



Safety Data Sheet

acc. to OSHA HCS

Printing date 09/28/2020

Reviewed on 09/28/2020

1 Identification

· **Product identifier**

· **Product name:** Custom Pesticide Mixture 3662 2000 µg/mL in Toluene:Hexane

· **Part number:** DRE-Q60003662

· **Application of the substance / the mixture** Reference material for laboratory use only

· **Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**

VHG

LGC Standards

276 Abby Road

Manchester, NH 03103

UNITED STATES OF AMERICA

Tel : +1 (603) 622-7660

Fax : +1 (603) 622-5180

Email : lgcusa@lgcgroup.com

Web : lgcstandards.com

· **Information department:**

Product safety department

eMail : sds-request@lgcgroup.com

· **Emergency telephone number:**

For Hazardous Materials or Dangerous Goods Incident

Spill, Leak, Fire Exposure, or Accident

Call CHEMTREC:

USA & Canada 1-800-424-9300

Rest of the world +1 703-741-5970

2 Hazard(s) identification

· **Classification of the substance or mixture**



GHS02 Flame

Flam. Liq. 2

H225

Highly flammable liquid and vapor.



GHS08 Health hazard

Carc. 2

H351

Suspected of causing cancer.

Repr. 2

H361-H362

Suspected of damaging fertility or the unborn child. May cause harm to breast-fed children.

STOT RE 2

H373

May cause damage to organs through prolonged or repeated exposure.

Asp. Tox. 1

H304

May be fatal if swallowed and enters airways.



GHS09 Environment

Aquatic Chronic 2 H411

Toxic to aquatic life with long lasting effects.

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GHS07

Acute Tox. 4	H302	Harmful if swallowed.
Skin Irrit. 2	H315	Causes skin irritation.
STOT SE 3	H336	May cause drowsiness or dizziness.
Aquatic Acute 2	H401	Toxic to aquatic life.

· Label elements**· GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms

GHS02

GHS07

GHS08

GHS09

· Signal word Danger**· Hazard-determining components of labeling:**

Toluene
Endrin (ISO)
n-Hexane
Heptachlor epoxide
Delta-HCH
Dieldrin (ISO)
Beta Endosulfan
Endrin Aldehyde
Beta-BHC/Beta-HCH
Lindane

· Hazard statements

H225 Highly flammable liquid and vapor.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H351 Suspected of causing cancer.
H361-H362 Suspected of damaging fertility or the unborn child. May cause harm to breast-fed children.
H336 May cause drowsiness or dizziness.
H373 May cause damage to organs through prolonged or repeated exposure.
H304 May be fatal if swallowed and enters airways.
H401 Toxic to aquatic life.
H411 Toxic to aquatic life with long lasting effects.

· Precautionary statements

P263 Avoid contact during pregnancy/while nursing.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

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P301+P310 If swallowed: Immediately call a poison center/doctor.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 1

Fire = 4

Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 1

Fire = 4

Reactivity = 0

· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Description:** Also contains substances at levels not considered to be hazardous.

· **Dangerous components:**

CAS: 108-88-3 RTECS: XS 5250000	Toluene Flam. Liq. 2, H225; Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304; Skin Irrit. 2, H315; STOT SE 3, H336	25-50%
CAS: 110-54-3 RTECS: MN 9275000	n-Hexane Flam. Liq. 2, H225; Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304; Aquatic Chronic 2, H411; Skin Irrit. 2, H315; STOT SE 3, H336	25-50%
CAS: 319-85-7 RTECS: GV 4375000	Beta-BHC/Beta-HCH Acute Tox. 3, H301; Carc. 2, H351; STOT RE 2, H373; Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Acute Tox. 4, H312; Acute Tox. 4, H332; Lact., H362	<0.25%

