

SAFETY DATA SHEET

according to the OSHA
Hazard Communication Standard

Version 6.18
Revision Date 07/17/2026
Print Date 07/18/2026

SECTION 1. IDENTIFICATION

1.1 Product identifiers

Product name : Pesticides - Loam 1

Product Number : CRM818
Brand : Sigma-Aldrich

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Restrictions on use : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone number

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-
527-3887 CHEMTREC (International) 24
Hours/day; 7 Days/week

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Hazards for the product as supplied

Short-term (acute) : Category 1
aquatic hazard

Long-term (chronic) aquatic hazard : Category 1

Other hazards

None known.

GHS label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P273 Avoid release to the environment.
Response:
P391 Collect spillage.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

CAS-No. : Not Assigned

Components

Chemical name	CAS No./Unique ID	Concentration (% w/w)	Trade secret
Quartz (SiO ₂)	14808-60-7*	>= 80 - <= 100	TSC
Endosulfan (α isomer)	959-98-8*	<= 0.1	TSC
2,2-bis(p-Chlorophenyl)-1,1-dichloroethylene	72-55-9*	<= 0.1	TSC
1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane	50-29-3*	<= 0.1	TSC
Aldrin	309-00-2*	<= 0.1	TSC
Dieldrin	60-57-1*	<= 0.1	TSC

(1 α ,2 β ,3 α ,4 β ,5 α ,6 β)- 1,2,3,4,5,6- Hexachlorocyclohexane	319-85-7*	<= 0.1	TSC
Methoxychlor	72-43-5*	<= 0.1	TSC
Gammaxene	58-89-9*	<= 0.1	TSC
2,2-bis(4-Chlorophenyl)- 1,1-dichloro-ethane	72-54-8*	<= 0.1	TSC
Endrin	72-20-8*	<= 0.1	TSC
β -Endosulfan	33213-65-9*	<= 0.1	TSC
Heptachlor	76-44-8*	<= 0.1	TSC

* Indicates that the identifier is a CAS No.

TSC- the actual concentration or concentration range is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

If inhaled	: After inhalation: fresh air.
In case of skin contact	: In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.
In case of eye contact	: After eye contact: rinse out with plenty of water. Remove contact lenses.
If swallowed	: After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.
Most important symptoms and effects, both acute and delayed	: The most important known symptoms and effects are described in the labelling (see section 2 GHS label elements) and/or in section 11
Protection of first-aiders	: For personal protection see section 8.
Notes to physician	: No data available

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	: For this substance/mixture no limitations of extinguishing agents are given.

Specific hazards during fire fighting : Not combustible.

Ambient fire may liberate hazardous vapours.

Hazardous combustion products : silicon oxides

Specific extinguishing methods : No data available

Further information : Suppress (knock down) gases/vapours/mists with a water spray jet.
Prevent fire extinguishing water from contaminating surface water or the ground water system.

Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Advice for non-emergency personnel:
Avoid inhalation of dusts.
Evacuate the danger area, observe emergency procedures, consult an expert.
Advice for emergency responders:
Wear appropriate personal protective equipment, as indicated in Section 8.

Environmental precautions : Do not let product enter drains.

Methods and materials for containment and cleaning up : Cover drains. Collect, bind, and pump off spills.
Observe possible material restrictions (see sections 7 and 10).
Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

SECTION 7. HANDLING AND STORAGE

For precautions see section 2 GHS label elements

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The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the US and Canada

MILLIPORE
SIGMA

Further information on storage conditions : Tightly closed.
Dry.

Storage class : 13, Non Combustible Solids

Recommended storage temperature : Recommended storage temperature see product label.

Further information on storage stability : Store at Room Temperature.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Quartz (SiO ₂)	14808-60-7	TWA (Respirable dust)	0.05 mg/m ³	OSHA Z-1
		TWA (respirable)	10 mg/m ³ / %SiO ₂ +2	OSHA Z-3
		TWA (respirable)	250 mppcf / %SiO ₂ +5	OSHA Z-3
		TWA (Respirable particulate matter)	0.025 mg/m ³ (Silica)	ACGIH
		PEL (respirable)	0.05 mg/m ³	OSHA CARC
1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane	50-29-3	TWA	1 mg/m ³	ACGIH
		TWA	0.5 mg/m ³	NIOSH REL
		TWA	1 mg/m ³	OSHA Z-1
Aldrin	309-00-2	TWA (Inhalable fraction and vapor)	0.05 mg/m ³	ACGIH
		TWA	0.25 mg/m ³	NIOSH REL
		TWA	0.25 mg/m ³	OSHA Z-1
Dieldrin	60-57-1	TWA (Inhalable fraction and vapor)	0.1 mg/m ³	ACGIH
		TWA	0.25 mg/m ³	NIOSH REL
		TWA	0.25 mg/m ³	OSHA Z-1
Methoxychlor	72-43-5	TWA	10 mg/m ³	ACGIH
		TWA (total)	15 mg/m ³	OSHA Z-1

		dust)		
Gamma-xene	58-89-9	TWA	0.5 mg/m3	ACGIH
		TWA	0.5 mg/m3	NIOSH REL
		TWA	0.5 mg/m3	OSHA Z-1
Endrin	72-20-8	TWA	0.1 mg/m3	ACGIH
		TWA	0.1 mg/m3	NIOSH REL
		TWA	0.1 mg/m3	OSHA Z-1
Heptachlor	76-44-8	TWA	0.5 mg/m3	OSHA Z-1
		TWA	0.5 mg/m3	NIOSH REL

Engineering measures : No data available

Personal protective equipment

Respiratory protection : required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: : Filter type P1

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Hand protection

Material : Nitrile rubber
Break through time : 480 min
Glove thickness : 0.11 mm
Protective index : Full contact
Manufacturer : KCL 741 Dermatrill® L

Material : Nitrile rubber
Break through time : 480 min
Glove thickness : 0.11 mm
Protective index : Splash contact
Manufacturer : KCL 741 Dermatrill® L

Remarks : Handle with impervious gloves.
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing

with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

- Eye protection : Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Safety glasses
- Hygiene measures : Change contaminated clothing. Wash hands after working with substance.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : solid
- Colour : No data available
- Odour : No data available
- Odour Threshold : No data available
pH : No data available
- Melting point : No data available
- Boiling point/boiling range : No data available
- Flash point : Not applicable
- Evaporation rate : No data available
- Flammability (solid, gas) : The product is not flammable.
- Flammability (liquids) : No data available
- Burning rate : No data available
- Self-ignition : Not applicable
- Upper explosion limit /
Upper flammability limit : Not applicable
- Lower explosion limit /
Lower flammability limit : Not applicable
- Vapour pressure : No data available
- Relative vapour density : No data available

Relative density	: No data available
Density	: No data available
Water solubility	: No data available
Partition coefficient: n-octanol/water	: No data available
Autoignition temperature	: Not applicable
Decomposition temperature	: No data available
Viscosity, dynamic	: No data available
Viscosity, kinematic	: No data available
Flow time	: No data available
Explosive properties	: Not classified as explosive.
Oxidizing properties	: none
Particle characteristics	
Particle size	: No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: No data available
Chemical stability	: The product is chemically stable under standard ambient conditions (room temperature) .
Possibility of hazardous reactions	: Violent reactions possible with:
Conditions to avoid	: no information available
Incompatible materials	: Strong oxidizing agents
Hazardous decomposition products	: For Hazardous combustion products in the event of fire: see section 5

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Mixture

Acute toxicity

Oral: No data available

Inhalation: No data available

Dermal: No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: OSHA specifically regulated carcinogen (Quartz (SiO₂))

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

11.2 Additional Information

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Hazardous properties cannot be excluded but are unlikely when the product is handled appropriately.

Components

Quartz (SiO₂)

Acute toxicity

Oral: No data available

Inhalation: No data available

Dermal: No data available

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Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Endosulfan (α isomer)**Acute toxicity**

Acute toxicity estimate Oral - 5.1 mg/kg

(Expert judgement)

Remarks: The value is given in analogy to the following substances: Endosulfan

Acute toxicity estimate Inhalation - 4 h - 0.0501 mg/l - dust/mist

(Expert judgement)

Remarks: The value is given in analogy to the following substances: Endosulfan

Acute toxicity estimate Dermal - 1,100.1 mg/kg

(Expert judgement)

Remarks: The value is given in analogy to the following substances: Endosulfan

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

2,2-bis(p-Chlorophenyl)-1,1-dichloroethylene**Acute toxicity**

LD50 Oral - Rat - 87.0 mg/kg

Remarks: The value is given in analogy to the following substances: 1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation

Remarks: No data available

Serious eye damage/eye irritation

Remarks: No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

Remarks: No data available

The value is given in analogy to the following substances: 1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane

Ingestion - Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard

No data available

1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane

Acute toxicity

LD50 Oral - Rat - 87.0 mg/kg

Remarks: (RTECS)

Inhalation: No data available

LD50 Dermal - Rabbit - 300.0 mg/kg

Remarks: Behavioral:Tremor.

Behavioral:Muscle weakness.

Behavioral:Ataxia.

(RTECS)

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

Suspected of causing cancer.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

Ingestion - Causes damage to organs through prolonged or repeated exposure.

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Aspiration hazard

No data available

Aldrin

Acute toxicity

LD50 Oral - Rat - 38 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard

No data available

Dieldrin**Acute toxicity**

LD50 Oral - Rat - 38.3 mg/kg

Remarks: (RTECS)

Inhalation: No data available

Acute toxicity estimate Dermal - 5.1 mg/kg

(Expert judgement)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

Suspected of causing cancer.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

Causes damage to organs through prolonged or repeated exposure.

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Aspiration hazard

No data available

(1 α ,2 β ,3 α ,4 β ,5 α ,6 β)-1,2,3,4,5,6-Hexachlorocyclohexane**Acute toxicity**

Oral: No data available

Inhalation: No data available

Dermal: No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

Limited evidence of carcinogenicity in animal studies

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Methoxychlor**Acute toxicity**

LD50 Oral - Mouse - 510 mg/kg

Remarks: Behavioral:Excitement.

Behavioral:Convulsions or effect on seizure threshold.

Behavioral:Ataxia.

(RTECS)

Inhalation: No data available

LD50 Dermal - Rat - > 6,000 mg/kg

Remarks: (RTECS)

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

Suspected of damaging the unborn child.

Suspected of damaging fertility.

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Gammmaxene**Acute toxicity**

LD50 Oral - Rat - 88.0 mg/kg

Remarks: (IUCLID)

LC50 Inhalation - Rat - 4 h - 1,560 mg/m³ - dust/mist

Remarks: (Lit.)

Acute toxicity estimate Dermal - 1,500.1 mg/kg

(Expert judgement)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation

(OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: No eye irritation

Remarks: (IUCLID)

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

NTP: The reference note has been added by TD based on the background information of the NTP.

Reproductive toxicity

Studies indicating a hazard to babies during the lactation period

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

May cause damage to organs through prolonged or repeated exposure.

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Aspiration hazard

No data available

2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane**Acute toxicity**

LD50 Oral - Rat - 113.0 mg/kg

Remarks: (RTECS)

Inhalation: No data available

LD50 Dermal - Rabbit - 1,200 mg/kg

Remarks: Behavioral:Excitement.

Behavioral:Convulsions or effect on seizure threshold.

