

Response	If swallowed: Immediately call a poison center/doctor. If on skin: Wash with plenty of water. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. Specific treatment is urgent (see this label). Rinse mouth. If eye irritation persists: Get medical advice/attention. Take off immediately all contaminated clothing and wash it before reuse. In case of fire: Use appropriate media to extinguish. Collect spillage.
Storage	Store in a dry place. Store in a closed container. Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	6.25% of the mixture consists of component(s) of unknown acute oral toxicity. 18.75% of the mixture consists of component(s) of unknown acute dermal toxicity. 12.5% of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 12.5% of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
4,4'-DDD		72-54-8	6.25
4,4'-DDE		72-55-9	6.25
4,4'-DDT		50-29-3	6.25
a-Endosulfan		959-98-8	6.25
Aldrin (TM)		309-00-2	6.25
b-Endosulfan		33213-65-9	6.25
BHC (alpha isomer)		319-84-6	6.25
BHC (beta isomer)		319-85-7	6.25
BHC (delta isomer)		319-86-8	6.25
Dieldrin		60-57-1	6.25
Endrin		72-20-8	6.25
Endrin aldehyde		7421-93-4	6.25
Heptachlor		76-44-8	6.25
Heptachlor epoxide (Isomer B)		1024-57-3	6.25
Lindane (BHC gamma isomer)		58-89-9	6.25

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control center immediately.
Skin contact	Take off immediately all contaminated clothing. IF ON SKIN: Gently wash with plenty of soap and water. Call a physician or poison control center immediately.
Eye contact	Do not rub eyes. Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
Most important symptoms/effects, acute and delayed	Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Prolonged exposure may cause chronic effects.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information Take off immediately all contaminated clothing. IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse. Discard any shoes or clothing items that cannot be decontaminated.

5. Fire-fighting measures

Suitable extinguishing media Foam. Dry chemical powder. Carbon dioxide (CO₂).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical In contact with water releases flammable gas.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire-fighting equipment/instructions Do not get water inside container.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Immediately evacuate personnel to safe areas. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Do not breathe dust. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways. Stop the flow of material, if this is without risk. Collect spillage.

Large Spills: Wet down with water and dike for later disposal. Do not get water on spilled substance or inside containers. Following product recovery, flush area with water.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Handle under inert gas. Protect from moisture. Minimize dust generation and accumulation. Do not breathe dust. Do not get this material in contact with eyes. Do not get this material in contact with skin. Do not taste or swallow. Avoid contact during pregnancy/while nursing. Avoid prolonged exposure. Do not get this material on clothing. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Wash contaminated clothing before reuse. Avoid release to the environment. Do not empty into drains.

Conditions for safe storage, including any incompatibilities Store locked up. Store in original tightly closed container. Store in a cool, dry place out of direct sunlight. Store in a well-ventilated place. Store in a dry place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
4,4'-DDT (CAS 50-29-3)	PEL	1 mg/m ³
Aldrin (TM) (CAS 309-00-2)	PEL	0.25 mg/m ³
Dieldrin (CAS 60-57-1)	PEL	0.25 mg/m ³
Endrin (CAS 72-20-8)	PEL	0.1 mg/m ³
Heptachlor (CAS 76-44-8)	PEL	0.5 mg/m ³
Heptachlor epoxide (Isomer B) (CAS 1024-57-3)	PEL	0.5 mg/m ³
Lindane (BHC gamma isomer) (CAS 58-89-9)	PEL	0.5 mg/m ³

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
4,4'-DDT (CAS 50-29-3)	TWA	1 mg/m3	
a-Endosulfan (CAS 959-98-8)	TWA	0.1 mg/m3	Inhalable fraction and vapor.
Aldrin (TM) (CAS 309-00-2)	TWA	0.05 mg/m3	Inhalable fraction and vapor.
b-Endosulfan (CAS 33213-65-9)	TWA	0.1 mg/m3	Inhalable fraction and vapor.
Dieldrin (CAS 60-57-1)	TWA	0.1 mg/m3	Inhalable fraction and vapor.
Endrin (CAS 72-20-8)	TWA	0.1 mg/m3	
Heptachlor (CAS 76-44-8)	TWA	0.05 mg/m3	
Heptachlor epoxide (Isomer B) (CAS 1024-57-3)	TWA	0.05 mg/m3	
Lindane (BHC gamma isomer) (CAS 58-89-9)	TWA	0.5 mg/m3	

