SAFETY DATA SHEET

FYFANON

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	2025/01/31	50000611	Date of first issue: 2025/01/31

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : FYFANON

Other means of identification : MALATHION 830 g/L EC

Recommended use of the chemical and restrictions on use

Recommended use : Insecticide

Restrictions on use : Use as recommended by the label.

Manufacturer or supplier's details

Company : FMC AG (Thailand) Ltd

Address : 159/22 Serm-Mit Tower, Unit 1404,
14th Floor, Sukhumvit 21 Road (Asoke)
Khwaeng Klongtoey Nua,Khet Wattana
Bangkok 10110
Thailand

Telephone : +662 700 9770

Telefax : +662 700 9777

E-mail address : SDS-Info@fmc.com

Emergency telephone : For leak, fire, spill or accident emergencies, call:
1 703 / 741-5970 (CHEMTREC - International)
001-800-13-203-9987 (CHEMTREC)
Toll-free: 1800014808 (CHEMTREC)

Medical emergency:
All other countries: +1 651 / 632-6793 (Collect)

2. HAZARDS IDENTIFICATION

GHS Classification

Flammable liquids : Category 4

Acute toxicity (Oral) : Category 4

Acute toxicity (Inhalation) : Category 5

Skin corrosion/irritation : Category 3

Serious eye damage/eye irritation	:	Category 2A
Skin sensitization	:	Sub-category 1B
Short-term (acute) aquatic hazard	:	Category 1
Long-term (chronic) aquatic hazard	:	Category 1

GHS label elements

Hazard pictograms :

Signal Word : WARNING

Hazard Statements :
H227 Combustible liquid.
H302 Harmful if swallowed.
H316 Causes mild skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H333 May be harmful if inhaled.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements :

Prevention:

P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P261 Avoid breathing mist or vapors.
P264 Wash skin 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/ eye protection/ face protection.

Response:

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P302 + P352 IF ON SKIN: Wash with plenty of water and soap.
P304 + P312 IF INHALED: Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P363 Wash contaminated clothing before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or

alcohol-resistant foam for extinction.
P391 Collect spillage.

Storage:

P403 + P235 Store in a well-ventilated place. Keep cool.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards which do not result in classification

None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
malathion (ISO) [containing ≤ 0,03 % isomalathion]	121-75-5	75.4
Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified	64742-94-5	>= 10 -< 20
calcium bis(dodecylbenzenesulphonate), branched	70528-83-5	>= 1 -< 2.5
acetic anhydride	108-24-7	>= 1 -< 3

4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Consult a physician.
Show this material safety data sheet to the doctor in attendance.
Symptoms of poisoning may appear several hours later.
Do not leave the victim unattended.

If inhaled : Call a physician or poison control center immediately.
If unconscious, place in recovery position and seek medical advice.

In case of skin contact : If skin irritation persists, call a physician.
If on skin, rinse well with water.
If on clothes, remove clothes.

In case of eye contact : Immediately flush eye(s) with plenty of water.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Clean mouth with water and drink afterwards plenty of water.
Keep respiratory tract clear.

Do NOT induce vomiting.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.

Most important symptoms and effects, both acute and delayed : Harmful if swallowed.
Causes mild skin irritation.
May cause an allergic skin reaction.
Causes serious eye irritation.
May be harmful if inhaled.

Notes to physician : Treat symptomatically.

This product is a cholinesterase inhibitor affecting the central and peripheral nervous systems producing respiratory depression.
Decontamination procedures such as whole body washing, gastric lavage and administration of activated charcoal are often required.
ANTIDOTE: If symptoms of cholinesterase inhibition (see subsection 4.2.) are present, administer atropine sulphate, which often is a lifesaving antidote, in large doses, TWO to FOUR mg intravenously or intramuscularly as soon as possible. Repeat at 5 to 10 minute intervals until signs of atropinisation appear and maintain full atropinisation until the chemical product is fully metabolised.
Obidoxime chloride (Toxogonin), alternatively pralidoxime chloride (2-PAM), may be administered as an adjunct to, but not a substitute for atropine sulphate. Treatment with oxime should be maintained as long as atropine sulphate is administered.

At first sign of pulmonary oedema the patient should be given supplementary oxygen and treated symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Alcohol-resistant foam
Carbon dioxide (CO2)
Dry chemical

Unsuitable extinguishing media : High volume water jet
Do not spread spilled material with high-pressure water streams.

Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous combustion products : Thermal decomposition can lead to release of toxic and irritating vapors.
Carbon oxides
Sulfur oxides
phosphorus oxides

methyl mercaptan

Specific extinguishing methods	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.
Special protective equipment for fire-fighters	:	Firefighters should wear protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

7. HANDLING AND STORAGE

Advice on protection against fire and explosion	:	Do not spray on a naked flame or any incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Keep away from open flames, hot surfaces and sources of ignition.
Advice on safe handling	:	Avoid formation of aerosol. Do not breathe vapors/dust. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.

Conditions for safe storage	:	Prevent unauthorized access. No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.
Further information on storage conditions	:	The product is stable when stored at temperatures not exceeding 25°C. The product should never be heated above 55°C. Local heating above this temperature should be avoided as well. Store in closed, labelled containers. The storage room should be constructed of incombustible material, closed, dry, ventilated and with impermeable floor, without access of unauthorised persons or children. A warning sign reading “POISON” is recommended. The room should only be used for storage of chemicals. Food, drink, feed and seed should not be present. A hand wash station should be available.
Further information on storage stability	:	No decomposition if stored and applied as directed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
malathion (ISO) [containing ≤ 0,03 % isomalathion]	121-75-5	TWA (Inhalable fraction and vapor)	1 mg/m3	ACGIH
Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified	64742-94-5	TWA	200 mg/m3 (total hydrocarbon vapor)	ACGIH
acetic anhydride	108-24-7	TWA	5 ppm	TH OEL
		TWA	1 ppm	ACGIH
		STEL	3 ppm	ACGIH

Personal protective equipment

Respiratory protection	:	In case of mist, spray or aerosol exposure wear suitable personal respiratory protection and protective suit.
Hand protection		
Material	:	Wear chemical resistant gloves, such as barrier laminate, butyl rubber or nitrile rubber.
Remarks	:	The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection	:	Eye wash bottle with pure water Tightly fitting safety goggles Wear face-shield and protective suit for abnormal processing problems.
Skin and body protection	:	Impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Hygiene measures	:	Avoid contact with skin, eyes and clothing. When using do not eat or drink. When using do not smoke. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	:	liquid
Form	:	liquid
Color	:	clear, light brown
Odor	:	aromatic
pH	:	2.7 - 3.6
Melting point/freezing point	:	< 0 °C
Boiling point/boiling range	:	not determined
Flash point	:	74 °C Method: Pensky-Martens closed cup
Flammability (liquids)	:	Not highly flammable
Self-ignition	:	not determined
Density	:	1.137 - 1.157 g/cm3
Bulk density	:	Not applicable
Solubility(ies) Water solubility	:	emulsifiable
Partition coefficient: n-	:	Not applicable

octanol/water

Decomposition temperature	:	> 140 °C
Viscosity		
Viscosity, dynamic	:	not determined
Viscosity, kinematic	:	not determined
Explosive properties	:	Not explosive
Oxidizing properties	:	Non-oxidizing

10. STABILITY AND REACTIVITY

Reactivity	:	No decomposition if stored and applied as directed.
Chemical stability	:	Malathion will decompose rapidly when heated to temperatures above 140°C, significantly increasing the risk of explosion. Direct local heating such as electric heating or by steam must be avoided. The decomposition is dependent on time as well as temperature due to self-accelerating exothermic and autocatalytic reactions. The reactions involve rearrangements and polymerisation releasing volatile malodorous and inflammable compounds such as dimethyl sulphide and methyl mercaptan.
Possibility of hazardous reactions	:	No decomposition if stored and applied as directed. Vapors may form explosive mixture with air.
Conditions to avoid	:	Heat, flames and sparks.
Incompatible materials	:	Strong alkalis, amines and strong oxidising compounds. The product can corrode metals (but does not meet the criteria for classification).
Hazardous decomposition products	:	Stable under recommended storage conditions.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Harmful if swallowed.
May be harmful if inhaled.

Product:

Acute oral toxicity	:	LD50 (Rat, female): > 2,000 mg/kg Method: OECD Test Guideline 425 Assessment: The component/mixture is moderately toxic after

single ingestion.
Remarks: Based on data from a similar product.

Acute inhalation toxicity : LC50 (Rat): > 5.01 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Assessment: The component/mixture is minimally toxic after short term inhalation.
Remarks: Based on data from a similar product.

Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: Based on data from a similar product.

