SAFETY DATA SHEET

SECTION 1 – IDENTIFICATION OF THE CHEMICAL PRODUCT AND COMPANY

Product Name:	**Kenso Agcare Cletho 360 EC Selective Herbicide**
Product Type:	Group A Herbicide
Company Name:	Kenso Corporation (M) Sdn Bhd
Address:	Level 1, 98 Commercial Road, Teneriffe, 4005 QLD.
Telephone Number:	(07) 3216 1188
Facsimile Number:	(07) 3216 0388
Emergency Telephone Number:	000 (Police or Fire Brigade) **13 11 26 (Poisons Information Centre)**
Use:	For the control of certain grass weeds in beetroot, cabbage, canola, celery, chickpeas, cotton, faba beans, field peas, forestry, lentils, lettuce, lupins, mungbeans, non-bearing fruit trees, onions, ornamentals, peanuts, potatoes and soybeans as per the Direction for Use table.

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.

GHS Signal Word:	**DANGER**
Hazard statements:	H227: Combustible liquid. H304: May be fatal if swallowed and enters airways. H315: Causes skin irritation. H319: Causes serious eye irritation. H412: Harmful to aquatic life with long lasting effects.
Prevention:	P210: Keep away from heat/sparks/open flames/hot surfaces — No smoking. P264: Wash contacted areas thoroughly after handling. P273: Avoid release to the environment. P280: Wear protective gloves, protective clothing and eye or face protection.
Response:	P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. P302 + P352: IF ON SKIN: Wash with plenty of soap and water. P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P321: Specific treatment (see FIRST AID on this label).

	P331: DO NOT induce vomiting. P332 + P313: If skin irritation occurs: Get medical advice/ attention. P337 + P313: If eye irritation persists: Get medical advice/attention. P362: 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) for extinction.
Storage:	P403 + P235: Store in a well-ventilated place. Keep cool. P405: Store locked up.
Disposal:	P501: Dispose of contents and containers as specified on the registered label.
SUSMP Classification:	S5
ADG Classification:	N/A
UN Number:	N/A

Emergency Overview

Physical Description & colour: Clear amber liquid.
Odour: Aromatic odour.
Major Health Hazards: Effects of acute exposure to Clethodim or formulated products may include eye or skin irritation or central nervous system effects, e.g., salivation, decreased motor activity, in coordination, unsteady gait and hyperactivity. Product is irritating to eyes and skin, harmful if swallowed, if aspirated, may cause lung damage.

SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	CAS number	Proportion
Clethodim	99129-21-2	36%
Inert ingredients	secret	< 20%
Aromatic hydrocarbon	64742-94-5	to 100%

SECTION 4 – FIRST AID MEASURES

Inhalation:	Remove to fresh air if respiratory discomfort or irritation occurs. See a doctor if discomfort or irritation continues.
Skin contact:	Remove contaminated clothing, wash skin with plenty of soap and water. See a doctor if any signs or symptoms described in this document occur. Discard contaminated non-waterproof shoes and boots. Wash contaminated clothing before re-wearing.
Eye contact:	If in contact with eyes, flush eyes immediately with plenty of fresh water for at least 15 minutes while holding the eyelids open. However, if irritation persists, see a doctor.
Ingestion:	If swallowed, do NOT induce vomiting. Wash mouth with water and contact a Poisons Information Centre, or call a doctor.

Advice to Doctor:
This material contains light hydrocarbon liquid and an aspiration hazard may exist.

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 no risk of an explosion from this product under normal circumstances if it is involved in a fire. Violent steam generation or eruption may occur upon application of direct water stream on hot liquids.
Fire decomposition products from this product may be toxic if inhaled. Take appropriate protective measures.
Extinguishing Media
Preferred extinguishing media are carbon dioxide, dry chemical, foam, water fog.
Fire Fighting
If a significant quantity of this product is involved in a fire, call the fire brigade.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

DO NOT USE OR STORE near flame, sparks or hot surfaces. USE ONLY IN WELL VENTILATED AREA. Keep container closed. DO NOT weld, heat or drill container. Replace cap or bung. Emptied container still contains hazardous or explosive vapour or liquid. Determine concentrations and take appropriate measures for personal protection before entry into confined spaces that may have contained hazardous material. Do not store or transport near food or feedstuffs. Use strictly in accordance with label precautionary statements and directions.