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CAS: 319-86-8 RTECS: GV 4550000	<i>Delta-HCH</i> Acute Tox. 3, H301; Acute Tox. 3, H311; Carc. 1B, H350; Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Acute Tox. 4, H332	<0.25%
CAS: 58-89-9 RTECS: GV4900000	<i>Lindane</i> Acute Tox. 3, H301; Acute Tox. 3, H311; STOT RE 2, H373; Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Acute Tox. 4, H332	<0.25%
CAS: 72-54-8 RTECS: KI 0700000	<i>4,4'-DDD</i> Acute Tox. 3, H301; Carc. 2, H351; Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Acute Tox. 4, H312	<0.25%
CAS: 72-55-9 RTECS: KV9450000	<i>4,4'-DDE</i> Carc. 2, H351; Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Acute Tox. 4, H302	<0.25%
CAS: 50-29-3 RTECS: KJ 3325000	<i>DDT</i> Acute Tox. 3, H301; Carc. 2, H351; STOT RE 1, H372; Aquatic Acute 1, H400; Aquatic Chronic 1, H410	<0.25%
CAS: 60-57-1 RTECS: IO 1750000	<i>Dieldrin (ISO)</i> Acute Tox. 3, H301; Acute Tox. 1, H310; Acute Tox. 1, H330; Carc. 2, H351; STOT RE 1, H372; Aquatic Acute 1, H400; Aquatic Chronic 1, H410	<0.25%
CAS: 959-98-8 RTECS: RB9275100	<i>alpha-Endosulfan</i> Acute Tox. 3, H301; Acute Tox. 3, H331; Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Acute Tox. 4, H312; Eye Irrit. 2A, H319	<0.25%
CAS: 33213-65-9 RTECS: RB 9875200	<i>Beta Endosulfan</i> Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331; Aquatic Acute 1, H400; Aquatic Chronic 1, H410	<0.25%
CAS: 72-20-8 RTECS: IO 1575000	<i>Endrin (ISO)</i> Acute Tox. 2, H300; Acute Tox. 3, H311; Aquatic Acute 1, H400; Aquatic Chronic 1, H410	<0.25%
CAS: 7421-93-4 RTECS: -	<i>Endrin Aldehyde</i> Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331; Aquatic Acute 1, H400; Aquatic Chronic 1, H410	<0.25%
CAS: 76-44-8 RTECS: PC 0700000	<i>Heptachlor (ISO)</i> Acute Tox. 3, H301; Acute Tox. 3, H311; Carc. 2, H351; STOT RE 2, H373; Aquatic Acute 1, H400; Aquatic Chronic 1, H410	<0.25%
CAS: 1024-57-3 RTECS: PB9450000	<i>Heptachlor epoxide</i> Acute Tox. 2, H300; Carc. 2, H351; STOT RE 2, H373; Aquatic Acute 1, H400; Aquatic Chronic 1, H410	<0.25%
CAS: 72-43-5 RTECS: KJ 3675000	<i>Methoxychlor (ISO)</i> STOT SE 2, H371; Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Acute Tox. 4, H302	<0.25%
CAS: 309-00-2 RTECS: IO2100000	<i>Aldrin (ISO)</i> Acute Tox. 3, H301; Acute Tox. 3, H311; Carc. 2, H351; STOT RE 1, H372; Aquatic Acute 1, H400; Aquatic Chronic 1, H410	<0.25%

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Product name: Custom Pesticide Mixture 3662 2000 µg/mL in Toluene:HexaneCAS: 319-84-6
RTECS: GV3500000

Alpha-BHC/Alpha-HCH

Acute Tox. 3, H301; Carc. 2, H351; STOT RE 2, H373; Aquatic
Acute 1, H400; Aquatic Chronic 1, H410; Acute Tox. 4, H312

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<0.25%

4 First-aid measures

- **Description of first aid measures**

- **General information:**

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.

- **After skin contact:**

Immediately wash with water and soap and rinse thoroughly.

If skin irritation continues, consult a doctor.

- **After eye contact:** Rinse opened eye for several minutes under running water.

- **After swallowing:**

Rinse mouth. Do not induce vomiting.

Immediately call a doctor.

Seek medical treatment.

- **Information for doctor:**

- **Most important symptoms and effects, both acute and delayed** No further relevant information available.

- **Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**

- **Suitable extinguishing agents:**

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

- **For safety reasons unsuitable extinguishing agents:** Water with full jet

- **Special hazards arising from the substance or mixture**

During heating or in case of fire poisonous gases are produced.

- **Advice for firefighters**

- **Protective equipment:**

Mouth respiratory protective device.

Wear self-contained respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**

Mount respiratory protective device.

Wear protective equipment. Keep unprotected persons away.

- **Environmental precautions:**

Inform respective authorities in case of seepage into water course or sewage system.

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Do not allow to enter sewers/ surface or ground water.

· **Methods and material for containment and cleaning up:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

· **Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· **Protective Action Criteria for Chemicals**

· **PAC-1:**

CAS: 108-88-3	Toluene	67 ppm
CAS: 110-54-3	n-Hexane	260 ppm
CAS: 58-89-9	Lindane	9.1 mg/m ³
CAS: 72-54-8	4,4'-DDD	2.4 mg/m ³
CAS: 72-55-9	4,4'-DDE	6.5 mg/m ³
CAS: 50-29-3	DDT	3 mg/m ³
CAS: 60-57-1	Dieldrin (ISO)	0.3 mg/m ³
CAS: 72-20-8	Endrin (ISO)	1.8 mg/m ³
CAS: 76-44-8	Heptachlor (ISO)	0.15 mg/m ³
CAS: 1024-57-3	Heptachlor epoxide	0.15 mg/m ³
CAS: 72-43-5	Methoxychlor (ISO)	30 mg/m ³
CAS: 309-00-2	Aldrin (ISO)	0.91 mg/m ³

· **PAC-2:**

CAS: 108-88-3	Toluene	560 ppm
CAS: 110-54-3	n-Hexane	2900 ppm
CAS: 58-89-9	Lindane	100 mg/m ³
CAS: 72-54-8	4,4'-DDD	26 mg/m ³
CAS: 72-55-9	4,4'-DDE	72 mg/m ³
CAS: 50-29-3	DDT	34 mg/m ³
CAS: 60-57-1	Dieldrin (ISO)	6.8 mg/m ³
CAS: 72-20-8	Endrin (ISO)	20 mg/m ³
CAS: 76-44-8	Heptachlor (ISO)	14 mg/m ³
CAS: 1024-57-3	Heptachlor epoxide	0.5 mg/m ³
CAS: 72-43-5	Methoxychlor (ISO)	150 mg/m ³
CAS: 309-00-2	Aldrin (ISO)	10 mg/m ³

· **PAC-3:**

CAS: 108-88-3	Toluene	3700 ppm
CAS: 110-54-3	n-Hexane	8600 ppm
CAS: 58-89-9	Lindane	1,000 mg/m ³

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CAS: 72-54-8	4,4'-DDD	160 mg/m ³
CAS: 72-55-9	4,4'-DDE	170 mg/m ³
CAS: 50-29-3	DDT	210 mg/m ³
CAS: 60-57-1	Dieldrin (ISO)	450 mg/m ³
CAS: 72-20-8	Endrin (ISO)	2,000 mg/m ³
CAS: 76-44-8	Heptachlor (ISO)	700 mg/m ³
CAS: 1024-57-3	Heptachlor epoxide	3 mg/m ³
CAS: 72-43-5	Methoxychlor (ISO)	4,500 mg/m ³
CAS: 309-00-2	Aldrin (ISO)	100 mg/m ³

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Store in cool, dry place in tightly closed receptacles.
Open and handle receptacle with care.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
Please refer to the manufacturers certificate for specific storage and transport temperature conditions.
Store only in the original receptacle unless other advice is given on the CoA.
Keep container in a well-ventilated place. Keep away from sources of ignition and heat.
- **Information about storage in one common storage facility:** Store away from foodstuffs.
- **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

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· Control parameters**· Components with limit values that require monitoring at the workplace:****CAS: 108-88-3 Toluene**

PEL	Long-term value: 200 ppm Ceiling limit value: 300; 500 ppm 10-min peak per 8-hr shift
REL	Short-term value: 560 mg/m ³ , 150 ppm Long-term value: 375 mg/m ³ , 100 ppm
TLV	Long-term value: 75 mg/m ³ , 20 ppm BEI

CAS: 110-54-3 n-Hexane

PEL	Long-term value: 1800 mg/m ³ , 500 ppm
REL	Long-term value: 180 mg/m ³ , 50 ppm
TLV	Long-term value: 176 mg/m ³ , 50 ppm Skin; BEI

CAS: 1024-57-3 Heptachlor epoxide

TLV	Long-term value: 0.05 mg/m ³ Skin
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· Ingredients with biological limit values:**CAS: 108-88-3 Toluene**

BEI	0.02 mg/L Medium: blood Time: prior to last shift of workweek Parameter: Toluene
	0.03 mg/L Medium: urine Time: end of shift Parameter: Toluene
	0.3 mg/g creatinine Medium: urine Time: end of shift Parameter: o-Cresol with hydrolysis (background)

CAS: 110-54-3 n-Hexane

BEI	0.4 mg/L Medium: urine Time: end of shift at end of workweek Parameter: 2,5-Hexanedione without hydrolysis
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· Additional information: The lists that were valid during the creation were used as basis.

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· Exposure controls**· Personal protective equipment:****· General protective and hygienic measures:***Keep away from foodstuffs, beverages and feed.**Immediately remove all soiled and contaminated clothing.**Wash hands before breaks and at the end of work.**Store protective clothing separately.**Avoid contact with the skin.**Avoid contact with the eyes and skin.***· Breathing equipment:***In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.**Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced***· Protection of hands:***The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.**Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation**The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374*

Protective gloves

· Material of gloves*Viton™ gloves**Nitrile rubber, NBR***· Penetration time of glove material***The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.***· Eye protection:**

Tightly sealed goggles

9 Physical and chemical properties

· Information on basic physical and chemical properties**· General Information****· Appearance:**

Form: Liquid
Color: Colorless

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· Odor:	Characteristic
· Odor threshold:	Not determined.
· pH-value:	Not determined.
· Change in condition	
Melting point/Melting range:	Not determined.
Boiling point/Boiling range:	Not determined. >35 °C (>95 °F)
· Flash point:	<23 °C (<73.4 °F)
· Flammability (solid, gaseous):	Not determined.
· Ignition temperature:	Not determined
· Decomposition temperature:	Not determined.
· Auto igniting:	Product is not selfigniting.
· Danger of explosion:	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
· Vapor pressure:	Not determined.
· Density:	Not determined.
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with	
Water:	Not miscible or difficult to mix.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity**
Stable under normal conditions.
No further relevant information available.
- **Chemical stability** Stable under normal conditions.
- **Thermal decomposition / conditions to be avoided:**
Formation of toxic gases is possible during heating or in case of fire.
- **Possibility of hazardous reactions** May form flammable/explosive vapour-air mixture.

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- **Conditions to avoid**
Sources of ignition
Heat.
- **Incompatible materials:** Strong oxidizing agents.
- **Hazardous decomposition products:** Formation of toxic gases is possible during heating or in case of fire.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

LD/LC50 values that are relevant for classification:**CAS: 108-88-3 Toluene**

Oral	(LD50)	636 mg/kg (rat)
Dermal	LD50	12,200 mg/kg (rabbit)
Inhalative	LC50/4 h	49 mg/l (rat)

CAS: 110-54-3 n-Hexane

Oral	LD50	5,000 mg/kg (rat)
Dermal	LD50	3,000 mg/kg (rat)

CAS: 319-86-8 Delta-HCH

Oral	LD50	88-270 mg/kg (rat)
Dermal	LD50	900-1,000 mg/kg (rat)
Inhalative	LC50/4 h	1.56 mg/l (rat)

CAS: 58-89-9 Lindane

Oral	LD50	163 mg/kg (rat)
Dermal	LD50	900-1,000 mg/kg (rat)
Inhalative	LC50/4 h	1.56 mg/l (rat)

CAS: 72-54-8 4,4'-DDD

Oral	LD50	113 mg/kg (rat)
Dermal	LD50	1,200 mg/kg (rabbit)

