

【1. Chemical product and company identification】

Chemical substance name:	Zinc stearate (Fatty acids, C16-18, zinc salts)		
Product name:			
Daiwax Z	Daiwax ZF-2	Daiwax ZSL	Daiwax ZP
Daiwax ZS	Daiwax ZPso	Daiwax Z-30	Daiwax ZT
Daiwax ZF	Daiwax Z-40P	Daiwax ZX	Daiwax Z-3B
Company name:	Dainichi Chemical Industry Co., Ltd.		
Address:	7-3-4, Nakaishikiri-cho, Higashiosaka-shi, Osaka-fu, 579-8014, Japan		
Associated department:	Technical department		
Telephone number:	+81-72-985-1851		
Emergency contact number:	+81-72-985-1851		
FAX number:	+81-72-987-0170		
Recommended use:	Additives for resin Lubricants for powder metallurgy		

【2. Hazards identification】

1. GHS classification

a. Physical hazards

Flammable solids:	Classification not possible
Pyrophoric solids:	Not applicable
Self-heating substances and mixtures:	Classification not possible
Substances and mixture which, in contact with water, emit flammable gases:	Not applicable
Corrosive to metals:	Classification not possible

b. Health hazards

Acute toxicity (oral):	Not applicable
Acute toxicity (dermal):	Not applicable
Acute toxicity (gases):	Not classified
Acute toxicity (vapors):	Not classified
Acute toxicity (dusts and mists):	Not applicable
Skin corrosion/irritation:	Not applicable
Serious eye damage / eye irritation:	Not applicable
Respiratory sensitization:	Classification not possible
Skin sensitization:	Classification not possible
Germ cell mutagenicity:	Classification not possible
Carcinogenicity:	Classification not possible
Reproductive toxicity:	Classification not possible
STOT-single exposure:	Classification not possible
STOT-repeated exposure:	Classification not possible
Aspiration hazard:	Classification not possible

c. Environmental hazards

Acute aquatic hazard:	Classification not possible
Chronic aquatic hazard:	Classification not possible
Hazardous to the ozone layer:	Not applicable

2. Label elements

Signal words:	Not available
Hazard pictogram:	Not available
Hazard statement	Not available
Precautionary statement	Not available

【3. Composition/Information on ingredients 】

Substance/Mixture:	Substance
Chemical substance name:	Zinc stearate (Fatty acids, C16-18, zinc salts)
CAS number:	557-05-1 (91051-01-3)
ENCS number:	(2)-615
EINECS number:	209-151-9 (293-049-4)

【4. First-aid measures 】

IN EACH CASES OF FOLLOWING EMERGENCIES, VICTIMS SHOULD BE TREATED BY PARTICULAR FIRST-AID MEASURES AS FOLLOWS

In eyes:	Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical advice.
On skin:	Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical advice, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.
Inhalation:	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical advice.
Ingestion:	If large amount is swallowed, get medical advice.

【5. Fire-fighting measures 】

Suitable Extinguishing media:	Water spray, foam-extinguisher, powder-extinguisher and dry chemical
Inappropriate extinguishing media:	Straight stream water
Flammable properties:	Hazardous fume containing COX and NOX might be formed during combustion.
Special protective actions for fire-fighters:	Fire-fighters should wear an appropriate respiratory apparatus and protective clothes for chemical.

【6. Accidental release measures 】

Personal precautions:	Use proper protective equipment as indicated in Section 8. Avoid direct contact with the spilled or leaked material. Avoid inhaling this product in the air (Powder dust). Evacuate the area if large amount of product is leaked. Ventilate the area if necessary.
Methods and materials for containment and cleaning up:	Rake spills with a broom and collect it in appropriate container. Store the container in a cool and dry place until it disposes. Ventilate the area where this product was released.
Environmental precautions:	Avoid flowing out to the rivers, household drains and other environment.

【7. Handling and storage 】

Handling:	Refer to Section 8. Wash hands carefully after handling this product. Prohibit open flames while handling this product. Use dust explosion-proof electrical equipment and light fixtures. Avoid diffusion of this product to the air. Do not eat, drink or smoke while handling this product.
Storage:	Store this product in well-ventilated, dry and cool place. Please make sure that the storage is not close to open flames, sparks and heat. Please make sure that the container of this product is tightly closed when store this product. Please use antistatic containers.