Components:

malathion (ISO) [containing ≤ 0,03 % isomalathion]:

Acute oral toxicity : LD50 (Rat): 1,857 mg/kg
Method: OECD Test Guideline 401

LD50 (Rat, female): 1,608 - 2,550 mg/kg
Method: OECD Test Guideline 401
Symptoms: Tremors, hypoactivity
GLP: yes

Acute inhalation toxicity : LC50 (Rat): > 5.2 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: EPA OPP 81 - 3
GLP: yes
Remarks: no mortality

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Method: US EPA Test Guideline OPP 81-2
GLP: yes
Assessment: The component/mixture is minimally toxic after single contact with skin.

LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402
GLP: yes
Assessment: The component/mixture is minimally toxic after single contact with skin.

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Acute oral toxicity : LD50 (Rat, male and female): > 5,000 mg/kg
Method: OECD Test Guideline 401
Remarks: Based on data from similar materials

Acute inhalation toxicity : LC50 (Rat): > 4.688 mg/l

Exposure time: 4 h
Test atmosphere: vapor
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

calcium bis(dodecylbenzenesulphonate), branched:

Acute oral toxicity : Acute toxicity estimate: 3,333 mg/kg

Acute dermal toxicity : Acute toxicity estimate: 1,470 mg/kg

acetic anhydride:

Acute oral toxicity : LD50 (Rat, male and female): 630 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): 1.670 mg/l
Exposure time: 6 h
Test atmosphere: vapor

Skin corrosion/irritation

Causes mild skin irritation.

Product:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Mild skin irritant
Remarks : Based on data from a similar product.

Components:

malathion (ISO) [containing ≤ 0,03 % isomalathion]:

Species : Rabbit
Method : US EPA Test Guideline OPP 81-5
Result : No skin irritation
GLP : yes

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Species : Rabbit
Assessment : Repeated exposure may cause skin dryness or cracking.
Result : No skin irritation
Remarks : Minimal effects that do not meet the threshold for classification.
Based on data from similar materials

calcium bis(dodecylbenzenesulphonate), branched:

Result : Skin irritation

acetic anhydride:

Result : Corrosive after 3 minutes to 1 hour of exposure

Serious eye damage/eye irritation

Causes serious eye irritation.

Product:

Species : Rabbit
Result : Eye irritation
Method : OECD Test Guideline 405
Remarks : Based on data from a similar product.

Components:

malathion (ISO) [containing ≤ 0,03 % isomalathion]:

Species : Rabbit
Result : No eye irritation
Method : EPA OPP 81-4
GLP : yes

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Species : Rabbit
Assessment : No eye irritation
Remarks : Minimal effects that do not meet the threshold for classification.
Based on data from similar materials

calcium bis(dodecylbenzenesulphonate), branched:

Result : Irreversible effects on the eye

acetic anhydride:

Species : Rat
Result : slight irritation

Respiratory or skin sensitization

Skin sensitization

May cause an allergic skin reaction.

Respiratory sensitization

Based on available data, the classification criteria are not met.

Product:

Test Type : Local lymph node assay (LLNA)
Routes of exposure : Skin contact
Species : mice
Method : OECD Test Guideline 429
Result : The product is a skin sensitizer, sub-category 1B.
Remarks : Based on data from a similar product.

Components:

malathion (ISO) [containing ≤ 0,03 % isomalathion]:

Routes of exposure	:	Dermal
Species	:	Guinea pig
Method	:	US EPA Test Guideline OPP 81-6
Result	:	Does not cause skin sensitization.
GLP	:	yes
Test Type	:	Local lymph node assay (LLNA)
Routes of exposure	:	Dermal
Species	:	mice
Method	:	OECD Test Guideline 429
Result	:	Does not cause skin sensitization.
GLP	:	yes
Test Type	:	Maximization Test
Routes of exposure	:	Dermal
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	May cause sensitization by skin contact.

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Test Type	:	Maximization Test
Species	:	Guinea pig
Result	:	Not a skin sensitizer.
Remarks	:	Based on data from similar materials

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Product:

Germ cell mutagenicity - Assessment	:	Weight of evidence does not support classification as a germ cell mutagen.