CAS: 72-55-9 4,4'-DDE

Oral	LD50	700 mg/kg (mouse)
		880 mg/kg (rat)

CAS: 50-29-3 DDT

Oral	LD50	87 mg/kg (rat)
Dermal	(LD50)	300 mg/kg (rabbit)

CAS: 60-57-1 Dieldrin (ISO)

Oral	LD50	38 mg/kg (rat)
Dermal	LD50	250 mg/kg (rat)
Inhalative	LC50/4 h	0.013 mg/l (rat)

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CAS: 959-98-8 alpha-Endosulfan		
Oral	LD50	76 mg/kg (rat)
CAS: 33213-65-9 Beta Endosulfan		
Oral	LD50	240 mg/kg (rat)
CAS: 72-20-8 Endrin (ISO)		
Oral	LD50	3 mg/kg (rat)
Dermal	LD50	12 mg/kg (rat)
		60 mg/kg (rabbit)
CAS: 76-44-8 Heptachlor (ISO)		
Oral	LD50	40 mg/kg (rat)
Dermal	LD50	500 mg/kg (rabbit)
CAS: 1024-57-3 Heptachlor epoxide		
Oral	LD50	15 mg/kg (rat)
CAS: 72-43-5 Methoxychlor (ISO)		
Oral	LD50	1,855 mg/kg (rat)
Dermal	LD50	>6,000 mg/kg (rabbit)
CAS: 309-00-2 Aldrin (ISO)		
Oral	LD50	38 mg/kg (rat)
		50 mg/kg (rabbit)
Dermal	LD50	98 mg/kg (rat)
	LD 50 (Intraperitoneal)	150 mg/kg (rat)
CAS: 319-84-6 Alpha-BHC/Alpha-HCH		
Oral	LD50	76 mg/kg (mouse)
		177 mg/kg (rat)

· Primary irritant effect:

- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Based on available data, the classification criteria are not met.
- **Sensitization:** Based on available data, the classification criteria are not met.

· Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:

Harmful

Irritant

· Carcinogenic categories**· IARC (International Agency for Research on Cancer)**

CAS: 108-88-3	Toluene	3
CAS: 319-85-7	Beta-BHC/Beta-HCH	2B
CAS: 58-89-9	Lindane	1
CAS: 50-29-3	DDT	2A

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CAS: 60-57-1	Dieldrin (ISO)	3
CAS: 72-20-8	Endrin (ISO)	3
CAS: 76-44-8	Heptachlor (ISO)	2B
CAS: 1024-57-3	Heptachlor epoxide	2B
CAS: 72-43-5	Methoxychlor (ISO)	3
CAS: 309-00-2	Aldrin (ISO)	3
CAS: 319-84-6	Alpha-BHC/Alpha-HCH	2B

· NTP (National Toxicology Program)

CAS: 319-85-7	Beta-BHC/Beta-HCH	R
CAS: 319-86-8	Delta-HCH	R
CAS: 58-89-9	Lindane	R
CAS: 50-29-3	DDT	R
CAS: 319-84-6	Alpha-BHC/Alpha-HCH	R

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

· Toxicity**· Aquatic toxicity:****CAS: 108-88-3 Toluene**

EC50/72h 12.5 mg/l (Algae)

LC50/96 h 31.7 mg/l (fish)

CAS: 110-54-3 n-Hexane

EC50/48 h 2.1 mg/l (daphnia)

LC50/96 h 2.5 mg/l (fish)

CAS: 319-85-7 Beta-BHC/Beta-HCH

LC50/96 h 1.52 mg/l (fish)

CAS: 319-86-8 Delta-HCH

LC50/48 1.6-2.6 mg/l (daphnia)

LC50/96 h 0.022-0.028 mg/l (fish)

CAS: 58-89-9 Lindane

LC50/48 0.169 mg/l (crustacean)

EC50/72h 3.91 mg/l (Algae)

LC50/96 h 0.0714 mg/l (fish)

CAS: 72-54-8 4,4'-DDD

LC50/48 0.0018 mg/l (crustacean)

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LC50/96 h	0.056 mg/l (fish)
CAS: 72-55-9 4,4'-DDE	
LC50/96 h	0.096 mg/l (fish)
CAS: 50-29-3 DDT	
LC50/48	0.0077 mg/l (crustacean)
EC50/48 h	0.0011 mg/l (crustacean)
LC50/96 h	0.008 mg/l (fish)
CAS: 60-57-1 Dieldrin (ISO)	
LC50/48	0.0505 mg/l (crustacean)
EC50/48 h	0.23 mg/l (daphnia)
LC50/96 h	0.008 mg/l (fish)
CAS: 959-98-8 alpha-Endosulfan	
EC50/72h	2.15 mg/l (Algae)
LC50/96 h	0.002 mg/l (fish)
CAS: 72-20-8 Endrin (ISO)	
LC50/48	0.0047 mg/l (crustacean)
EC50/48 h	0.02 mg/l (crustacean)
LC50/96 h	0.000505 mg/l (fish)
CAS: 76-44-8 Heptachlor (ISO)	
LC50/48	0.078 mg/l (daphnia)
EC50/48 h	0.04 mg/l (crustacean)
EC50/96h	0.0332 mg/l (Algae)
LC50/96 h	0.007 mg/l (fish)
CAS: 1024-57-3 Heptachlor epoxide	
LC50/96 h	0.0126 mg/l (fish)
CAS: 72-43-5 Methoxychlor (ISO)	
LC50/48	0.00078 mg/l (daphnia)
EC50/48 h	0.0056 mg/l (crustacean)
EC50/72h	0.6 mg/l (Algae)
LC50/96 h	0.016 mg/l (fish)
CAS: 309-00-2 Aldrin (ISO)	
EC50/48 h	0.03 mg/l (daphnia)
LC50/96 h	0.01 mg/l (fish)
CAS: 319-84-6 Alpha-BHC/Alpha-HCH	
EC50/48 h	0.9 mg/l (crustacean)
LC50/96 h	1.5 mg/l (fish)

· **Persistence and degradability** No further relevant information available.

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- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Ecotoxicological effects:**
- **Remark:** Toxic for fish
- **Additional ecological information:**
- **General notes:**
 - Water hazard class 3 (Self-assessment): extremely hazardous for water
 - Do not allow product to reach ground water, water course or sewage system, even in small quantities.
 - Danger to drinking water if even extremely small quantities leak into the ground.
 - Also poisonous for fish and plankton in water bodies.
 - Toxic for aquatic organisms
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
 - Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Dispose in accordance with national regulations.

14 Transport information

- | | |
|-------------------------------|---|
| · UN-Number | UN1993 |
| · DOT, ADR, IMDG, IATA | Flammable liquids, n.o.s. |
| · DOT | 1993 FLAMMABLE LIQUID, N.O.S. (HEXANES, TOLUENE), ENVIRONMENTALLY HAZARDOUS |
| · ADR | FLAMMABLE LIQUID, N.O.S. (HEXANES, TOLUENE), MARINE POLLUTANT |
| · IMDG | FLAMMABLE LIQUID, N.O.S. (HEXANES, TOLUENE) |
| · IATA | FLAMMABLE LIQUID, N.O.S. (HEXANES, TOLUENE) |

- **Transport hazard class(es)**

- **DOT**



- **Class**

3 Flammable liquids

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· **Label** 3

· **ADR, IMDG**



· **Class** 3 Flammable liquids

· **Label** 3

· **IATA**



· **Class** 3 Flammable liquids

· **Label** 3

· **Packing group**

· **DOT, ADR, IMDG, IATA** II

· **Environmental hazards:** Product contains environmentally hazardous substances: Delta-HCH

· **Marine pollutant:** Yes (DOT)

Symbol (fish and tree)

· **Special marking (ADR):** Symbol (fish and tree)

· **Special precautions for user** Warning: Flammable liquids

· **Danger code (Kemler):** 33

· **EMS Number:** F-E, S-E

· **Stowage Category** B

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

· **Transport/Additional information:**

· **DOT**

· **Remarks:** Special marking with the symbol (fish and tree).

