ACR20551

Diethylzinc, 0.9M solution in hexane

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

产品说明: 二乙基锌，0.9M己烷溶液
Product Description: **Diethylzinc, 0.9M solution in hexane**

Cat No. : **205510000; 205511001; 205518000**
Synonyms Zinc ethide in hexane.
Molecular Formula C4 H10 Zn

Supplier

UK entity/business name
Fisher Scientific UK
Bishop Meadow Road,
Loughborough, Leicestershire LE11 5RG, United Kingdom

EU entity/business name
Thermo Fisher Scientific
Janssen Pharmaceuticalaan 3a, 2440 Geel, Belgium

Emergency Telephone Number
For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No. **US:**001-800-424-9300 / **Europe:**001-703-527-3887

E-mail address begel.sdsdesk@thermofisher.com

Recommended Use Laboratory chemicals.
Uses advised against No Information available

SECTION 2. HAZARD IDENTIFICATION

Physical State	**Appearance**	**Odor**
Liquid	Light brown	Garlic-like

Emergency Overview

Highly flammable liquid and vapor. Catches fire spontaneously if exposed to air. In contact with water releases flammable gases which may ignite spontaneously. Causes severe skin burns and eye damage. Toxic to aquatic life with long lasting effects. May be fatal if swallowed and enters airways. May be harmful in contact with skin. May cause drowsiness and dizziness. Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure. Reacts violently with water. Air sensitive.

Classification of the substance or mixture

Flammable liquids.	Category 2
Substances/mixtures which, in contact with water, emit flammable gases	Category 1
Pyrophoric liquids	Category 1
Aspiration Toxicity	Category 1
Acute Dermal Toxicity	Category 5
Skin Corrosion/Irritation	Category 1 B
Serious Eye Damage/Eye Irritation	Category 1
Reproductive Toxicity	Category 2
Specific target organ toxicity - (single exposure)	Category 3
Specific target organ toxicity - (repeated exposure)	Category 2
Chronic aquatic toxicity	Category 2

Label Elements

Signal Word **Danger**

Hazard Statements
H225 - Highly flammable liquid and vapor
H260 - In contact with water releases flammable gases which may ignite spontaneously
H250 - Catches fire spontaneously if exposed to air
H314 - Causes severe skin burns and eye damage
H411 - Toxic to aquatic life with long lasting effects
H304 - May be fatal if swallowed and enters airways
H313 - May be harmful in contact with skin
H336 - May cause drowsiness or dizziness
H373 - May cause damage to organs through prolonged or repeated exposure
H361 - Suspected of damaging fertility or the unborn child

Precautionary Statements
Prevention
P202 - Do not handle until all safety precautions have been read and understood
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P222 - Do not allow contact with air
P201 - Obtain special instructions before use
P231 + P232 - Handle and store contents under inert gas. Protect from moisture
P240 - Ground and bond container and receiving equipment
P241 - Use explosion-proof electrical/ ventilating/ lighting equipment
P242 - Use non-sparking tools
P243 - Take action to prevent static discharges
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective gloves
Response
P302 + P334 - IF ON SKIN: Immerse in cool water or wrap in wet bandages
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
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
P330 - Rinse mouth
P331 - Do NOT induce vomiting
P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish
P362 + P364 - Take off contaminated clothing and wash it before reuse
Storage
P402 + P404 - Store in a dry place. Store in a closed container
P422 - Store contents under inert gas
Disposal
P501 - Dispose of contents/ container to an approved waste disposal plant

Physical and Chemical Hazards
Highly flammable. Vapors may cause flash fire or explosion. Catches fire spontaneously if exposed to air. Reacts violently with water, liberating extremely flammable gases. Reacts violently with water.
Health Hazards
Corrosive. Causes skin and eye burns. Causes serious eye damage. Aspiration hazard if swallowed - can enter lungs and cause damage. May be harmful in contact with skin. May cause drowsiness or dizziness. Suspected of damaging fertility or the unborn

child. May cause damage to organs through prolonged or repeated exposure.

Environmental hazards

Toxic to aquatic life with long lasting effects. Reacts violently with water.

This product does not contain any known or suspected endocrine disruptors.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight %
Diethylzinc	557-20-0	15
Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich	64742-49-0	85

SECTION 4. FIRST AID MEASURES

General Advice

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Call a physician immediately.

Inhalation

If not breathing, give artificial respiration. Remove from exposure, lie down. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician immediately. Risk of serious damage to the lungs (by aspiration).