Components:

malathion (ISO) [containing ≤ 0,03 % isomalathion]:

Genotoxicity in vitro	:	Test Type: Ames test Result: negative Test Type: In vitro mammalian cell gene mutation test Result: positive Remarks: Based on data from similar materials Test Type: unscheduled DNA synthesis assay Result: negative Remarks: Based on data from similar materials
Genotoxicity in vivo	:	Test Type: chromosome aberration assay Species: Rat Result: negative

Remarks: Based on data from similar materials

Test Type: unscheduled DNA synthesis assay
Species: Rat
Result: negative
Remarks: Based on data from similar materials

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Genotoxicity in vitro : Test Type: reverse mutation assay
Method: OECD Test Guideline 471
Result: negative
Remarks: Based on data from similar materials

Genotoxicity in vivo : Test Type: Bone marrow chromosome aberration.
Species: Rat
Application Route: inhalation (vapor)
Result: negative

acetic anhydride:

Genotoxicity in vitro : Test Type: reverse mutation assay
Result: negative

Test Type: Chromosome aberration test in vitro
Result: negative
Remarks: Based on data from similar materials

Test Type: In vitro mammalian cell gene mutation test
Result: Conflicting results have been seen in different studies.

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Rat (male and female)
Application Route: inhalation (vapor)
Result: negative

Carcinogenicity

Based on available data, the classification criteria are not met.

Product:

Carcinogenicity - Assessment : Weight of evidence does not support classification as a carcinogen

Components:

malathion (ISO) [containing ≤ 0,03 % isomalathion]:

Species : Rat
Application Route : Ingestion
Exposure time : 24 month(s)
NOAEL : 6,000 ppm
Result : positive

Carcinogenicity - Assess- : Occurrence of tumors has been observed at excessive expo-

ment | sure levels. This can be considered as not relevant for possible carcinogenicity to humans during normal use.

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Species	:	Rat, male and female
Application Route	:	inhalation (vapor)
Exposure time	:	12 month(s)
NOAEC	:	1.8 mg/l
Result	:	negative
Remarks	:	Based on data from similar materials
Carcinogenicity - Assessment	:	Not classifiable as a human carcinogen.

Reproductive toxicity

Based on available data, the classification criteria are not met.

Product:

Reproductive toxicity - Assessment	:	Weight of evidence does not support classification for reproductive toxicity

Components:

malathion (ISO) [containing ≤ 0,03 % isomalathion]:

Effects on fertility	:	Test Type: Two-generation study Species: Rat, male and female General Toxicity F1: NOAEL: 132 - 152 mg/kg bw/day Symptoms: Reduced offspring weight gain.
Effects on fetal development	:	Test Type: Embryo-fetal development Species: Rat General Toxicity Maternal: NOAEL: 400 mg/kg bw/day Teratogenicity: NOAEL: 800 mg/kg bw/day Result: No teratogenic effects. Test Type: Embryo-fetal development Species: Rabbit General Toxicity Maternal: NOAEL: 25 mg/kg bw/day Teratogenicity: NOAEL: 25 mg/kg bw/day Result: No teratogenic effects.
Reproductive toxicity - Assessment	:	Animal testing showed no reproductive toxicity.

acetic anhydride:

Effects on fetal development	:	Test Type: reproductive and developmental toxicity study Species: Rabbit Application Route: Oral Dose: 2.5,16,74.3,345,1600mg/kgbw/d Duration of Single Treatment: 13 d General Toxicity Maternal: LOAEL: 74.3 mg/kg bw/day

Embryo-fetal toxicity.: NOAEL: 1,600 mg/kg bw/day
Symptoms: Malformations were observed.
Result: negative
Remarks: Based on data from similar materials

Reproductive toxicity - Assessment : Weight of evidence does not support classification for reproductive toxicity

STOT-single exposure

Based on available data, the classification criteria are not met.

Product:

Assessment : The substance or mixture is not classified as specific target organ toxicant, single exposure.

Components:

acetic anhydride:

Assessment : The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Repeated dose toxicity

Components:

malathion (ISO) [containing ≤ 0,03 % isomalathion]:

Species	:	Rat
LOAEL	:	34.4 mg/kg
Application Route	:	Oral - feed
Exposure time	:	90 d
Target Organs	:	Nervous system
Symptoms	:	cholinesterase inhibition

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Species	:	Rat, male and female
NOAEC	:	0.9 - 1.8 mg/l
Application Route	:	inhalation (vapor)
Exposure time	:	12 Months

acetic anhydride:

Species	:	Rat, male and female
LOAEC	:	25 ppm
Application Route	:	Inhalation
Test atmosphere	:	vapor
Exposure time	:	2 weeks
Dose	:	25, 100, 400 ppm

Aspiration toxicity

Based on available data, the classification criteria are not met.

Components:

malathion (ISO) [containing ≤ 0,03 % isomalathion]:

The substance does not have properties associated with aspiration hazard potential.