· **ADR**

· **Excepted quantities (EQ)** Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

· **UN "Model Regulation":** UN 1993 FLAMMABLE LIQUID, N.O.S. (HEXANES, TOLUENE), 3, II, ENVIRONMENTALLY HAZARDOUS

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15 Regulatory information

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

· Section 355 (extremely hazardous substances):

CAS: 58-89-9	Lindane
CAS: 72-20-8	Endrin (ISO)
CAS: 309-00-2	Aldrin (ISO)

· Section 313 (Specific toxic chemical listings):

CAS: 108-88-3	Toluene
CAS: 110-54-3	n-Hexane
CAS: 58-89-9	Lindane
CAS: 76-44-8	Heptachlor (ISO)
CAS: 72-43-5	Methoxychlor (ISO)
CAS: 309-00-2	Aldrin (ISO)
CAS: 319-84-6	Alpha-BHC/Alpha-HCH

· TSCA (Toxic Substances Control Act):

CAS: 108-88-3	Toluene	ACTIVE
CAS: 110-54-3	n-Hexane	ACTIVE
CAS: 319-85-7	Beta-BHC/Beta-HCH	ACTIVE
CAS: 319-86-8	Delta-HCH	ACTIVE
CAS: 58-89-9	Lindane	ACTIVE
CAS: 50-29-3	DDT	ACTIVE
CAS: 319-84-6	Alpha-BHC/Alpha-HCH	ACTIVE

· Hazardous Air Pollutants

CAS: 108-88-3	Toluene
CAS: 110-54-3	n-Hexane
CAS: 58-89-9	Lindane
CAS: 76-44-8	Heptachlor (ISO)
CAS: 72-43-5	Methoxychlor (ISO)

· Proposition 65

· Chemicals known to cause cancer:

CAS: 319-85-7	Beta-BHC/Beta-HCH
CAS: 319-86-8	Delta-HCH
CAS: 58-89-9	Lindane
CAS: 72-54-8	4,4'-DDD
CAS: 72-55-9	4,4'-DDE
CAS: 50-29-3	DDT

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CAS: 60-57-1	Dieldrin (ISO)
CAS: 76-44-8	Heptachlor (ISO)
CAS: 1024-57-3	Heptachlor epoxide
CAS: 309-00-2	Aldrin (ISO)
CAS: 319-84-6	Alpha-BHC/Alpha-HCH

· Chemicals known to cause reproductive toxicity for females:

CAS: 50-29-3	DDT
--------------	-----

· Chemicals known to cause reproductive toxicity for males:

CAS: 110-54-3	n-Hexane
CAS: 72-55-9	4,4'-DDE
CAS: 50-29-3	DDT

· Chemicals known to cause developmental toxicity:

CAS: 108-88-3	Toluene
CAS: 72-55-9	4,4'-DDE
CAS: 50-29-3	DDT
CAS: 72-20-8	Endrin (ISO)
CAS: 76-44-8	Heptachlor (ISO)

· Carcinogenic categories**· EPA (Environmental Protection Agency)**

CAS: 108-88-3	Toluene	II
CAS: 110-54-3	n-Hexane	II
CAS: 319-85-7	Beta-BHC/Beta-HCH	C
CAS: 319-86-8	Delta-HCH	D
CAS: 72-54-8	4,4'-DDD	B2
CAS: 72-55-9	4,4'-DDE	B2
CAS: 50-29-3	DDT	B2
CAS: 60-57-1	Dieldrin (ISO)	B2
CAS: 72-20-8	Endrin (ISO)	D
CAS: 76-44-8	Heptachlor (ISO)	B2
CAS: 1024-57-3	Heptachlor epoxide	B2
CAS: 72-43-5	Methoxychlor (ISO)	D
CAS: 309-00-2	Aldrin (ISO)	B2
CAS: 319-84-6	Alpha-BHC/Alpha-HCH	B2

· TLV (Threshold Limit Value established by ACGIH)