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
4,4'-DDT (CAS 50-29-3)	TWA	0.5 mg/m3
a-Endosulfan (CAS 959-98-8)	TWA	0.1 mg/m3
Aldrin (TM) (CAS 309-00-2)	TWA	0.25 mg/m3
b-Endosulfan (CAS 33213-65-9)	TWA	0.1 mg/m3
Dieldrin (CAS 60-57-1)	TWA	0.25 mg/m3
Endrin (CAS 72-20-8)	TWA	0.1 mg/m3
Heptachlor (CAS 76-44-8)	TWA	0.5 mg/m3
Heptachlor epoxide (Isomer B) (CAS 1024-57-3)	TWA	0.5 mg/m3
Lindane (BHC gamma isomer) (CAS 58-89-9)	TWA	0.5 mg/m3

Biological limit values

No biological exposure limits noted for the ingredient(s).

Exposure guidelines**US - California OELs: Skin designation**

4,4'-DDT (CAS 50-29-3)	Can be absorbed through the skin.
a-Endosulfan (CAS 959-98-8)	Can be absorbed through the skin.
Aldrin (TM) (CAS 309-00-2)	Can be absorbed through the skin.
b-Endosulfan (CAS 33213-65-9)	Can be absorbed through the skin.
Dieldrin (CAS 60-57-1)	Can be absorbed through the skin.
Endrin (CAS 72-20-8)	Can be absorbed through the skin.
Heptachlor (CAS 76-44-8)	Can be absorbed through the skin.
Heptachlor epoxide (Isomer B) (CAS 1024-57-3)	Can be absorbed through the skin.
Lindane (BHC gamma isomer) (CAS 58-89-9)	Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

a-Endosulfan (CAS 959-98-8)	Skin designation applies.
Aldrin (TM) (CAS 309-00-2)	Skin designation applies.
b-Endosulfan (CAS 33213-65-9)	Skin designation applies.
Dieldrin (CAS 60-57-1)	Skin designation applies.
Endrin (CAS 72-20-8)	Skin designation applies.
Heptachlor (CAS 76-44-8)	Skin designation applies.
Heptachlor epoxide (Isomer B) (CAS 1024-57-3)	Skin designation applies.
Lindane (BHC gamma isomer) (CAS 58-89-9)	Skin designation applies.

US - Tennessee OELs: Skin designation

4,4'-DDT (CAS 50-29-3)	Can be absorbed through the skin.
a-Endosulfan (CAS 959-98-8)	Can be absorbed through the skin.
Aldrin (TM) (CAS 309-00-2)	Can be absorbed through the skin.
b-Endosulfan (CAS 33213-65-9)	Can be absorbed through the skin.
Dieldrin (CAS 60-57-1)	Can be absorbed through the skin.
Endrin (CAS 72-20-8)	Can be absorbed through the skin.
Heptachlor (CAS 76-44-8)	Can be absorbed through the skin.
Heptachlor epoxide (Isomer B) (CAS 1024-57-3)	Can be absorbed through the skin.
Lindane (BHC gamma isomer) (CAS 58-89-9)	Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

a-Endosulfan (CAS 959-98-8)	Can be absorbed through the skin.
Aldrin (TM) (CAS 309-00-2)	Can be absorbed through the skin.

b-Endosulfan (CAS 33213-65-9)	Can be absorbed through the skin.
Dieldrin (CAS 60-57-1)	Can be absorbed through the skin.
Endrin (CAS 72-20-8)	Can be absorbed through the skin.
Heptachlor (CAS 76-44-8)	Can be absorbed through the skin.
Heptachlor epoxide (Isomer B) (CAS 1024-57-3)	Can be absorbed through the skin.
Lindane (BHC gamma isomer) (CAS 58-89-9)	Can be absorbed through the skin.

US NIOSH Pocket Guide to Chemical Hazards: Skin designation

a-Endosulfan (CAS 959-98-8)	Can be absorbed through the skin.
Aldrin (TM) (CAS 309-00-2)	Can be absorbed through the skin.
b-Endosulfan (CAS 33213-65-9)	Can be absorbed through the skin.
Dieldrin (CAS 60-57-1)	Can be absorbed through the skin.
Endrin (CAS 72-20-8)	Can be absorbed through the skin.
Heptachlor (CAS 76-44-8)	Can be absorbed through the skin.
Heptachlor epoxide (Isomer B) (CAS 1024-57-3)	Can be absorbed through the skin.
Lindane (BHC gamma isomer) (CAS 58-89-9)	Can be absorbed through the skin.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

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Heptachlor epoxide (Isomer B) (CAS 1024-57-3)	Can be absorbed through the skin.
Lindane (BHC gamma isomer) (CAS 58-89-9)	Can be absorbed through the skin.