Ingestion

Do NOT induce vomiting. Clean mouth with water. Never give anything by mouth to an unconscious person. Call a physician immediately. Call a physician or poison control center immediately. If vomiting occurs naturally, have victim lean forward.

Most important symptoms and effects

Causes burns by all exposure routes. Difficulty in breathing. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Self-Protection of the First Aider

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

Notes to Physician

Treat symptomatically. Symptoms may be delayed.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Carbon dioxide (CO_2). Dry chemical. Dry sand. Water mist may be used to cool closed containers.

Extinguishing media which must not be used for safety reasons

Water. Carbon dioxide (CO_2).

Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Reacts violently with water. Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions
Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions
Do not flush into surface water or sanitary sewer system. Should not be released into the environment. Do not allow material to contaminate ground water system.

Methods for Containment and Clean Up
Keep in suitable, closed containers for disposal. Soak up with inert absorbent material. Do not expose spill to water. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

Refer to protective measures listed in Sections 8 and 13.

SECTION 7. HANDLING AND STORAGE

Handling
Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. Do not allow contact with water. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

Storage
Keep away from heat, sparks and flame. Flammables area. Keep under nitrogen. Corrosives area. Keep away from water or moist air. Keep containers tightly closed in a dry, cool and well-ventilated place.

Specific Use(s)
Use in laboratories

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

OSHA - Occupational Safety and Health Administration
Monitoring methods
BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. MDHS70 General methods for sampling airborne gases and vapours MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas chromatography MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography MDHS 91 Metals and metalloids in workplace air by X-ray fluorescence spectrometry MDHS 99 Metals in air by ICP-AES

Exposure Controls

Engineering Measures
Use explosion-proof electrical/ventilating/lighting equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

Personal protective equipment

Eye Protection Goggles (European standard - EN 166)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Nitrile rubber Viton (R)	See manufacturers recommendations	-	EN 374	(minimum requirement)

Inspect gloves before use.
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)
Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.
Remove gloves with care avoiding skin contamination.

Skin and body protection Long sleeved clothing

Respiratory Protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Large scale/emergency use Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced
Recommended Filter type: Organic gases and vapours filter Type A Brown conforming to EN14387

Small scale/Laboratory use Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141
When RPE is used a face piece Fit Test should be conducted

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls Prevent product from entering drains. Do not allow material to contaminate ground water system.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Light brown	
Physical State	Liquid	
Odor	Garlic-like	
Odor Threshold	No data available	
pH	No information available	
Melting Point/Range	-39 - -28 °C / -38.2 - -18.4 °F	
Softening Point	No data available	
Boiling Point/Range	118 °C / 244.4 °F	
Flash Point	-40 °C / -40 °F	**Method -** No information available
Evaporation Rate	No data available	
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	No data available	
Vapor Pressure	20 hPa @ 20 °C	
Vapor Density	No data available	(Air = 1.0)
Specific Gravity / Density	0.726	
Bulk Density	Not applicable	Liquid
Water Solubility	Reacts with water	

Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
Viscosity	0.7 mPa.s at 20 °C	
Explosive Properties		Vapors may form explosive mixtures with air
Oxidizing Properties	No information available	

Molecular Formula	C4 H10 Zn
Molecular Weight	123.5

SECTION 10. STABILITY AND REACTIVITY

Stability Reacts violently with water, liberating extremely flammable gases. Air sensitive. Pyrophoric: Spontaneously flammable in air.

Hazardous Reactions Reacts violently with water.

Hazardous Polymerization No information available.

Conditions to Avoid Keep away from open flames, hot surfaces and sources of ignition. Exposure to air. Incompatible products. Exposure to moist air or water. Exposure to moisture.

Materials to avoid Acids. Bases. Water. Strong oxidizing agents. Alcohols. oxygen.

Hazardous Decomposition Products Carbon monoxide (CO). Carbon dioxide (CO_2). Zinc. Heavy metal oxides. Ethane.

SECTION 11. TOXICOLOGICAL INFORMATION

Product Information No acute toxicity information is available for this product

(a) acute toxicity;
Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich	LD50 > 5000 mg/kg (Rat)	LD50 > 3160 mg/kg (Rabbit)	LC50 = 73680 ppm (Rat) 4 h

(b) skin corrosion/irritation; Category 1 B

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

Respiratory	No data available
Skin	No data available

(e) germ cell mutagenicity; No data available

May cause heritable genetic damage

(f) carcinogenicity; No data available

The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	EU	UK	Germany	IARC
Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich	Carc Cat. 1B			

(g) reproductive toxicity; Category 2

(h) STOT-single exposure; Category 3

Results / Target organs Central nervous system (CNS)

(i) STOT-repeated exposure; Category 2

Target Organs Central nervous system (CNS), Peripheral Nervous System (PNS).