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

May be fatal if swallowed and enters airways.

acetic anhydride:

The substance or mixture causes concern owing to the assumption that it causes a human aspiration toxicity hazard.

Experience with human exposure

Components:

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Skin contact : Symptoms: Repeated exposure may cause skin dryness or cracking.

Further information

Product:

Remarks : Solvents may degrease the skin.

Components:

malathion (ISO) [containing ≤ 0,03 % isomalathion]:

Remarks : The active ingredient malathion is a cholinesterase inhibitor of low mammalian toxicity. However, prolonged storage or storage at too high temperatures may induce formation of the much more toxic and synergistic contaminant isomalathion (LD50, oral, rat, 89 mg/kg). Both malathion and isomalathion rapidly enter the body on contact with all skin surfaces and eyes.
Repeated exposures to cholinesterase inhibitors such as malathion or isomalathion may, without warning, cause increased susceptibility to doses of any cholinesterase inhibitor.

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Remarks : Vapour concentrations above recommended exposure levels are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anaesthetic and may have other central nervous system effects. Prolonged and/or repeated skin contact with low viscosity materials may defat the skin resulting in possible irritation and dermatitis. Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish	:	LC50 (Brachydanio rerio (zebrafish)): 16.5 mg/l Exposure time: 96 h Test Type: semi-static test Remarks: Based on data from a similar product.
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia similis (Water flea)): < 0.01 mg/l Exposure time: 48 h Test Type: Immobilization Remarks: Based on data from a similar product.
Toxicity to algae/aquatic plants	:	EC50 (Selenastrum capricornutum (green algae)): 61.7 mg/l Exposure time: 96 h Test Type: static test Remarks: Based on data from a similar product.
Toxicity to soil dwelling organisms	:	LD50 (Eisenia fetida (earthworms)): 170.4 mg/kg Exposure time: 14 d Method: OECD Test Guideline 207 Remarks: Based on data from similar materials
Toxicity to terrestrial organisms	:	LD50 (Coturnix japonica (Japanese quail)): 237.5 mg/kg Remarks: Based on data from similar materials LD50 (Apis mellifera L.): 0.301 µg/bee Exposure time: 24 h End point: Acute contact toxicity Remarks: Based on data from similar materials

Ecotoxicology Assessment

Acute aquatic toxicity	:	Very toxic to aquatic life.
Chronic aquatic toxicity	:	Very toxic to aquatic life with long lasting effects.

Components:

malathion (ISO) [containing ≤ 0,03 % isomalathion]:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 0.18 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia similis (Water flea)): 1.71 µg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	IC50 (Selenastrum capricornutum (green algae)): 4.06 mg/l Exposure time: 72 h

M-Factor (Acute aquatic toxicity)	:	1,000
Toxicity to fish (Chronic toxicity)	:	NOEC (Oncorhynchus mykiss (rainbow trout)): 0.021 mg/l Exposure time: 37 d
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 0.00006 mg/l Exposure time: 21 d
M-Factor (Chronic aquatic toxicity)	:	1,000
Toxicity to soil dwelling organisms	:	(Eisenia fetida (earthworms)): 613 mg/kg Exposure time: 14 d
Toxicity to terrestrial organisms	:	LD50 (Colinus virginianus (Bobwhite quail)): 359 mg/kg Exposure time: 5 d LC50 (Colinus virginianus (Bobwhite quail)): 3,497 mg/kg Exposure time: 5 d Remarks: Dietary LD50 (Anas platyrhynchos (Mallard duck)): > 2,250 mg/kg LD50 (Apis mellifera (bees)): 0.38 µg/bee End point: Acute oral toxicity

Ecotoxicology Assessment

Toxicity Data on Soil	:	Harmful to the soil environment.
Other organisms relevant to the environment	:	Harmful to terrestrial vertebrates., Harmful to terrestrial invertebrates.

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Toxicity to fish	:	LL50 (Oncorhynchus mykiss (rainbow trout)): 2 - 5 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EL50 (Daphnia magna (Water flea)): 1.4 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	EL50 (Pseudokirchneriella subcapitata (green algae)): 1 - 3 mg/l Exposure time: 24 h Method: OECD Test Guideline 201
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	EL50 (Daphnia magna (Water flea)): 0.89 mg/l Exposure time: 21 d Method: OECD Test Guideline 211
Toxicity to microorganisms	:	LL50 (Tetrahymena pyriformis): 677.9 mg/l

Exposure time: 72 h
Test Type: Growth inhibition

calcium bis(dodecylbenzenesulphonate), branched:

Toxicity to fish : LC50 (Fish): > 1 - 10 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1 - 10 mg/l
Exposure time: 48 h
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants : EC50 (algae): > 1 - 10 mg/l
Exposure time: 72 h
Remarks: Based on data from similar materials

acetic anhydride:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 300.82 mg/l
Exposure time: 96 h
Test Type: semi-static test
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 300.82 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants : EC50 (Skeletonema costatum (marine diatom)): > 300.82 mg/l
Exposure time: 72 h
Test Type: static test
Remarks: Based on data from similar materials

EC50 (Skeletonema costatum (marine diatom)): 300.82 mg/l
Exposure time: 72 h
Test Type: static test
Remarks: Based on data from similar materials

Toxicity to microorganisms : NOEC (Pseudomonas putida): 1,150 mg/l
Exposure time: 16 h
Test Type: Growth inhibition

Persistence and degradability

Components:

malathion (ISO) [containing ≤ 0,03 % isomalathion]:

Biodegradability : Result: Not readily biodegradable.

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 58.6 %

Exposure time: 28 d
Method: OECD Test Guideline 301F
Remarks: Based on data from similar materials

calcium bis(dodecylbenzenesulphonate), branched:

Biodegradability : Result: Readily biodegradable.

acetic anhydride:

Biodegradability : Inoculum: activated sludge
Result: Readily biodegradable.
Biodegradation: 96 %
Exposure time: 20 d
Remarks: Based on data from similar materials

Bioaccumulative potential

Components:

malathion (ISO) [containing ≤ 0,03 % isomalathion]:

Bioaccumulation : Species: Fish
Bioconcentration factor (BCF): 95
Remarks: Bioaccumulation is unlikely.
See section 9 for octanol-water partition coefficient.

Partition coefficient: n-octanol/water : log Pow: 2.75

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Bioaccumulation : Remarks: The product/substance has a potential to bioaccumulate.

Partition coefficient: n-octanol/water : log Pow: 3.72
Method: QSAR

calcium bis(dodecylbenzenesulphonate), branched:

Bioaccumulation : Bioconcentration factor (BCF): 1
Remarks: Bioaccumulation is unlikely.

acetic anhydride:

Bioaccumulation : Species: Fish
Bioconcentration factor (BCF): 3.16
Method: QSAR

Partition coefficient: n-octanol/water : log Pow: -0.577 (25 °C)
pH: 7
Method: QSAR

Mobility in soil

Components:

malathion (ISO) [containing ≤ 0,03 % isomalathion]:

Distribution among environmental compartments : Remarks: medium mobility in soil

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Distribution among environmental compartments : Remarks: Expected to partition to sediment and wastewater solids. Moderately volatile.

Other adverse effects

Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Malathion, ALKYL(C3-C5)BENZENES)
Class : 9
Packing group : III
Labels : 9
Environmentally hazardous : yes

IATA-DGR

UN/ID No. : UN 3082
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.
(Malathion, ALKYL(C3-C5)BENZENES)

Class	:	9
Packing group	:	III
Labels	:	Miscellaneous
Packing instruction (cargo aircraft)	:	964
Packing instruction (passenger aircraft)	:	964
Environmentally hazardous	:	yes

IMDG-Code

UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Malathion, ALKYL(C3-C5)BENZENES)
Class	:	9
Packing group	:	III
Labels	:	9
EmS Code	:	F-A, S-F
Marine pollutant	:	yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

Hazardous Substance Act	:	Conditions of restriction for the following entries should be considered: malathion (Number on list 494; Number on list 153)
Emergency Decree on Controlling the Use of Volatile Substances	:	Not applicable

The ingredients of this product are reported in the following inventories:

TCSI	:	Not in compliance with the inventory
TSCA	:	Product contains substance(s) not listed on TSCA inventory.
AICS	:	Not in compliance with the inventory
DSL	:	This product contains the following components that are not on the Canadian DSL nor NDSL.

		Polyalkylene oxide block copolymer
ENCS	:	Not in compliance with the inventory
ISHL	:	Not in compliance with the inventory
KECI	:	Not in compliance with the inventory
PICCS	:	Not in compliance with the inventory
IECSC	:	Not in compliance with the inventory
NZIoC	:	Not in compliance with the inventory

16. OTHER INFORMATION

Revision Date	:	2025/01/31
Date format	:	yyyy/mm/dd

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
TH OEL	:	Thailand. Occupational Exposure Limits
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
TH OEL / TWA	:	Time weighted average

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evalua-

tion, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

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