

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Product form : Substance
 Trade name : Zinc O, O, O', O'-tetrabutyl bis(phosphorodithioate)
 CAS number : 6990-43-8
 Registration number : 01-2119971644-29-0002

1.2. Relevant identified uses of the substance or mixture and uses advised against**1.2.1. Relevant identified uses**

Use of the substance/mixture : For more detail information, please refer to Annex

1.2.2. Uses advised against

Restrictions on use : No information available

1.3. Details of the supplier of the safety data sheet

Company name: Qingdao YLSCH Industry&Trade Co.,Ltd.
 Address: Room 501,2-3 Unit. No.8,Zhengzhou Road,Qingdao,China.
 Tel: +86 18661665800
 Fax: +86 18661665800

1.4. Emergency telephone number

Emergency number : +86 18661665800

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Serious eye damage/eye irritation, Category 1 H318
 Hazardous to the aquatic environment — Chronic Hazard, Category 2 H411
 Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

.No information available

2.2. Label elements**Labelling according to Regulation (EC) No. 1272/2008 [CLP]**

Hazard pictograms (CLP) :



GHS05

GHS09

Signal word (CLP) : Danger

Hazard statements (CLP) : H318 - Causes serious eye damage.
 H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements (CLP) : P273 - Avoid release to the environment.
 P280 - Wear protective gloves/protective clothing/eye protection/face protection.
 P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P310 - Immediately call a POISON CENTER or doctor.
 P391 - Collect spillage.

2.3. Other hazards

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

SECTION 3: Composition/information on ingredients**3.1. UVCB Substance**

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Zinc O, O, O', O'-tetrabutyl bis(phosphorodithioate)	(CAS-No.) 6990-43-8 (EC-No.) 230-257-6	100	Eye Damage 1 (H318) Aquatic Chronic 2 (H411)



Constituents			
Zinc, bis[O,O,O',O'-tetrabutyl]phosphorodithioato-κS,κS']-, (T-4)-	-	92.65	NA
hexakis (μ-O,O,O',O'-tetrabutyl)dithiophosphato)- μ4-oxo-tetrazinhexakis (μ-O,O,O',O'-tetrabutyl)dithiophosphato)- μ4-oxo-tetrazinc	-	7.35	NA

3.2. Mixtures

Not applicable

SECTION 4: First aid measures**4.1. Description of first aid measures**

First-aid measures general	: If symptoms persist, call a physician.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Gently wash with plenty of soap and water.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.
First-aid measures after ingestion	: Rinse mouth. If swallowed, do NOT induce vomiting. Call a poison center or a doctor if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after eye contact : Serious damage to eyes.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures**5.1. Extinguishing media**

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide (CO₂).

Unsuitable extinguishing media : No information available.

5.2. Special hazards arising from the substance or mixture

Fire hazard : In the event of fire, may decompose : Carbon oxides (CO, CO₂). Sulphur oxides. PHOSPHINE.

Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Advice for firefighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures****6.1.1. For non-emergency personnel**

Emergency procedures : Ventilate spillage area. Avoid contact with skin and eyes.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment. Do not discharge into drains or rivers. Avoid sub-soil penetration.

6.3. Methods and material for containment and cleaning up

For containment : Collect spillage.

Methods for cleaning up : Soak up with inert absorbent material (for example sand, sawdust, a universal binder, silica gel).

Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage**7.1. Precautions for safe handling**

Precautions for safe handling : Ensure good ventilation of the work station. Avoid contact with skin and eyes. Wear personal protective equipment. Avoid formation of vapours.

Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

**7.2. Conditions for safe storage, including any incompatibilities**

Storage conditions : Store in a well-ventilated place. Keep cool. Keep away from food and drink.

