immediately.
Skin contact:	Remove contaminated clothing and wash affected areas or skin with soap and water. Seek medical advice if irritation develops.
Eye contact:	Hold the eyes and flush immediately with plenty of water. Seek medical advice if irritation develops.
Ingestion:	If swallowed, and if more than 15 minutes from a hospital induce vomiting, preferably using Ipecac Syrup APF. Seek medical advice immediately.

Advice to Doctor:
Treatment is symptomatic.
If vomiting occurs, solvent present may cause pulmonary pneumonitis.

SECTION 5 – FIRE FIGHTING MEASURES

Specific Hazard
Product is a combustible liquid, (C1)
Fire/Explosion Hazard
Dangerous Decomposition or Combustion Products
Thermal Decomposition
There is little risk of an explosion from this product if commercial quantities are involved in a fire. Violent steam generation or eruption may occur upon application of direct water stream 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.
Dangerous Decomposition Or Combustion Products
Hydrogen bromide, hydrogen cyanide, hydrogen fluoride, and oxides of nitrogen and carbon may be released in a fire.
Hazardous Decomposition Products
None known
Hazardous Reactions
None known
Extinguishing Media
Extinguish fire with foam, dry powder, carbon dioxide or water spray.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Spills & Disposal
Ensure suitable personal protection (including respiratory protection) during removal of spillage. Contain spill and absorb with sand or other absorbent material. Do not allow to enter drains, sewers and watercourses. Collect in sealed open top container for disposal. Triple rinse containers, add rinsings to spray tanks and send containers for recycling or if not recycling, break, crush or puncture and bury empty containers in a local authority landfill or in accordance with local, state or federal regulation. Do not dispose of undiluted chemicals on site.

SECTION 7 – HANDLING AND STORAGE

Handling
When handling this product, do not eat, drink or smoke.
When mixing this product always wear a PVC or rubber apron, elbow length PVC gloves, face shield or goggles and overalls buttoned at the wrist and neck.
When spraying this product, wear a face shield or goggles
After each days use, wash gloves, face shield or goggles and overalls.
If product gets on skin, immediately wash area with soap and water.
Storage
Store in the closed, original container in a well-ventilated area as cool as possible out of direct sunlight. Keep from contact with fertilisers and seeds.

SECTION 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure standards
The NOHSC exposure standards for N-methyl-2-pyrrolidone are:
TWA 25 ppm (103 mg/m^3); STEL 75 ppm (309 mg/m^3); Skin notation
Exposure standard – Time Weighted Average (TWA) means the average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day working week.
Exposure standard – Short Term Exposure limit (STEL) means a 15 minute TWA exposure which should not be exceeded at any time during a working day even if the eight-hour TWA average is within the TWA exposure standard. Exposures at the STEL should not be longer than 15 minutes and should not be repeated more than four times per day. There should be at least 60 minutes between successive exposures at the STEL.
Skin notation – Absorption through the skin may be a significant source of exposure.
Engineering controls
Control process conditions to avoid contact. Use local exhaust ventilation during manufacturing operations. Use in a well-ventilated area only.
Personal Protective Equipment
- Face-shield
- Cotton overalls buttoned to the neck and wrist and a washable hat
- Elbow-length PVC gloves

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Form:	Liquid
Colour:	Dark brown liquid
Odour:	Strong ester odour
Boiling Point (°C):	Not available
Flash Point (°C):	> 60 °C
Vapour Pressure:	< 1 x 10^{-4}mPa (bromoxynil octanoate) at 40°C 4.25 x 10^{-3}mPa (diflufenican) at 25°C
Specific Gravity:	1.08 – 1.10
Flammability:	Combustible Liquid, (C1)
Solubility:	Emulsify in water

SECTION 10 – STABILITY AND REACTIVITY

Chemical stability
This material is stable under normal use and storage conditions.
Conditions to avoid
Avoid sources of ignition and extremes of temperature.
Incompatible Materials
Incompatible with strong acids and bases, oxidizing agents.
Hazardous decomposition product
Hydrogen bromide, hydrogen cyanide, hydrogen fluoride, and oxides of carbon and nitrogen may be released in a fire.
Hazardous reactions
None