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear eye/face protection. Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Wear protective gloves.

Other Wear appropriate chemical resistant clothing.

Respiratory protection Wear positive pressure self-contained breathing apparatus (SCBA).

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations When using, do not eat, drink or smoke. Do not get this material on clothing. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state Solid.

Form Solid.

Color Not available.

Odor Not available.

Odor threshold Not available.

pH Not available.

Melting point/freezing point 192.2 °F (89 °C) estimated

Initial boiling point and boiling range 500 °F (260 °C) estimated

Flash point 162.0 °F (72.2 °C) estimated

Evaporation rate Not available.

Flammability (solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Explosive limit - lower (%) Not available.

Explosive limit - upper (%) Not available.

Vapor pressure	0 hPa estimated
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	1.655585 g/cm3 estimated
Flammability class	Combustible IIIA estimated
Specific gravity	1.66 estimated

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Moisture. Contact with water liberates flammable gas. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Strong acids. Strong oxidizing agents. May be corrosive to metals. Phenols.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Fatal if swallowed.
Inhalation	Fatal if inhaled.
Skin contact	Fatal in contact with skin.
Eye contact	Causes serious eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

Information on toxicological effects

Acute toxicity Fatal if inhaled. Fatal in contact with skin. Fatal if swallowed.

Components	Species	Test Results
4,4'-DDD (CAS 72-54-8)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	1200 mg/kg
<i>Oral</i>		
LD50	Mouse	1466 mg/kg
	Rat	113 mg/kg
<i>Other</i>		
LD50	Rat	> 10000 mg/kg
4,4'-DDE (CAS 72-55-9)		
Acute		
<i>Oral</i>		
LD50	Mouse	700 mg/kg
	Rat	880 mg/kg
4,4'-DDT (CAS 50-29-3)		
Acute		
<i>Dermal</i>		
LD50	Guinea pig	1000 mg/kg

Components	Species	Test Results
	Mouse	250 mg/kg
	Rabbit	300 mg/kg
	Rat	1931 mg/kg
<i>Oral</i>		
LD50	Dog	500 mg/kg
	Goat	> 1000 mg/kg
	Guinea pig	250 mg/kg
	Mouse	150 mg/kg
	Rabbit	300 mg/kg
	Rat	87 mg/kg
	Sheep	> 1000 mg/kg
<i>Other</i>		
LD50	Cat	32 mg/kg
	Dog	68 mg/kg
	Guinea pig	150 mg/kg
	Monkey	55 mg/kg
	Mouse	32 mg/kg
	Rabbit	30 mg/kg
	Rat	9.1 mg/kg
a-Endosulfan (CAS 959-98-8)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	90 mg/kg
	Rat	34 mg/kg
<i>Inhalation</i>		
LC50	Rat	0.08 mg/l, 4 Hours
<i>Oral</i>		
LD50	Cat	2 mg/kg
	Dog	76.7 mg/kg
	Hamster	118 mg/kg
	Mouse	7.36 mg/kg
	Rabbit	28 mg/kg
	Rat	18 mg/kg
<i>Other</i>		
LD50	Hamster	80 mg/kg
	Mouse	7 mg/kg
	Rabbit	360 mg/kg
	Rat	8 mg/kg
Aldrin (TM) (CAS 309-00-2)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	150 mg/kg
	Rat	98 mg/kg
<i>Oral</i>		
LD50	Mouse	44 mg/kg
	Rat	39 mg/kg
<i>Other</i>		
LD50	Mouse	21 mg/kg