7.3. Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection**8.1. Control parameters****Zinc O, O, O', O'-tetrabutyl bis(phosphorodithioate)****DNEL/DMEL (Workers)**

Long-term - systemic effects, dermal 1.02 mg/kg bw/day

Long-term - local effects, dermal 1.79 mg/m³**DNEL/DMEL (General population)**

Long-term - systemic effects,oral 0.25 mg/kg bw/day

Long-term - systemic effects, inhalation 0.44 mg/m³

Long-term - systemic effects, dermal 0.51 mg/kg bw/day

PNEC (Water)

PNEC aqua (freshwater) 0.005 mg/l

PNEC aqua (marine water) 0.00052 mg/l

PNEC aqua (intermittent, freshwater) 0.073 mg/l

PNEC (Sediment)

PNEC sediment (freshwater) 0.127 mg/kg dwt

PNEC sediment (marine water) 0.013 mg/kg dwt

PNEC (Soil)

PNEC soil 0.023 mg/kg dwt

PNEC (STP)

PNEC sewage treatment plant 100 mg/l

8.2. Exposure controls**Appropriate engineering controls:**

Ensure good ventilation of the work station.

Hand protection:Protective gloves, e.g. rubber gloves
Avoid skin contact with the wetted surfaces of the protective gloves.
In the event of contamination, change protective gloves immediately.**Eye protection:**

Safety glasses

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

No personal respiratory protective equipment normally required.

Environmental exposure controls:General advice : Do not flush into surface water or sanitary sewer system.
Avoid subsoil penetration.**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties**

Physical state : Liquid at 20°C and 101.3 kPa

Appearance : Cloudy yellow liquid

Colour : Cloudy yellow



Odour	: No data available.
Odour threshold	: No data available
pH	: No data available
pH solution	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Relative evaporation rate (ether=1)	: No data available
Melting point	: -20 °C at 101.3 kPa
Freezing point	: No data available
Boiling point	: The substance decomposes at 240 °C before boiling.
Flash point	: 162 °C at 1013 hPa
Critical temperature	: No data available
Auto-ignition temperature	: 245 °C at ca. 998 hPa
Decomposition temperature	: 240 °C
Flammability (solid, gas)	: Non flammable
Vapour pressure	: 0.0000117 Pa at 25 °C
Vapour pressure at 50 °C	: No data available
Critical pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Relative density of saturated gas/air mixture	: No data available
Density	: 1.1838 g/cm ³ at 40 °C.
Relative gas density	: No data available
Solubility	: Water: 1700 mg/L at 20 °C Organic solvents : 8090.2 g/L at 20 °C
Log Pow	: 2.5 at 20 °C
Log Kow	: No data available
Viscosity, kinematic	: 89.99 mm ² /s
Viscosity, dynamic	: No data available
Explosive properties	: Product is not explosive.
Oxidising properties	: Non oxidizing.
Explosive limits	: No data available
Lower explosive limit (LEL)	: No data available
Upper explosive limit (UEL)	: No data available
Granulometry	: Not applicable
Surface tension	: Not surface active

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Spontaneous decomposition may start at 150 °C. After prolonged heating, slow decomposition may start at above 80 °C.

10.4. Conditions to avoid

Direct sources of heat.

10.5. Incompatible materials

Acids. Bases.

10.6. Hazardous decomposition products

Formation of alkylmercaptans, dialkylsulphides, traces of hydrogen sulphide possible.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified



Overview of acute toxicity		
	Target substance (a)	Source substance (b)
CAS No.	6990-43-8	84605-29-8
Chemical name	zinc O, O, O', O'-tetrabutyl bis(phosphorodithioate)	Phosphorodithioic acid, mixed O, O-bis(1,3-dimethylbutyl and iso-Pr) esters, zinc salts
Acute toxicity: oral	Experimental result: LD50 (rat, m/f) > 2000 mg/kg bw	--
Acute toxicity: inhalation	RA: CAS 84605-29-8	Experimental result: LC50 (rat, m/f) > 2.3 mg/L air
Acute toxicity: dermal	WoE: Experimental result: Minimum lethal dose(rabbit, m/f) = 5010 mg/kg bw RA: CAS 84605-29-8	Experimental result: LD50 (rat/rabbit, m/f) > 2000 mg/kg bw