Spills and Disposal
For Spills on Land
Avoid runoff into storm sewers and ditches that lead to waterways. Contain spilled liquids with dry sorbents. Clean up spill immediately. Absorb spill with inert materials (i.e. dry sand or earth), then place in a chemical waste container. Wash area with soap and water. Pick up wash liquid with additional absorbent and place in a disposable container.
For Spills on Water
This material forms an emulsion in water. Stop or reduce contamination of any water. Isolate contaminated water. Remove contaminated water for removal or treatment.
Disposal
Check governmental regulations and local authorities for approved disposal of this material. Dispose in accordance with applicable laws and regulations.

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 Limits TWA (mg/m^3) STEL (mg/m^3)

Exposure limits have not been established by NOHSC for any of the significant ingredients in this product. The ADI for Clethodim is set at 0.01mg/kg/day. The corresponding NOAEL is set at 1mg/kg/day. ADI means Acceptable Daily Intake and NOEL means No-observable-adverse-effect-level. Values adopted from Australian ADI List, Sept 2019. No special equipment is usually needed when occasionally handling small quantities. The following instructions are for bulk handling or where regular exposure in an occupational setting occurs without proper containment systems.

Eye Protection

Safety goggles should be worn.

Respiratory/ Ventilation Requirements

This material may be an inhalation hazard and, unless ventilation is adequate, the use of approved respiratory protection is recommended. Use this material only in well-ventilated areas.

Skin Protection

Avoid contact with skin or clothing. Skin contact should be minimized by wearing protective clothing including gloves.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Form:	Liquid
Colour:	Amber liquid
Odour:	Aromatic
pH:	5.1 in 5% solution
Melting Point (°C):	N/A
Boiling Point (°C):	N/A
Specific Gravity:	1.00
Vapour Pressure:	N/A
Flammability:	Combustible Liquid, (C1)
Solubility:	Emulsify in water

SECTION 10 – STABILITY AND REACTIVITY

Reactivity

This product is unlikely to react or decompose under normal storage conditions. However, if you have any doubts, contact the supplier for advice on shelf life properties.

Conditions to Avoid

Keep containers tightly closed. Keep containers and surrounding areas well ventilated. Protect this product from light. Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight.

Incompatibilities
No particular Incompatibilities.
Fire Decomposition
Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. Nitrogen and its compounds, and under some circumstances, oxides of nitrogen. Occasionally hydrogen cyanide gas. Water. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death.
Polymerisation
This product will not undergo polymerisation reactions.

SECTION 11 – TOXICOLOGICAL INFORMATION

Toxicity
An information profile for Clethodim is available at http://extoxnet.orst.edu/pips/ghindex.html
Acute Toxicity
Clethodim is harmful by ingestion. The reported oral LD_{50} is 1,630 mg/kg and 1,360 mg/kg in male and female rats, respectively. Clethodim is practically non-toxic by dermal absorption. The reported dermal LD_{50} is greater than 5,000 mg/kg. The technical product did not cause skin irritation in the rabbit, but formulation caused moderate skin as well as eye irritation in the rabbit. Eye irritation was reversible within 8-21 days. No data regarding skin sensitization or eye irritation were available for the technical product. Clethodim is practically non-toxic by the inhalation route. The reported rodent 4-hour inhalation LC_{50} for Clethodim technical is greater than 3.9 mg/L. Effects of acute exposure to Clethodim or formulated products may include eye or skin irritation or central nervous system effects, e.g., salivation, decreased motor activity, incoordination, unsteady gait and hyperactivity. These latter effects may be in large measure due to the aromatic constituents of the formulation, as these effects commonly occur upon exposure to such compounds.
Chronic Toxicity
In a one-year feeding study of dogs, doses of 75 mg/kg/day resulted in increased relative and absolute liver weights, with anemia-like alterations in blood chemistry such as reduced haemoglobin, erythrocyte and hematocrit counts. In a two-year chronic study of rats, no compound-related effects on the structure and function of the liver were observed, and no changes in liver weights were observed at the highest dose tested, approximately 100 mg/kg/day. Reduced body weight gain was observed in another study on rats at 350 mg/kg/day, but not at 100 mg/kg/day, over an unspecified period.

Potential Health Effects

Acute:

Inhalation: Exposure to very high concentrations may result in respiratory irritation. Signs and symptoms may include nasal discharge, sore throat, coughing and difficulty in breathing.

Skin contact: This product may cause moderate skin irritation. The degree of injury will depend on the quantity and time to contact and the speed and thoroughness of the first aid treatment. The expected adverse health effects may include redness and swelling.

Eye contact: This product may cause prolonged and/or substantial irritation following eye contact. The degree of the injury will depend on the amount and duration of the contact and the speed and thoroughness of the first aid treatment. The expected adverse effects resulting from an exposure may include redness, swelling and pain that could last for an extended period of time.

Ingestion: May cause gastrointestinal irritation, nausea, vomiting and diarrhoea if ingestion of this product happened. It can directly enter the lungs if swallowed (aspiration) or when vomiting due to the low viscosity of this product.

Chronic:

Clethodim technical was not carcinogenic to animals. Increased liver weights and anaemia have been observed in animals exposed to Clethodim technical.

Reproductive Effects

No effects on fertility, length of gestation or growth and development of offspring were observed at doses up to and including the highest dose tested, 263 mg/kg/day.

Teratogenic Effect

Data suggests that while there have been documented teratological effects in animal studies, such effects are unlikely in humans under normal conditions of exposure.

Mutagenic Effects

The available data for mutagenicity and genotoxicity yield no evidence for mutagenic or genotoxic activity.

Carcinogenic Effects

No carcinogenic effects were observed in mice administered Clethodim at doses of 24 mg/kg/day over an 18 month period. Based on the available data, it appears that Clethodim is not carcinogenic.

Organ Toxicity

The liver was the primary organ affected in chronic animal studies. Although potential effects associated with acute exposure are reported to include central nervous system effects, no available chronic data pointed to such effects.

Fate in Humans & Animals

lethodim is readily absorbed in the gastrointestinal tract, with approximately 90% absorption of oral doses. It is rapidly metabolized and eliminated (primarily sulfoxide metabolites, ca 63%) with less than 1% recoverable unchanged.

SECTION 12 – ECOLOGICAL INFORMATION

Effects on Birds

Clethodim is practically non-toxic to birds. Under likely conditions of use, it is unlikely to pose a hazard to avian species.

Effects on Aquatic Organisms

Clethodim is slightly toxic to fish and aquatic invertebrate species. No effects were seen at concentrations of 5.5 mg/L in Daphnia. No significant bioaccumulation has been observed in fish. Under likely conditions of use, it is unlikely to pose a hazard to aquatic species.

Effects on Other Animals (Nontarget species): Clethodim is practically non-toxic to honeybees with reported LD_{50} of greater than 100 µg/bee for both the technical product and formulated product.

EPA has stated that "available wildlife data indicate that the proposed uses on cotton and soybeans will result in minimal hazard to nontarget and endangered beneficial insect, avian and freshwater fish and mammalian species". Clethodim is selectively toxic to plants, affecting only grass species.

ENVIRONMENTAL FATE

Breakdown of Chemical in Soil and Groundwater: Clethodim is of low persistence in most soils with a reported half-life of approximately 3 days. Breakdown is mainly by aerobic processes, although photolysis may make some contribution.

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

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.
UN Number (Sea Transport):	3082
IMO Class/Packing Group:	Class 9; Packing Group III
IMO Marine Pollutant:	Marine Pollutant
IMO Proper Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains Clethodim)

SECTION 15 – REGULATORY INFORMATION

SUSMP Classification	S5
Packaging & Labelling	CAUTION 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	0439 933 556
	Ask for Murray Goodlich	