Components	Species	Test Results
b-Endosulfan (CAS 33213-65-9)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	90 mg/kg
	Rat	34 mg/kg
<i>Inhalation</i>		
LC50	Rat	0.08 mg/l, 4 Hours
<i>Oral</i>		
LD50	Cat	2 mg/kg
	Dog	76.7 mg/kg
	Hamster	118 mg/kg
	Mouse	7.36 mg/kg
	Rabbit	28 mg/kg
	Rat	18 mg/kg
<i>Other</i>		
LD50	Hamster	80 mg/kg
	Mouse	7 mg/kg
	Rabbit	360 mg/kg
	Rat	8 mg/kg
BHC (alpha isomer) (CAS 319-84-6)		
Acute		
<i>Dermal</i>		
LD50	Rat	0.9 mg/kg
<i>Oral</i>		
LD50	Rat	177 mg/kg
<i>Other</i>		
LD50	Rabbit	75 mg/kg
BHC (beta isomer) (CAS 319-85-7)		
Acute		
<i>Dermal</i>		
LD50	Rat	0.9 mg/kg
<i>Oral</i>		
LD50	Mouse	1500 mg/kg
	Rat	6 g/kg
<i>Other</i>		
LD50	Rabbit	75 mg/kg
BHC (delta isomer) (CAS 319-86-8)		
Acute		
<i>Dermal</i>		
LD50	Rat	0.9 mg/kg
<i>Oral</i>		
LD50	Rat	1000 mg/kg
<i>Other</i>		
LD50	Rabbit	75 mg/kg
Dieldrin (CAS 60-57-1)		
Acute		
<i>Dermal</i>		
LD50	Rat	56 mg/kg
<i>Oral</i>		
LD50	Dog	65 mg/kg
	Domestic goat	100 - 200 mg/kg
	Monkey	3 mg/kg
	Mouse	38 mg/kg

Components	Species	Test Results
	Rat	24 mg/kg
	Sheep	50 - 75 mg/kg
<i>Other</i>		
LD50	Mouse	10.5 mg/kg
	Rat	9 mg/kg
Endrin (CAS 72-20-8)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	60 mg/kg
	Rat	12 mg/kg
<i>Oral</i>		
LD50	Guinea pig	16 mg/kg
	Monkey	3 mg/kg
	Mouse	1.3 mg/kg
	Rabbit	7 - 10 mg/kg
	Rat	3 mg/kg
<i>Other</i>		
LD50	Mouse	2.3 mg/kg
Endrin aldehyde (CAS 7421-93-4)		
Acute		
<i>Oral</i>		
LD50	Mouse	> 500 mg/kg
Heptachlor (CAS 76-44-8)		
Acute		
<i>Dermal</i>		
LD50	Guinea pig	116 mg/kg
	Rabbit	500 - 2000 mg/kg
	Rat	119 mg/kg
<i>Inhalation</i>		
LC50	Rat	200 mg/l, 4 Hours
<i>Oral</i>		
LD50	Cat	67 mg/kg
	Guinea pig	116 mg/kg
	Hamster	100 - 160 mg/kg
	Mouse	68 - 180 mg/kg
	Rabbit	80 - 90 mg/kg
	Rat	40 - 100 mg/kg
TD	Calf	20 mg/kg
<i>Other</i>		
LD50	Mouse	10 mg/kg
Heptachlor epoxide (Isomer B) (CAS 1024-57-3)		
Acute		
<i>Dermal</i>		
LD50	Guinea pig	116 mg/kg
	Rabbit	500 - 2000 mg/kg
	Rat	119 mg/kg
<i>Inhalation</i>		
LC50	Rat	200 mg/l, 4 Hours
<i>Oral</i>		
LD50	Cat	67 mg/kg
	Guinea pig	116 mg/kg
	Hamster	100 - 160 mg/kg

Components	Species	Test Results
	Mouse	68 - 180 mg/kg
	Rabbit	80 - 90 mg/kg
	Rat	40 - 100 mg/kg
TD	Calf	20 mg/kg
<i>Other</i>		
LD50	Mouse	10 mg/kg
Lindane (BHC gamma isomer) (CAS 58-89-9)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	50 mg/kg
	Rat	500 mg/kg
<i>Inhalation</i>		
LC50	Rat	1.56 mg/l
<i>Oral</i>		
LD50	Dog	40 mg/kg
	Guinea pig	127 mg/kg
	Hamster	360 mg/kg
	Mouse	44 mg/kg
	Rabbit	50 mg/kg
	Rat	76 mg/kg
<i>Other</i>		
LD50	Hamster	640 mg/kg
	Mouse	125 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.
Serious eye damage/eye irritation	Causes serious eye irritation.
Respiratory or skin sensitization	
Respiratory sensitization	Not available.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	Suspected of causing cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

4,4'-DDT (CAS 50-29-3)	2B Possibly carcinogenic to humans.
Aldrin (TM) (CAS 309-00-2)	3 Not classifiable as to carcinogenicity to humans.
BHC (alpha isomer) (CAS 319-84-6)	2B Possibly carcinogenic to humans.
BHC (beta isomer) (CAS 319-85-7)	2B Possibly carcinogenic to humans.
BHC (delta isomer) (CAS 319-86-8)	2B Possibly carcinogenic to humans.
Dieldrin (CAS 60-57-1)	3 Not classifiable as to carcinogenicity to humans.
Endrin (CAS 72-20-8)	3 Not classifiable as to carcinogenicity to humans.
Heptachlor (CAS 76-44-8)	2B Possibly carcinogenic to humans.
Heptachlor epoxide (Isomer B) (CAS 1024-57-3)	2B Possibly carcinogenic to humans.
Lindane (BHC gamma isomer) (CAS 58-89-9)	2B Possibly carcinogenic to humans.