Skin corrosion/irritation	: Not classified pH: No data available No adverse effect observed (not irritating)
Serious eye damage/irritation	: Causes serious eye damage. pH: No data available Adverse effect observed (corrosive)
Respiratory or skin sensitisation	: Not classified Skin sensitisation : No adverse effect observed (not sensitising) Respiratory sensitisation : No study available
Germ cell mutagenicity	: Not classified No adverse effect observed (negative)
Carcinogenicity	: Not classified No relevant information available
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified

Zinc O, O, O', O'-tetrabutyl bis(phosphorodithioate)	
Viscosity, kinematic	89.99 mm ² /s

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: Toxic to aquatic life with long lasting effects.
Acute aquatic toxicity	: Not classified
Chronic aquatic toxicity	: Toxic to aquatic life with long lasting effects.

**Zinc O, O, O', O'-tetrabutyl bis(phosphorodithioate)**

LC50 for freshwater fish	49 mg/L
EC50/LC50 for freshwater invertebrates	7.3 mg/L
EC10/LC10 or NOEC for freshwater invertebrates	0.26 mg/L
EC50/LC50 for freshwater algae	24 mg/L
EC10/LC10 or NOEC for freshwater algae	10 mg/L
EC50/LC50 for aquatic micro-organisms	10000 mg/L

12.2. Persistence and degradability**Zinc O, O, O', O'-tetrabutyl bis(phosphorodithioate)**

Persistence and degradability	Product is not readily biodegradable
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12.3. Bioaccumulative potential**Zinc O, O, O', O'-tetrabutyl bis(phosphorodithioate)**

Log Pow	2.5 at 20 °C
Log Kow	No data available
Bioaccumulative potential	Low potential for bioaccumulation (log Kow < 3)

12.4. Mobility in soil**Zinc O, O, O', O'-tetrabutyl bis(phosphorodithioate)**

Ecology - soil	No information available.
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12.5. Results of PBT and vPvB assessment**Zinc O, O, O', O'-tetrabutyl bis(phosphorodithioate)**

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

12.6. Other adverse effects

Other adverse effects : No information available.

SECTION 13: Disposal considerations**13.1. Waste treatment methods**

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

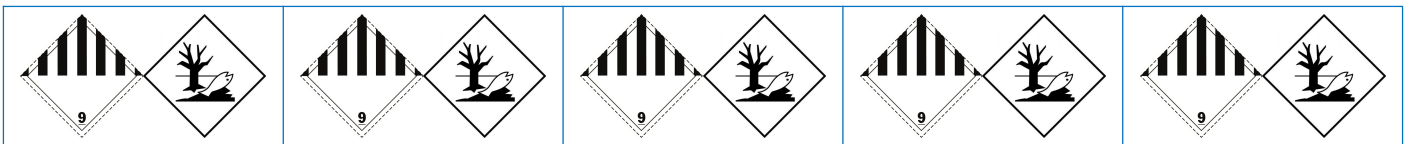
SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
3082	3082	3082	3082	3082
14.2. UN proper shipping name				
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	Environmentally hazardous substance, liquid, n.o.s.	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Transport document description				
UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., 9, III, (-)	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., 9, III, MARINE POLLUTANT	UN 3082 Environmentally hazardous substance, liquid, n.o.s., 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., 9, III
14.3. Transport hazard class(es)				
9	9	9	9	9



YLSCH RBB



14.4. Packing group

III	III	III	III	III
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14.5. Environmental hazards

Dangerous for the environment : Yes	Dangerous for the environment : Yes Marine pollutant : Yes	Dangerous for the environment : Yes	Dangerous for the environment : Yes	Dangerous for the environment : Yes
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14.6. Special precautions for user

Overland transport

- Classification code (ADR) : M6
- Special provisions (ADR) : 274, 335, 375, 601
- Limited quantities (ADR) : 5I
- Excepted quantities (ADR) : E1
- Packing instructions (ADR) : P001, IBC03, LP01, R001
- Special packing provisions (ADR) : PP1
- Mixed packing provisions (ADR) : MP19
- Portable tank and bulk container instructions (ADR) : T4
- Portable tank and bulk container special provisions (ADR) : TP1, TP29
- Tank code (ADR) : LGBV
- Vehicle for tank carriage : AT
- Transport category (ADR) : 3
- Special provisions for carriage - Packages (ADR) : V12
- Special provisions for carriage - Loading, unloading and handling (ADR) : CV13
- Hazard identification number (Kemler No.) : 90
- Orange plates :

- Tunnel restriction code (ADR) : -
- EAC code : •3Z

Transport by sea

- Special provisions (IMDG) : 274, 335, 969
- Packing instructions (IMDG) : P001, LP01
- Special packing provisions (IMDG) : PP1
- IBC packing instructions (IMDG) : IBC03
- Tank instructions (IMDG) : T4
- Tank special provisions (IMDG) : TP2, TP29
- EmS-No. (Fire) : F-A
- EmS-No. (Spillage) : S-F
- Stowage category (IMDG) : A

Air transport

- PCA Excepted quantities (IATA) : E1
- PCA Limited quantities (IATA) : Y964
- PCA limited quantity max net quantity (IATA) : 30kgG
- PCA packing instructions (IATA) : 964
- PCA max net quantity (IATA) : 450L
- CAO packing instructions (IATA) : 964
- CAO max net quantity (IATA) : 450L
- Special provisions (IATA) : A97, A158, A197



ERG code (IATA)	: 9L
Inland waterway transport	
Classification code (ADN)	: M6
Special provisions (ADN)	: 274, 335, 375, 601
Limited quantities (ADN)	: 5 L
Excepted quantities (ADN)	: E1
Carriage permitted (ADN)	: T
Equipment required (ADN)	: PP
Number of blue cones/lights (ADN)	: 0

Rail transport

Classification code (RID)	: M6
Special provisions (RID)	: 274, 335, 375, 601
Limited quantities (RID)	: 5L
Excepted quantities (RID)	: E1
Packing instructions (RID)	: P001, IBC03, LP01, R001
Special packing provisions (RID)	: PP1
Mixed packing provisions (RID)	: MP19
Portable tank and bulk container instructions (RID)	: T4
Portable tank and bulk container special provisions (RID)	: TP1, TP29
Tank codes for RID tanks (RID)	: LGBV
Transport category (RID)	: 3
Special provisions for carriage – Packages (RID)	: W12
Special provisions for carriage - Loading, unloading and handling (RID)	: CW13, CW31
Colis express (express parcels) (RID)	: CE8
Hazard identification number (RID)	: 90

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****15.1.1. EU-Regulations**

No REACH Annex XVII restrictions

Zinc O, O, O', O'-tetrabutyl bis(phosphorodithioate) is not on the REACH Candidate List

Zinc O, O, O', O'-tetrabutyl bis(phosphorodithioate) is not on the REACH Annex XIV List

Directive 2012/18/EU (SEVESO III)

15.1.2. National regulations**Germany**

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed

SZW-lijst van mutagene stoffen : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

Denmark

Danish National Regulations : Young people below the age of 18 years are not allowed to use the product

15.2. Chemical safety assessment

A chemical safety assessment has been carried out



SECTION 16: Other information

Data sources : ECHA reference.
Training advice : Normal use of this product shall imply use in accordance with the instructions on the packaging.

Full text of H- and EUH-statements:

H318	Causes serious eye damage.
H411	Toxic to aquatic life with long lasting effects.

SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