(j) aspiration hazard; Category 1

Other Adverse Effects The toxicological properties have not been fully investigated. Teratogenic effects have occurred in experimental animals.

Symptoms / effects,both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity effects Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich	LC50: = 8.41 mg/L, 96h semi-static, closed (Oncorhynchus mykiss)			

Persistence and Degradability Product contains heavy metals. Discharge into the environment must be avoided. Special pre-treatment is necessary

Persistence May persist.

Degradation in sewage treatment plant Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

Bioaccumulative Potential Product has a high potential to bioconcentrate

Mobility in soil No information available

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors

Persistent Organic Pollutant This product does not contain any known or suspected substance

Ozone Depletion Potential This product does not contain any known or suspected substance

SECTION 13. DISPOSAL CONSIDERATIONS

Waste from Residues/Unused Products Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and

empty container away from heat and sources of ignition.

Other Information

Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Can be landfilled or incinerated, when in compliance with local regulations. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms. Do not let this chemical enter the environment.

SECTION 14. TRANSPORT INFORMATION

Road and Rail Transport

UN-No	UN3394
Proper Shipping Name	ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER-REACTIVE
Technical Shipping Name	(DIETHYLZINC, HEXANE)
Hazard Class	4.2
Subsidiary Hazard Class	4.3
Packing Group	I

IMDG/IMO

UN-No	UN3394
Proper Shipping Name	ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER-REACTIVE
Technical Shipping Name	(DIETHYLZINC, HEXANE)
Hazard Class	4.2
Subsidiary Hazard Class	4.3
Packing Group	I

IATA FORBIDDEN FOR IATA TRANSPORT

UN-No	UN3394
Proper Shipping Name	ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER-REACTIVE FORBIDDEN FOR IATA TRANSPORT
Technical Shipping Name	(DIETHYLZINC, HEXANE)
Hazard Class	4.2
Subsidiary Hazard Class	4.3
Packing Group	I

Special Precautions for User No special precautions required

SECTION 15. REGULATORY INFORMATION

International Inventories

X = listed, China (IECSC), Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), Korea (KECL).

Component	The Inventory of Hazardous Chemicals (2015 Edition)	List of dangerous goods GB 12268 - 2012	TCSI	IECSC	EINECS	TSCA	DSL	PICCS	ENCS	ISHL	AICS	KECL
Diethylzinc	X	-	X	X	209-161-3	X	-	X	X	X	X	KE-10531
Hydrocarbons, C6, n-alkanes, isoalkanes, cyclics, n-hexane rich	-	X	X	X	265-151-9	X	X	X	-		X	KE-25623

National Regulations

SECTION 16. OTHER INFORMATION

Creation Date	26-Sep-2009
Revision Date	07-Apr-2024
Revision Summary	Not applicable.

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.
Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.
First aid for chemical exposure, including the use of eye wash and safety showers.
Fire prevention and fighting, identifying hazards and risks, static electricity, explosive atmospheres posed by vapours and dusts.
Chemical incident response training.

Legend

CAS - Chemical Abstracts Service
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
ENCS - Japanese Existing and New Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit
ACGIH - American Conference of Governmental Industrial Hygienists
DNEL - Derived No Effect Level
RPE - Respiratory Protective Equipment
LC50 - Lethal Concentration 50%
NOEC - No Observed Effect Concentration
PBT - Persistent, Bioaccumulative, Toxic
TWA - Time Weighted Average
IARC - International Agency for Research on Cancer
PNEC - Predicted No Effect Concentration
LD50 - Lethal Dose 50%
EC50 - Effective Concentration 50%
POW - Partition coefficient Octanol:Water
vPvB - very Persistent, very Bioaccumulative

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association
ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road
OECD - Organisation for Economic Co-operation and Development
BCF - Bioconcentration factor
IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code
MARPOL - International Convention for the Prevention of Pollution from Ships
ATE - Acute Toxicity Estimate
VOC - (Volatile Organic Compound)

Key literature references and sources for data

https://echa.europa.eu/information-on-chemicals
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Physical hazards	On basis of test data
Health Hazards	Calculation method
Environmental hazards	Calculation method

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet