

SAFETY DATA SHEET

SECTION 1 – IDENTIFICATION OF THE CHEMICAL PRODUCT AND COMPANY

Product Name:	Kenso Agcare Ken-Ester LV 680 Selective Herbicide
Product Type:	Group I Herbicide
Company Name:	Kenso Corporation (M) Sdn Bhd
Address:	Level 1, 98 Commercial Road, Teneriffe QLD 4005
Telephone Number:	(07) 3216 1188
Emergency Telephone Number:	000 (Police or Fire Brigade) 13 11 26 (Poisons Information Centre)
Use:	A specially formulated low volatile herbicide for selective control of various weeds in crops, pastures and non-agricultural areas as per Directions 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.



Classification of the Hazardous Chemical:	Acute toxicity (Oral) – Category 4 Skin sensitization – Category 1 Hazardous to the aquatic environment, long term – Chronic 1
GHS Signal Word:	WARNING
Hazard statements:	H302: Harmful if swallowed. H317: May cause an allergic skin reaction. H410: Very toxic to aquatic life with long lasting effects.
Prevention:	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. 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. P321: Specific treatment (see FIRST AID on this label). P330: Rinse mouth. P333+P313: If skin irritation or rash occurs: Get medical advice/

attention.

P362+P364: Take off contaminated clothing and wash it before reuse.

P391: Collect spillage.

Disposal: P501: Dispose of contents/container as specified on the registered label

SUSMP Classification: S6

ADG Classification: N/A.

UN Number: N/A

Emergency Overview

Physical Description & colour: Clear brown liquid.

Odour: Solvent odour.

Major Health Hazards: The oral LD₅₀ of 2,4-D ranges from 375 to 666 mg/kg in the rat, 370 mg/kg in mice, and from less than 320 to 1000 mg/kg in guinea pigs. The dermal LD₅₀ values are 1500 mg/kg in rats and 1400 mg/kg in rabbits, respectively. In humans, prolonged breathing of 2,4-D causes coughing, burning, dizziness, and temporary loss of muscle coordination. Other symptoms of poisoning can be fatigue and weakness with possible nausea. On rare occasions following high levels of exposure, there can be inflammation of the nerve endings with muscular effects.

SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	CAS number	Proportion
2,4-D (present as the ethyl-hexyl ester)	1928-43-4	68%
Inert ingredients	secret	<10%
Liquid hydrocarbon	64742-94-5	to 100%

SECTION 4 – FIRST AID MEASURES

Swallowed:	If swallowed, do not induce vomiting; seek medical advice immediately.
Skin:	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.
Eyes:	Flush eyes immediately with plenty of fresh water for at least 15 minutes while holding the eyelids open. Remove contact lenses if worn. However, if irritation persists, see a doctor.
Inhaled:	Remove to fresh air until recovered. See a doctor if discomfort or irritation continues.
Ingestion:	If swallowed, do NOT induce vomiting; seek medical advice immediately and show this container or label or contact the Poisons Information Centre on 13 11 26 (Australia). Make every effort to prevent vomit from entering the lungs by careful placement of the patient. Never give anything by mouth to an unconscious person.

Advice to Doctor

Treat symptomatically. If vomiting occurs be wary of the onset of pulmonary pneumonitis caused by the solvents.

SECTION 5 – FIRE FIGHTING MEASURES

Fire/Explosion Hazards

Product is a combustible liquid, (C2).

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. 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

When fighting fires involving significant quantities of this product, wear a splash suit complete with self contained breathing apparatus. Do not scatter spilled material with high pressure water jets.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Spills and Disposal

Contain spill and absorb with sand or proprietary absorbent (vermiculite). Prevent from entering drains, waterways or sewers. Clean up spill immediately. Collect in sealed open-top containers for disposal. Triple rinse containers, and add rinsings to the spray tank, then offer container for recycling / reconditioning, or puncture top, sites and bottom and dispose of in landfill in accordance with local regulations. On-site disposal of concentrate is not acceptable.

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

No exposure limits have been set for this product, however, a limit has been set for 2,4-D acid at 10mg/m³.