Skin irritation

(RTECS)

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

Suspected of causing cancer.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Endrin**Acute toxicity**

LD50 Oral - Rat - 3.0 mg/kg

Inhalation: No data available

LD50 Dermal - Rat - 12.0 mg/kg

No data available

Skin corrosion/irritation

Remarks: No data available

Serious eye damage/eye irritation

Remarks: No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

Reproductive toxicity

No data available

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

β-Endosulfan**Acute toxicity**

LD50 Oral - Rat - 240 mg/kg

Remarks: (RTECS)

LC50 Inhalation - Rat - 4 h - 80 mg/m³ - dust/mist

Remarks: (in analogy to similar products)

LD50 Dermal - Rabbit - 90 mg/kg

Remarks: (in analogy to similar products)

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Heptachlor**Acute toxicity**

LD50 Oral - Mouse - 68.0 mg/kg

Remarks: (RTECS)

Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Inhalation: No data available

LD50 Dermal - Rabbit - 500.0 mg/kg

Remarks: (RTECS)

Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

Suspected of causing cancer.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

May cause damage to organs through prolonged or repeated exposure.

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Aspiration hazard

No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Endosulfan (α isomer):

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0.0005 mg/l
End point: mortality
Exposure time: 96 h
Test Type: static test
Remarks: (ECOTOX Database)

M-Factor (Acute aquatic toxicity) : 10

M-Factor (Chronic aquatic toxicity) : 10

2,2-bis(p-Chlorophenyl)-1,1-dichloroethylene:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 0.01 mg/l
Exposure time: 96 h
Remarks: The value is given in analogy to the following substances:
The value is given in analogy to the following substances: 1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane

LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.01 mg/l
Exposure time: 96 h
Remarks: The value is given in analogy to the following substances:
The value is given in analogy to the following substances: 1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane

LC50 (Oncorhynchus mykiss (rainbow trout)): 0.003400 mg/l
Exposure time: 96 h
Remarks: The value is given in analogy to the following substances:
The value is given in analogy to the following substances: 1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.00108 mg/l
Exposure time: 48 h
Test Type: Immobilization
Remarks: The value is given in analogy to the

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following substances:
The value is given in analogy to the following substances: 1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane

M-Factor (Acute aquatic toxicity) : 100

Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): 113 mg/l
Exposure time: 3.0 d
Remarks: The value is given in analogy to the following substances:
The value is given in analogy to the following substances: 1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane

1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0.003400 mg/l
Exposure time: 96.0 h
Remarks: (ECOTOX Database)
(Regulation (EC) No 1272/2008, Annex VI)

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.00108 mg/l
End point: Immobilization
Exposure time: 48 h
Remarks: (ECOTOX Database)
(Regulation (EC) No 1272/2008, Annex VI)

M-Factor (Acute aquatic toxicity) : 100

M-Factor (Chronic aquatic toxicity) : 100

Aldrin:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0.01 mg/l
Exposure time: 96.0 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.03 mg/l
Exposure time: 48 h

M-Factor (Acute aquatic toxicity) : 100

M-Factor (Chronic aquatic toxicity) : 100

Dieldrin:

Toxicity to fish : LC50 (Lepomis cyanellus): 0.011 mg/l
End point: mortality
Exposure time: 96 h
Test Type: static test
Remarks: (ECOTOX Database)

M-Factor (Acute aquatic toxicity) : 100

M-Factor (Chronic aquatic toxicity) : 10

(1 α ,2 β ,3 α ,4 β ,5 α ,6 β)-1,2,3,4,5,6-Hexachlorocyclohexane:

Toxicity to fish : LC50 : 0.1 mg/l
Exposure time: 96 h

M-Factor (Acute aquatic toxicity) : 10

Methoxychlor:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0.052 mg/l
Exposure time: 96 h
Remarks: (Lit.)

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.00078 mg/l
Exposure time: 48 h
Remarks: (Lit.)

Toxicity to algae/aquatic plants : EC50 (Scenedesmus quadricauda (Green algae)): 0.6 mg/l
Exposure time: 72 h
Remarks: (Lit.)

M-Factor (Acute aquatic toxicity) : 1,000

M-Factor (Chronic aquatic toxicity) : 1,000

Gammaxene:

M-Factor (Acute aquatic toxicity) : 10

M-Factor (Chronic aquatic toxicity) : 10

Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

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

2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0.06 - 0.09 mg/l
Exposure time: 96.0 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia pulex (Water flea)): 0.01 mg/l
Exposure time: 48 h

M-Factor (Acute aquatic toxicity) : 100

M-Factor (Chronic aquatic toxicity) : 100

Endrin:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): < 0.001 mg/l
Exposure time: 96.0 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia pulex (Water flea)): 0.02 mg/l
Exposure time: 48 h

EC50 (Daphnia magna (Water flea)): 0.0042 mg/l
Exposure time: 48 h
Test Type: Immobilization

M-Factor (Acute aquatic toxicity) : 100

Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): > 0.0002 - < 0.0006 mg/l
Exposure time: 45 d

LOEC (Pimephales promelas (fathead minnow)): 0.00057 mg/l
Exposure time: 45 d

M-Factor (Chronic aquatic toxicity) : 100

Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

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

β-Endosulfan:

Toxicity to fish : LC50 (Fish): 0.0066 mg/l
Exposure time: 96 h
Test Type: flow-through test

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 0.1 - 1 mg/l
Exposure time: 48 h

M-Factor (Acute aquatic toxicity) : 100

M-Factor (Chronic aquatic toxicity) : 100

Heptachlor:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0.007 mg/l
Exposure time: 96.0 h
Remarks: (ECOTOX Database)

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 0.078 mg/l
Exposure time: 48 h
Remarks: (ECOTOX Database)

M-Factor (Acute aquatic toxicity) : 100

M-Factor (Chronic aquatic toxicity) : 100

Persistence and degradability

Components:

Quartz (SiO₂):

Biodegradability : Remarks: The methods for determining the biological degradability are not applicable to inorganic substances.

2,2-bis(p-Chlorophenyl)-1,1-dichloroethylene:

Biodegradability : Remarks: No data available

Aldrin:

Biodegradability : Remarks: No data available

2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane:

Biodegradability : Remarks: No data available

Endrin:

Biodegradability : Remarks: No data available

Bioaccumulative potential**Components:****Quartz (SiO₂):**

Partition coefficient: n-octanol/water : Remarks: Not applicable for inorganic substances

Endosulfan (α isomer):

Bioaccumulation : Species: other fish
Bioconcentration factor (BCF): 10,994
Exposure time: 21 d
Concentration: 0.2 µg/l

2,2-bis(p-Chlorophenyl)-1,1-dichloroethylene:

Bioaccumulation : Species: Gambusia affinis (Mosquito fish)
Bioconcentration factor (BCF): 12,037
Exposure time: 33 d
Concentration: 3.84 µg/l

Partition coefficient: n-octanol/water : log Pow: 6.51

1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane:

Bioaccumulation : Species: Oncorhynchus mykiss (rainbow trout)
Bioconcentration factor (BCF): 46,670
Exposure time: 20 d
Concentration: 0.001 mg/l

Partition coefficient: n-octanol/water : log Pow: 6.91
Remarks: Potential bioaccumulation

Aldrin:

Bioaccumulation : Species: Leuciscus idus (Golden orfe)
Bioconcentration factor (BCF): 3,700
Exposure time: 3 d
Concentration: 0.002 mg/l

(1α,2β,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 500

Exposure time: 35 d
Concentration: 0.05 mg/l

Partition coefficient: n-octanol/water : log Pow: 3.78
Remarks: Bioaccumulation is not expected.

Methoxychlor:

Bioaccumulation : Species: Pimephales promelas (fathead minnow)
Bioconcentration factor (BCF): 8,300
Exposure time: 32 d
Concentration: 0.0035 mg/l

Gammaxene:

Bioaccumulation : Species: Pimephales promelas (fathead minnow)
Bioconcentration factor (BCF): 674
Exposure time: 304 d
Concentration: 0.0091 mg/l

Partition coefficient: n-octanol/water : Pow: 3.5 (72 °F / 22 °C)
Remarks: Bioaccumulation is not expected.

2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane:

Partition coefficient: n-octanol/water : log Pow: 6.02

Endrin:

Bioaccumulation : Species: Pimephales promelas (fathead minnow)
Bioconcentration factor (BCF): 13,000
Exposure time: 56 d
Concentration: 0.63 mg/l

Partition coefficient: n-octanol/water : log Pow: 5.20

β-Endosulfan:

Bioaccumulation : Species: other fish
Bioconcentration factor (BCF): 9,908
Exposure time: 21 d
Concentration: 0.0001 mg/l

Partition coefficient: n-octanol/water : log Pow: 3.83 (77 °F / 25 °C)
Method: (calculated)
Remarks: Bioaccumulation is not expected.

Heptachlor:

Bioaccumulation : Species: Pimephales promelas (fathead minnow)
Bioconcentration factor (BCF): 23,814

Exposure time: 276 d
Concentration: 0.00043 mg/l

Mobility in soil

Components:

Endosulfan (α isomer):

Stability in soil : Remarks: No data available

2,2-bis(p-Chlorophenyl)-1,1-dichloroethylene:

Stability in soil : Remarks: No data available

Endrin:

Stability in soil : Remarks: No data available

Heptachlor:

Stability in soil : Remarks: No data available

Other adverse effects

Product:

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Components:

Endosulfan (α isomer):

Additional ecological information : Discharge into the environment must be avoided.

Dieldrin:

Additional ecological information : Discharge into the environment must be avoided.

Endocrine disrupting properties

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Waste material must be disposed of in accordance with the national and local regulations. Leave

chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

UN/ID No. : UN 3077
Proper shipping name : Environmentally hazardous substance, solid, n.o.s.
(Endosulfan (α isomer))
Class : 9
Packing group : III
Labels : Class 9 - Miscellaneous dangerous substances and articles
Packing instruction (cargo aircraft) : 956
Packing instruction (passenger aircraft) : 956

IMDG-Code

UN number : UN 3077
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,
N.O.S.
(Endosulfan (α isomer))
Class : 9
Packing group : III
Labels : 9
EmS Code : F-A, S-F
Marine pollutant : yes

Transport in bulk according to IMO instruments

Not applicable for product as supplied.

National Regulations

49 CFR

UN/ID/NA number : UN 3077
Proper shipping name : Environmentally hazardous substance, solid, n.o.s.
(Endosulfan (α isomer))
Class : 9
Packing group : III
Labels : Class 9 - Miscellaneous dangerous substances and articles
ERG Code : 171
Marine pollutant : no
Poison Inhalation Hazard : No

Special precautions for user

Remarks : EHS-Mark required (ADR 2.2.9.1.10, IMDG code

2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

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.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Endosulfan (α isomer)	959-98-8	1	1001
2,2-bis(p-Chlorophenyl)-1,1-dichloroethylene	72-55-9	1	1001
1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane	50-29-3	1	1001
Aldrin	309-00-2	1	1001
Dieldrin	60-57-1	1	1001
(1α,2β,3α,4β,5α,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-85-7	1	1001
Methoxychlor	72-43-5	1	1001
Gammaxene	58-89-9	1	1001
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8	1	1001
Endrin	72-20-8	1	1001
β-Endosulfan	33213-65-9	1	1001
Heptachlor	76-44-8	1	1001
Methoxychlor	72-43-5	1	1 (D014)
Gammaxene	58-89-9	1	1 (D013)
Endrin	72-20-8	1	1 (D012)
Heptachlor	76-44-8	1	1 (D031)

SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Aldrin	309-00-2	1	1001
Gammaxene	58-89-9	1	1001
Endrin	72-20-8	1	1001

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Chronic Health Hazard

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Aldrin	309-00-2	< 0.1 %
Methoxychlor	72-43-5	< 0.1 %
Heptachlor	76-44-8	< 0.1 %

Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane	50-29-3	>= 0 - < 0.1 %
Aldrin	309-00-2	>= 0 - < 0.1 %
Dieldrin	60-57-1	>= 0 - < 0.1 %
Methoxychlor	72-43-5	>= 0 - < 0.1 %
Gammaxene	58-89-9	>= 0 - < 0.1 %
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8	>= 0 - < 0.1 %
Endrin	72-20-8	>= 0 - < 0.1 %
Heptachlor	76-44-8	>= 0 - < 0.1 %