US. National Toxicology Program (NTP) Report on Carcinogens

4,4'-DDT (CAS 50-29-3)	Reasonably Anticipated to be a Human Carcinogen.
BHC (alpha isomer) (CAS 319-84-6)	Reasonably Anticipated to be a Human Carcinogen.
BHC (beta isomer) (CAS 319-85-7)	Reasonably Anticipated to be a Human Carcinogen.
BHC (delta isomer) (CAS 319-86-8)	Reasonably Anticipated to be a Human Carcinogen.
Lindane (BHC gamma isomer) (CAS 58-89-9)	Reasonably Anticipated to be a Human Carcinogen.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity	Possible reproductive hazard. May cause harm to breastfed babies. Suspected of damaging fertility or the unborn child.
Specific target organ toxicity - single exposure	Not classified.

Specific target organ toxicity - repeated exposure	Causes damage to organs through prolonged or repeated exposure.
Aspiration hazard	Not available.
Chronic effects	Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects. Causes damage to organs through prolonged or repeated exposure.

12. Ecological information

Ecotoxicity Very toxic to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.

Components		Species	Test Results
4,4'-DDD (CAS 72-54-8)			
Aquatic			
Crustacea	EC50	Water flea (<i>Daphnia pulex</i>)	0.0023 - 0.0044 mg/l, 48 hours
Fish	LC50	Walleye (<i>Stizostedion vitreum vitreum</i>)	0.011 - 0.019 mg/l, 96 hours
4,4'-DDE (CAS 72-55-9)			
Aquatic			
Crustacea	EC50	Brown shrimp (<i>Penaeus aztecus</i>)	0.028 mg/l, 48 hours
Fish	LC50	Rainbow trout,donaldson trout (<i>Oncorhynchus mykiss</i>)	0.026 - 0.04 mg/l, 96 hours
4,4'-DDT (CAS 50-29-3)			
Aquatic			
Crustacea	EC50	Water flea (<i>Daphnia magna</i>)	0.0005 - 0.001 mg/l, 48 hours
Fish	LC50	Bluegill (<i>Lepomis macrochirus</i>)	0.0013 - 0.002 mg/l, 96 hours
a-Endosulfan (CAS 959-98-8)			
Aquatic			
Crustacea	EC50	Water flea (<i>Daphnia carinata</i>)	0.18 mg/l, 48 hours
Fish	LC50	Snake-head catfish (<i>Channa punctata</i>)	0.0001 - 0.0002 mg/l, 96 hours
Aldrin (TM) (CAS 309-00-2)			
Aquatic			
Crustacea	EC50	Ostracod, Seed shrimp (<i>Cypridopsis vidua</i>)	0.015 - 0.021 mg/l, 48 hours
Fish	LC50	Rainbow trout,donaldson trout (<i>Oncorhynchus mykiss</i>)	0.0023 - 0.0045 mg/l, 96 hours
b-Endosulfan (CAS 33213-65-9)			
Aquatic			
Crustacea	EC50	Water flea (<i>Daphnia carinata</i>)	0.18 mg/l, 48 hours
Fish	LC50	Snake-head catfish (<i>Channa punctata</i>)	0.0066 - 0.0067 mg/l, 96 hours
BHC (alpha isomer) (CAS 319-84-6)			
Aquatic			
Crustacea	EC50	Water flea (<i>Daphnia magna</i>)	0.6 - 1 mg/l, 48 hours
Fish	LC50	Zebra danio (<i>Danio rerio</i>)	0.82 - 1.51 mg/l, 96 hours
BHC (beta isomer) (CAS 319-85-7)			
Aquatic			
Crustacea	EC50	Water flea (<i>Daphnia pulex</i>)	0.68 mg/l, 48 hours
Fish	LC50	Guppy (<i>Poecilia reticulata</i>)	1 - 3.55 mg/l, 96 hours
BHC (delta isomer) (CAS 319-86-8)			
Aquatic			
Crustacea	EC50	Water flea (<i>Daphnia pulex</i>)	0.68 mg/l, 48 hours
Fish	LC50	Zebra danio (<i>Danio rerio</i>)	1.15 - 2.17 mg/l, 96 hours
Dieldrin (CAS 60-57-1)			
Aquatic			
Crustacea	EC50	Water flea (<i>Daphnia magna</i>)	0.074 - 0.0854 mg/l, 48 hours
Fish	LC50	Rainbow trout,donaldson trout (<i>Oncorhynchus mykiss</i>)	0.001 - 0.0013 mg/l, 96 hours