Engineering Control

Natural ventilation only is required. In confined spaces where solvent vapour build-up may make working unpleasant use a local exhaust.

Protective Equipment

Poisonous if swallowed. Avoid contact with skin or clothing. Skin contact should be minimized by wearing protective clothing including elbow-length PVC gloves and face shield. If product contacts skin, immediately wash area with soap and water. After each use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. Wash gloves, face shield and contaminated clothing before reuse.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Form:	Liquid
Colour:	Clear brown liquid
Odour:	Solvent odour
pH:	3.6 in 5% solution
Melting point (°C):	-5°C
Boiling point (°C):	190-350°C
Flashpoint:	103°C
Flammability:	Combustible Liquid, (C2)
Specific Gravity:	1.138
Vapour Pressure:	~1.5mmHg @ 25°C (solvent); 2,4-D ester 1.6x10 ⁻⁶ mmHg
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

Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight.

Incompatibilities

Strong acids, strong bases, strong oxidising agents.

Fire Decomposition

Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. Hydrogen chloride gas, other compounds of chlorine. 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 2,4-D is available at <http://extoxnet.orst.edu/pips/ghindex.html>

Acute toxicity

The acid form of 2,4-D is classified as “harmful”. The oral LD₅₀ of 2,4-D ranges from 375 to 666 mg/kg in the rat, 370 mg/kg in mice, and from less than 320 to 1000 mg/kg in guinea pigs. The dermal LD₅₀ values are 1500 mg/kg in rats and 1400 mg/kg in rabbits, respectively. In humans, prolonged breathing of 2,4-D causes coughing, burning, dizziness, and temporary loss of muscle coordination. Other symptoms of poisoning can be fatigue and weakness with possible nausea. On rare occasions following high levels of exposure, there can be inflammation of the nerve endings with muscular effects.

Potential Health Effects

Acute:

- Ingestion:** Ingestion of this product may cause gastrointestinal irritation, nausea, and vomiting.
- Skin contact:** This product is expected to cause moderate skin irritation. Prolonged or repeated exposure may cause de-fatting of skin, which could lead to secondary dermatitis. Prolonged contact of the concentrate with the skin is harmful.
- Eye contact:** Will cause irritation. Prolonged contact with the concentrate may cause damage and can lead to significant 2,4-D absorption.
- Inhalation:** Inhalation of solvent in confined spaces and in hot weather may cause headache, nausea or intoxication. The 2,4-D ester has very low volatility, thus inhalation of the ester from the concentrate is unlikely to be a concern, however, and inhalation of spray mist must be avoided.

Carcinogen Status:

- NOHSC:** No significant ingredient is classified as carcinogenic by NOHSC.
- NTP:** No significant ingredient is classified as carcinogenic by NTP.
- IARC:** No significant ingredient is classified as carcinogenic by IARC.

Chronic toxicity

Rats given high amounts, 50 mg/kg/day, of 2,4-D in the diet for 2 years showed no adverse effects. Dogs fed lower amounts in their food for 2 years died, probably because dogs do not excrete organic acids efficiently. A human given a total of 16.3 g in 32 days therapeutically, lapsed into a stupor and showed signs of incoordination, weak reflexes, and loss of bladder control.

Reproductive effects

High levels of 2,4-D (about 50 mg/kg/day) administered orally to pregnant rats did not cause any adverse effects on birth weights or litter size. The evidence suggests that if 2,4-D causes reproductive effects in animals, this only occurs at very high doses. Thus reproductive problems associated with 2,4-D are unlikely in humans under normal circumstances.

Teratogenic effects

2,4-D may cause birth defects at high doses. Rats fed 150 mg/kg/day on days 6 to 15 of pregnancy had offspring with increased skeletal abnormalities, such as delayed bone development and wavy

ribs. This suggests that 2,4-D exposure is unlikely to be teratogenic in humans at expected exposure levels.

Mutagenic effects

2,4-D has been very extensively tested and was found to be non mutagenic in most systems. 2,4-D did not damage DNA in human lung cells. However, in one study, significant effects occurred in chromosomes in cultured human cells at low exposure levels. The data suggest that 2,4-D is not mutagenic or has low mutagenic potential.