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane	50-29-3	>= 0 - < 0.1 %
Aldrin	309-00-2	>= 0 - < 0.1 %
Dieldrin	60-57-1	>= 0 - < 0.1 %
Methoxychlor	72-43-5	>= 0 - < 0.1 %
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8	>= 0 - < 0.1 %
Endrin	72-20-8	>= 0 - < 0.1 %
Heptachlor	76-44-8	>= 0 - < 0.1 %

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

This product does not contain any priority pollutants related to the U.S. Clean Water Act

US State Regulations

Massachusetts Right To Know

Quartz (SiO ₂)	14808-60-7
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2,2-bis(p-Chlorophenyl)-1,1-dichloroethylene	72-55-9
1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane	50-29-3
Aldrin	309-00-2
Dieldrin	60-57-1
(1 α ,2 β ,3 α ,4 β ,5 α ,6 β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-85-7
Gammaxene	58-89-9
(1 α ,2 α ,3 β ,4 α ,5 β ,6 β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-84-6
Endrin	72-20-8
Heptachlor	76-44-8

Pennsylvania Right To Know

Quartz (SiO ₂)	14808-60-7
Endosulfan (α isomer)	959-98-8
2,2-bis(p-Chlorophenyl)-1,1-dichloroethylene	72-55-9
1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane	50-29-3
Aldrin	309-00-2
Dieldrin	60-57-1
(1 α ,2 β ,3 α ,4 β ,5 α ,6 β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-85-7
Methoxychlor	72-43-5
Gammaxene	58-89-9
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8
(1 α ,2 α ,3 β ,4 α ,5 β ,6 β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-84-6
Endrin	72-20-8
β -Endosulfan	33213-65-9
Heptachlor	76-44-8

Maine Chemicals of High Concern

Quartz (SiO ₂)	14808-60-7
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Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

California Prop. 65

WARNING: This product can expose you to chemicals including 2,2-bis(p-Chlorophenyl)-1,1-dichloroethylene, 1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane, Aldrin, Dieldrin, (1 α ,2 β ,3 α ,4 β ,5 α ,6 β)-1,2,3,4,5,6-Hexachlorocyclohexane, Gammaxene, 2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane, (1 α ,2 α ,3 β ,4 α ,5 β ,6 β)-1,2,3,4,5,6-Hexachlorocyclohexane, Heptachlor, which is/are known to the State of California to cause cancer, and 2,2-bis(p-Chlorophenyl)-1,1-dichloroethylene, 1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane, Endrin, Heptachlor, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov. **International**

Regulations

Stockholm Convention (Persistent Organic Pollutants)	: Endosulfan (α isomer) 1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane Aldrin
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Dieldrin
(1 α ,2 β ,3 α ,4 β ,5 α ,6 β)-
1,2,3,4,5,6-
Hexachlorocyclohexane
Methoxychlor
Gammaxene
(1 α ,2 α ,3 β ,4 α ,5 β ,6 β)-
1,2,3,4,5,6-
Hexachlorocyclohexane
Endrin
 β -Endosulfan
Heptachlor

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

US TSCA : Product contains substance(s) not listed on TSCA inventory.

TSCA list

The following substance(s) is/are subject to a Significant New Use Rule:

1,1,1-Trichloro-2,2-bis(4-chlorophenyl)ethane	50-29-3	See 40 CFR § 721.2287; Final Rule
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No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
OSHA CARC	:	OSHA Specifically Regulated Chemicals/Carcinogens
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
OSHA Z-3	:	USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts
ACGIH / TWA	:	8-hour, time-weighted average
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
OSHA CARC / PEL	:	Permissible exposure limit (PEL)
OSHA Z-1 / TWA	:	8-hour time weighted average
OSHA Z-3 / TWA	:	8-hour time weighted average

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; 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 Harmonised System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; 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 Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; 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; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation 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; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; 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

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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