SECTION 11 – TOXICOLOGICAL INFORMATION

Acute Toxicity – Oral
LD_{50} rat: 1113 mg/kg
Acute Toxicity – Dermal
LD_{50} rat: > 2000 mg/kg
Acute Toxicity – Inhalation
Inhalation LC_{50} rat: 0.72 - 0.81 mg/L) (4 h) *(bromoxynil octanoate)*
Inhalation LC_{50} rat: > 5.12 mg/L) (4 h) *(diflufenican)*
Skin Irritation
Non irritating (rabbit)
Eye Irritation
Irritating (rabbit)
Sensitisation
Slightly sensitising (guinea pig) *(bromoxynil octanoate)*
Not sensitising (guinea pig) *(diflufenican)*

Potential Health Effects

Acute:

Inhalation: Irritation to respiratory system
Skin contact: Cause irritation and may cause sensitization
Eye contact: Cause irritation
Ingestion: Harmful

Chronic:

Bromoxynil is classified by NOHSC as a Category 3 teratogen – substances which cause concern for man owing to possible teratogenic effects but in respect of which the information is not adequate for making a satisfactory assessment. It is not mutagenic.
Diflufenican was not mutagenic, carcinogenic or teratogenic and did not show reproductive effects in animal studies.
In animal studies, N-methyl-2-pyrrolidone showed a developmental toxic effect in high doses which were maternally toxic.

SECTION 12 – ECOLOGICAL INFORMATION

Dangerous to fish and aquatic organisms. Low hazard to bees.
DO NOT contaminate streams, rivers or waterways with Lobak or the used containers.

Ecotoxicity

Bromoxynil octanoate:
Fish toxicity: LC_{50} (96 h) bluegill sunfish 0.06 mg/L
Bird toxicity: LD_{50} bobwhite quail 170 mg/kg; mallard duck 2350mg/kg
Daphnia toxicity: LC_{50} (48 h) *Daphnia magna* 0.046 mg/L
Algae toxicity: EC_{50} (96 h) *Desmodesmus subspicatus* 1mg/L

Diflufenican:
Fish toxicity: LC_{50} (96 h) rainbow trout > 109 µg/L
Bird toxicity: LD_{50} bobwhite quail > 2150 mg/kg
LD_{50} mallard duck > 4000 mg/kg
Daphnia toxicity: LC_{50} (48 h) *Daphnia magna* > 240 µg/L
Algae toxicity: EC_{50} (96 h) > 10 mg/L

Environmental fate, persistence and degradability, mobility

Bromoxynil: Not readily biodegradable. Bioconcentration factor (BCF): 230. In soil DT50 is < 1 day, in laboratory test. Degraded by hydrolysis and debromination.
Diflufenican: Not readily biodegradable. Bioconcentration factor (BCF): 1.596. DT50 varies from 85.6 to 282 days depending on soil type and water content.
N-methyl-2-pyrrolidone is readily biodegradable.

SECTION 13 – DISPOSAL CONSIDERATIONS

Disposal: Instructions concerning the disposal of this product and its containers are given on the product label. These should be carefully followed.

SECTION 14 – TRANSPORT INFORMATION

ADG

UN Number:	3082
Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains BROMOXYNIL OCTANOATE and DIFLUFENICAN)
Class:	9
Packaging group:	III
Hazchem:	3Z
Storage and transport:	Considered non dangerous for road and rail transport (in packaging) by the Australian Code for the Transport of Dangerous Goods by Road and Rail. Ref: ADG7; SP No. AU01.

IMO-IMDG

UN Number:	3082
Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains BROMOXYNIL OCTANOATE and DIFLUFENICAN)
Class:	9
Packaging group:	III
Marine pollutant:	Yes

SECTION 15 – REGULATORY INFORMATION

SUSMP Classification	S7
Packaging & Labelling	DANGEROUS POISON KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTIONS BEFORE OPENING OR USING

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
CAS number	Chemical Abstracts Service Registry Number
Hazchem Number	Emergency action code of numbers and letters that provide information to emergency services especially firefighters
IARC	International Agency for Research on Cancer
NOHSC	National Occupational Health and Safety Commission
SUSMP	Standard for the Uniform Scheduling of Medicines & Poisons
UN Number	United Nations Number
GHS	Globally Harmonised System

CONTACT POINT:

Police and Fire Brigade:	Dial	000
National Poisons Information Centre:	**Dial**	**13 11 26 (from anywhere in Australia)**
For 24 hour emergency response:	Dial	1800 951 288 03 9573 3188