CAS: 108-88-3	Toluene	A4
CAS: 58-89-9	Lindane	A3
CAS: 50-29-3	DDT	A3

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CAS: 60-57-1	Dieldrin (ISO)	(A4)
CAS: 72-20-8	Endrin (ISO)	A4
CAS: 76-44-8	Heptachlor (ISO)	A3
CAS: 1024-57-3	Heptachlor epoxide	A3
CAS: 72-43-5	Methoxychlor (ISO)	A4
CAS: 309-00-2	Aldrin (ISO)	A3

· NIOSH-Ca (National Institute for Occupational Safety and Health)

CAS: 50-29-3	DDT
CAS: 60-57-1	Dieldrin (ISO)
CAS: 76-44-8	Heptachlor (ISO)
CAS: 72-43-5	Methoxychlor (ISO)
CAS: 309-00-2	Aldrin (ISO)

· Hazard pictograms

GHS02 GHS07 GHS08 GHS09

· Signal word Danger**· Hazard-determining components of labeling:**

Toluene
Endrin (ISO)
n-Hexane
Heptachlor epoxide
Delta-HCH
Dieldrin (ISO)
Beta Endosulfan
Endrin Aldehyde
Beta-BHC/Beta-HCH
Lindane

· Hazard statements

H225 Highly flammable liquid and vapor.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H351 Suspected of causing cancer.
H361-H362 Suspected of damaging fertility or the unborn child. May cause harm to breast-fed children.
H336 May cause drowsiness or dizziness.
H373 May cause damage to organs through prolonged or repeated exposure.
H304 May be fatal if swallowed and enters airways.
H401 Toxic to aquatic life.
H411 Toxic to aquatic life with long lasting effects.

· Precautionary statements

P263 Avoid contact during pregnancy/while nursing.

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P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310 If swallowed: Immediately call a poison center/doctor.
P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

The information in this Safety Data Sheet meets the requirements of the United States OCCUPATIONAL SAFETY AND HEALTH ACT and regulations promulgated thereunder (29 CFR 1910.1200 et. seq.) This document is intended only as a guide to the appropriate precautionary handling of the material by a person trained in, or supervised by a person trained in, chemical handling. The user is responsible for determining the application. Depending on usage, protective clothing including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/fumes. Exposure to this product may have serious adverse health effects. This chemical may interact with other substances. Since the potential uses are so varied, we cannot warn of all of the potential dangers of use or interaction with other chemicals or materials. We warrant that the chemical meets the specifications set forth on the label. We (LGC/VHG/ARMI) disclaim any other warranties, expressed or implied with regard to the product supplied hereunder, its merchantability or its fitness for a particular purpose. The user should recognize that this product can cause severe injury and even death, especially if improperly handled or the known dangers of use are not heeded. Read all precautionary information.

· **Date of preparation / last revision** 09/28/2020 / -

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

BEI: Biological Exposure Limit

Flam. Liq. 2: Flammable liquids – Category 2

Acute Tox. 2: Acute toxicity – Category 2

Acute Tox. 3: Acute toxicity – Category 3

Acute Tox. 1: Acute toxicity – Category 1

Acute Tox. 4: Acute toxicity – Category 4

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Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

Carc. 1B: Carcinogenicity – Category 1B

Carc. 2: Carcinogenicity – Category 2

Lact.: Reproductive toxicity – effects on or via lactation

Repr. 2: Reproductive toxicity – Category 2

STOT SE 2: Specific target organ toxicity (single exposure) – Category 2

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

Asp. Tox. 1: Aspiration hazard – Category 1

Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1

Aquatic Acute 2: Hazardous to the aquatic environment - acute aquatic hazard – Category 2

Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1

Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2

• **Sources**

Tables 3.1 and 3.2 from Annex 6 of EC 1272/2008, EC 1907/2006, EH40/2005 as amended 2011, Registry of Toxic Effects of Chemical Substances (RTECS), The Dictionary of Substances and their Effects, 1st Edition, IUCLID.

- **Data compared to the previous version altered.** All sections have been updated.