Components	Species		Test Results
Endrin (CAS 72-20-8)			
Aquatic			
Crustacea	EC50	Water flea (<i>Daphnia pulex</i>)	0.013 - 0.03 mg/l, 48 hours
Fish	LC50	Sheepshead minnow (<i>Cyprinodon variegatus</i>)	0.0002 - 0.0006 mg/l, 96 hours
Heptachlor (CAS 76-44-8)			
Aquatic			
Crustacea	EC50	Water flea (<i>Daphnia pulex</i>)	0.021 - 0.063 mg/l, 48 hours
Fish	LC50	Pinfish (<i>Lagodon rhomboides</i>)	0.002 - 0.0088 mg/l, 96 hours
Heptachlor epoxide (Isomer B) (CAS 1024-57-3)			
Aquatic			
Crustacea	EC50	Water flea (<i>Daphnia pulex</i>)	0.021 - 0.063 mg/l, 48 hours
Fish	LC50	Bluegill (<i>Lepomis macrochirus</i>)	0.0039 - 0.0072 mg/l, 96 hours
Lindane (BHC gamma isomer) (CAS 58-89-9)			
Aquatic			
Crustacea	EC50	Water flea (<i>Daphnia pulex</i>)	0.386 - 0.547 mg/l, 48 hours
Fish	LC50	Rainbow trout, donaldson trout (<i>Oncorhynchus mykiss</i>)	0.02 - 0.027 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential No data available.

Partition coefficient n-octanol / water (log Kow)

4,4'-DDD	6.02
4,4'-DDE	6.51
4,4'-DDT	6.91
a-Endosulfan	3.83
Aldrin (TM)	6.5
b-Endosulfan	3.83
BHC (alpha isomer)	3.8
BHC (beta isomer)	3.78
BHC (delta isomer)	4.14
Dieldrin	5.4
Endrin	5.2
Endrin aldehyde	5.6
Heptachlor	6.1
Heptachlor epoxide (Isomer B)	5.4
Lindane (BHC gamma isomer)	3.72

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

US RCRA Hazardous Waste P List: Reference

a-Endosulfan (CAS 959-98-8)	P050
Aldrin (TM) (CAS 309-00-2)	P004
b-Endosulfan (CAS 33213-65-9)	P050
Dieldrin (CAS 60-57-1)	P037
Endrin (CAS 72-20-8)	P051
Heptachlor (CAS 76-44-8)	P059
Heptachlor epoxide (Isomer B) (CAS 1024-57-3)	P059

US RCRA Hazardous Waste U List: Reference

4,4'-DDD (CAS 72-54-8)	U060
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4,4'-DDT (CAS 50-29-3)

U061

Lindane (BHC gamma isomer) (CAS 58-89-9)

U129

Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN2813
UN proper shipping name	Water-reactive solid, n.o.s., mixture (Heptachlor epoxide (Isomer B) RQ = 16 LBS), MARINE POLLUTANT
Transport hazard class(es)	
Class	4.3
Subsidiary risk	-
Label(s)	4.3
Packing group	III
Environmental hazards	
Marine pollutant	Yes
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	IB8, IP4, T1, TP33
Packaging exceptions	151
Packaging non bulk	213
Packaging bulk	241

IATA

UN number	UN2813
UN proper shipping name	Water-reactive solid, n.o.s. mixture (Heptachlor epoxide (Isomer B))
Transport hazard class(es)	
Class	4.3
Subsidiary risk	-
Packing group	III
Environmental hazards	No.
ERG Code	4W
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed.
Cargo aircraft only	Allowed.

IMDG

UN number	UN2813
UN proper shipping name	WATER-REACTIVE SOLID, N.O.S. MIXTURE (Heptachlor epoxide (Isomer B)), MARINE POLLUTANT
Transport hazard class(es)	
Class	4.3
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	Yes
EmS	F-G, S-N
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

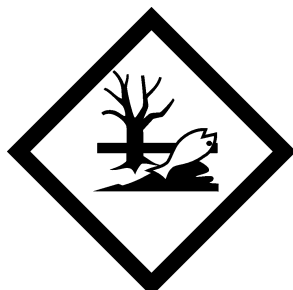
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

DOT





Marine pollutant



15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

One or more components are not listed on TSCA.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

4,4'-DDT (CAS 50-29-3)	0.1 % One-Time Export Notification only.
Endrin (CAS 72-20-8)	1.0 % One-Time Export Notification only.

CERCLA Hazardous Substance List (40 CFR 302.4)

4,4'-DDD (CAS 72-54-8)	Listed.
4,4'-DDE (CAS 72-55-9)	Listed.
4,4'-DDT (CAS 50-29-3)	Listed.
a-Endosulfan (CAS 959-98-8)	Listed.
Aldrin (TM) (CAS 309-00-2)	Listed.
b-Endosulfan (CAS 33213-65-9)	Listed.
BHC (alpha isomer) (CAS 319-84-6)	Listed.
BHC (beta isomer) (CAS 319-85-7)	Listed.
BHC (delta isomer) (CAS 319-86-8)	Listed.
Dieldrin (CAS 60-57-1)	Listed.
Endrin (CAS 72-20-8)	Listed.
Endrin aldehyde (CAS 7421-93-4)	Listed.
Heptachlor (CAS 76-44-8)	Listed.
Heptachlor epoxide (Isomer B) (CAS 1024-57-3)	Listed.
Lindane (BHC gamma isomer) (CAS 58-89-9)	Listed.

SARA 304 Emergency release notification

a-Endosulfan (CAS 959-98-8)	1 LBS
Aldrin (TM) (CAS 309-00-2)	1 LBS
b-Endosulfan (CAS 33213-65-9)	1 LBS
Endrin (CAS 72-20-8)	1 LBS
Lindane (BHC gamma isomer) (CAS 58-89-9)	1 LBS

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - Yes
	Delayed Hazard - Yes
	Fire Hazard - No
	Pressure Hazard - No
	Reactivity Hazard - Yes

SARA 302 Extremely hazardous substance

Chemical name	CAS number	Reportable quantity	Threshold planning quantity	Threshold planning quantity, lower value	Threshold planning quantity, upper value
a-Endosulfan	959-98-8	1		10 lbs	10000 lbs
Aldrin (TM)	309-00-2	1		500 lbs	10000 lbs
b-Endosulfan	33213-65-9	1		10 lbs	10000 lbs

SARA 302 Extremely hazardous substance

Chemical name	CAS number	Reportable quantity	Threshold planning quantity	Threshold planning quantity, lower value	Threshold planning quantity, upper value
Endrin	72-20-8	1		500 lbs	10000 lbs
Lindane (BHC gamma isomer)	58-89-9	1		1000 lbs	10000 lbs

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Aldrin (TM)	309-00-2	6.25
BHC (alpha isomer)	319-84-6	6.25
Heptachlor	76-44-8	6.25
Heptachlor epoxide (Isomer B)	1024-57-3	6.25
Lindane (BHC gamma isomer)	58-89-9	6.25

Other federal regulations**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

- 4,4'-DDD (CAS 72-54-8)
- 4,4'-DDE (CAS 72-55-9)
- 4,4'-DDT (CAS 50-29-3)
- Heptachlor (CAS 76-44-8)
- Heptachlor epoxide (Isomer B) (CAS 1024-57-3)
- Lindane (BHC gamma isomer) (CAS 58-89-9)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations**US. Massachusetts RTK - Substance List**

- 4,4'-DDD (CAS 72-54-8)
- 4,4'-DDE (CAS 72-55-9)
- 4,4'-DDT (CAS 50-29-3)
- a-Endosulfan (CAS 959-98-8)
- Aldrin (TM) (CAS 309-00-2)
- b-Endosulfan (CAS 33213-65-9)
- BHC (alpha isomer) (CAS 319-84-6)
- BHC (beta isomer) (CAS 319-85-7)
- BHC (delta isomer) (CAS 319-86-8)
- Dieldrin (CAS 60-57-1)
- Endrin (CAS 72-20-8)
- Endrin aldehyde (CAS 7421-93-4)
- Heptachlor (CAS 76-44-8)
- Heptachlor epoxide (Isomer B) (CAS 1024-57-3)
- Lindane (BHC gamma isomer) (CAS 58-89-9)

US. New Jersey Worker and Community Right-to-Know Act

- 4,4'-DDT (CAS 50-29-3) 500 LBS
- a-Endosulfan (CAS 959-98-8) 10 LBS
- Aldrin (TM) (CAS 309-00-2) 500 LBS
- b-Endosulfan (CAS 33213-65-9) 10 LBS
- BHC (alpha isomer) (CAS 319-84-6) 500 LBS
- Dieldrin (CAS 60-57-1) 500 LBS
- Endrin (CAS 72-20-8) 500 LBS
- Heptachlor (CAS 76-44-8) 500 LBS
- Heptachlor epoxide (Isomer B) (CAS 1024-57-3) 500 LBS
- Lindane (BHC gamma isomer) (CAS 58-89-9) 500 LBS

US. Pennsylvania RTK - Hazardous Substances

- 4,4'-DDD (CAS 72-54-8)
- 4,4'-DDE (CAS 72-55-9)
- 4,4'-DDT (CAS 50-29-3)
- a-Endosulfan (CAS 959-98-8)
- Aldrin (TM) (CAS 309-00-2)
- b-Endosulfan (CAS 33213-65-9)
- BHC (alpha isomer) (CAS 319-84-6)
- BHC (beta isomer) (CAS 319-85-7)
- BHC (delta isomer) (CAS 319-86-8)

Dieldrin (CAS 60-57-1)
 Endrin (CAS 72-20-8)
 Endrin aldehyde (CAS 7421-93-4)
 Heptachlor (CAS 76-44-8)
 Heptachlor epoxide (Isomer B) (CAS 1024-57-3)
 Lindane (BHC gamma isomer) (CAS 58-89-9)

US. Rhode Island RTK

4,4'-DDD (CAS 72-54-8)
 4,4'-DDE (CAS 72-55-9)
 4,4'-DDT (CAS 50-29-3)
 a-Endosulfan (CAS 959-98-8)
 Aldrin (TM) (CAS 309-00-2)
 b-Endosulfan (CAS 33213-65-9)
 BHC (alpha isomer) (CAS 319-84-6)
 BHC (beta isomer) (CAS 319-85-7)
 BHC (delta isomer) (CAS 319-86-8)
 Dieldrin (CAS 60-57-1)
 Endrin (CAS 72-20-8)
 Endrin aldehyde (CAS 7421-93-4)
 Heptachlor (CAS 76-44-8)
 Heptachlor epoxide (Isomer B) (CAS 1024-57-3)
 Lindane (BHC gamma isomer) (CAS 58-89-9)

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

4,4'-DDD (CAS 72-54-8)	Listed: January 1, 1989
4,4'-DDE (CAS 72-55-9)	Listed: January 1, 1989
4,4'-DDT (CAS 50-29-3)	Listed: October 1, 1987
Aldrin (TM) (CAS 309-00-2)	Listed: July 1, 1988
BHC (alpha isomer) (CAS 319-84-6)	Listed: October 1, 1989
BHC (beta isomer) (CAS 319-85-7)	Listed: October 1, 1989
BHC (delta isomer) (CAS 319-86-8)	Listed: October 1, 1987
Dieldrin (CAS 60-57-1)	Listed: July 1, 1988
Heptachlor (CAS 76-44-8)	Listed: July 1, 1988
Heptachlor epoxide (Isomer B) (CAS 1024-57-3)	Listed: July 1, 1988
Lindane (BHC gamma isomer) (CAS 58-89-9)	Listed: October 1, 1989

US - California Proposition 65 - CRT: Listed date/Developmental toxin

4,4'-DDE (CAS 72-55-9)	Listed: March 30, 2010
4,4'-DDT (CAS 50-29-3)	Listed: May 15, 1998
Endrin (CAS 72-20-8)	Listed: May 15, 1998
Heptachlor (CAS 76-44-8)	Listed: August 20, 1999
Heptachlor epoxide (Isomer B) (CAS 1024-57-3)	Listed: August 20, 1999

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

4,4'-DDT (CAS 50-29-3)	Listed: May 15, 1998
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US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

4,4'-DDE (CAS 72-55-9)	Listed: March 30, 2010
4,4'-DDT (CAS 50-29-3)	Listed: May 15, 1998

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	10-07-2014
Version #	01
NFPA ratings	Health: 2 Flammability: 3 Instability: 0

Disclaimer The above information is believed to be correct on the date it was last revised and must not be considered all inclusive. The information has been obtained only by a search of available literature and is only a guide for handling the chemicals. OSHA regulations require that if other hazards become evident, an upgraded SDS must be made available to the employee within three months. RESPONSIBILITY for updates lies with the employer and not with CHEM SERVICE, Inc.

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