Carcinogenic effects

2,4-D fed to rats for 2 years caused an increase in malignant tumours. Female mice given a single injection of 2,4-D developed cancer (reticulum-cell sarcomas). Another study in rodents shows a low incidence of brain tumours at moderate exposure levels (45 mg/kg/day) over a lifetime. However, a number of questions have been raised about the validity of this evidence and thus about the carcinogenic potential of 2,4-D. In humans, a variety of studies give conflicting results. Several studies suggest an association of 2,4-D exposure with cancer. An increased occurrence of non-Hodgkin's lymphoma was found among a Kansas and Nebraska farm population associated with the spraying of 2,4-D. Other studies done in New Zealand, Washington, New York, Australia, and on Vietnam veterans from the U.S. were all negative. There remains considerable controversy about the methods used in the various studies and their results. Thus, the carcinogenic status of 2,4-D is not clear.

Organ toxicity

Most symptoms of 2,4-D exposure disappear within a few days, but there is a report of liver dysfunction from long-term exposure.

Fate in humans and animals

The absorption of 2,4-D is almost complete in mammals after ingestion and nearly all of the dose is excreted in the urine. The compound is readily absorbed through the skin and lungs. Men given 5 mg/kg excreted about 82% of the dose as unchanged 2,4-D. The half-life is between 10 and 20 hours in living organisms. There is no evidence that 2,4-D accumulates to significant level in mammals or in other organisms. Between 6 and 8 hours after doses of 1 mg/kg, peak concentrations of 2,4-D were found in the blood, liver, kidney, lungs, and spleen of rats. There were lower levels in muscle and brain. After 24 hours, there were no detectable tissue residues. Only traces of the compound have been found in the milk of lactating animals for 6 days following exposure.

There is no data to hand indicating any particular target organs.

SECTION 12 – ECOLOGICAL INFORMATION

This product is biodegradable. It will not accumulate in the soil or water or cause long term problems.

Effects on birds

2,4-D is harmful to wildfowl and slightly to moderately toxic to birds.

LD₅₀ (mallards): 1000 mg/kg

LD₅₀ (pheasants): 272 mg/kg

LD₅₀ (quail) and (pigeons): 668 mg/kg

Effects on aquatic organisms

Some formulations of 2,4-D are highly toxic to fish while others are less so. Limited studies indicate a half-life of less than 2 days in fish and oysters. Concentrations of 10 mg/L for 85 days did not adversely affect the survival of adult dungeness crabs. For immature crabs, the 96-hour LC₅₀ is

greater than 10 mg/L, indicating that 2,4-D is only slightly toxic. Brown shrimp showed a small increase in mortality at exposures of 2 mg/L for 48 hours.

Effects on other organisms

Moderate doses of 2,4-D severely impaired honeybees brood production. At lower levels of exposure, exposed bees lived significantly longer than the controls.

LD₅₀ (honeybee): 0.0115 mg/bee.

Environmental Fate

Breakdown in soil and groundwater

2,4-D has low soil persistence. The half-life in soil is less than 7 days. Soil microbes are primarily responsible for its disappearance.

Breakdown in water

In aquatic environments, microorganisms readily degrade 2,4-D. Rates of breakdown increase with increased nutrients, sediment load, and dissolved organic carbon. Under oxygenated conditions the half-life is 1 week to several weeks.

Breakdown in vegetation

2,4-D interferes with normal plant growth processes. Uptake of the compound is through leaves, stems, and roots. Breakdown in plants is by a variety of biological and chemical pathways. 2,4-D is toxic to most broad leaf crops, especially cotton, tomatoes, beets, and fruit trees.

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 2,4-D ESTER)
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 2,4-D ESTER)
Class:	9
Packaging group:	III
Marine pollutant:	Yes

SECTION 15 – REGULATORY INFORMATION

SUSMP Classification S6
Packaging & Labelling 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 0428 776 327
Ask for Russell Clark