【8. Exposure controls/Personal protection 】

Component Exposure Limit	
NIOSH:	8 mg/m ³ TWA total dust.
Engineering controls:	Eye washer and safety shower should be placed in storages where this product is stored and in buildings where this product is handled.
Ventilation:	Provide local exhaust ventilation system. Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Ensure compliance with applicable exposure limits.
Personal protective equipment	
Hands:	Wear appropriate protective gloves.
Eyes:	Wear appropriate safety glasses.
Skin and Body:	Wear appropriate protective clothes.
Respiratory:	Wear air-purifying respirator with a tight-fitting facepiece and a high-efficiency particular filter.

【9. Physical and chemical properties】

Appearance:	White solid (powder)
Odor:	Slightly distinct odor
Odor threshold:	No data available
pH:	No data available
Melting point and freezing point:	120- 128°C
Initial boiling point and boiling range:	Not applicable
Flash point (Open cup):	>300°C (>554°F)
Evaporation rate (Butyl acetate =1):	Not applicable
Flammability (solids, gas):	Not applicable
Lower explosive limits:	30% (In the air) or 45-50 mg/L
Upper explosive limits:	No data available
Vapor pressure:	Not applicable
Vapor density (Air =1):	Not applicable
Specific gravity or density:	1.1 g/cm ³
Solubility:	Poorly soluble in water
Partition coefficient: n-octanol/water:	log Pow = 1.2
Auto-ignition temperature:	420°C (788°F)
Decomposition temperature:	No data available
Viscosity:	No data available

【10. Stability and reactivity】

Reactivity:	Not in particular.
Chemical stability:	Stable in general condition.
Conditions to avoid:	Slightly flammable, avoid high temperature. High concentration dispersion in air might result in powder explosion.
Incompatible materials:	Bases, Oxidizing materials
Hazardous decomposition product:	This product will form hazardous fume of magnesium oxide and carbon oxide on heating or burning.
Possibility of hazardous reactions:	No data available

【11. Toxicological information】

Acute toxicity (Oral):	Based on EC (2008), Oral Rat LD50 is larger than 5000mg/kg, therefore classified as "Not classified".
Acute toxicity (Dermal):	No data available
Acute toxicity (Gases):	Not applicable
Acute toxicity (Vapors):	Not applicable
Acute toxicity (Dusts and mists):	Based on EC (2008), Dermal Rat LC50 is larger than 200mg/kg, therefore classified as "No classified".
Skin corrosion/irritation:	Based on NITE (2006), classified as "Not classified".
Serious eye damage / Eye irritation:	Based on NITE (2006), classified as "Not classified".
Respiratory sensitization:	No data available
Skin sensitization:	Based on EC (2008), EU-Risk Assessment Report concluded that "zinc distearate is no like to be skin sensitising", therefore classified as "Not classified".

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Germ cell mutagenicity:	Based on EC (2008), zinc distearate does not have genetic toxicity <i>in vivo</i> and <i>in vitro</i> , therefore classified as "Not
Carcinogenicity:	No data available
Reproductive toxicity:	No data available
STOT-single exposure:	Based on NITE (2006), classified as "Not classified".
STOT-repeated exposure:	No data available
Aspiration hazard:	No data available
Component analysis - LD50/LC50:	Dermal LD50 Rabbit > 2000mg/kg Oral LD50 Rat > 5000mg/kg
RTECE acute toxicity:	Oral LD50 Rat > 10g/kg
Inhalation (Dust)	
Acute exposure:	May cause irritation, coughing and difficulty breathing. Inhalation of fine dust has produced pneumonia and death in infants. Other effects reported in insufflated dogs included loss of appetite, fever with pneumonitis, peribronchitis and reduction in alveolar size.
Chronic exposure:	A single case of chronic pneumoconiosis and subsequent fatal lung disease has been reported in a worker exposed for 29 years to zinc stearate. Symptoms included gradually increasing dyspnea and productive cough. Additional effects reported from prolonged inhalation of large amounts include cyanosis, progressive chemical pneumonitis, emphysema, pulmonary edema, and pulmonary

【12. Ecological information】

Ecotoxicity

Aquatic ecotoxicity:

Based on EC (2008), EU-Risk Assessment Report concluded that "the acute aquatic toxicity of zinc distearate is order of magnitude above the water solubility limit of this compound". However, this conclusion is not enough evidence to classify the aquatic toxicity of zinc distearate, therefore classification is not possible.

Terrestrial ecotoxicity:

No data available

Persistence and degradability:

No data available

Bioaccumulative potential:

No data available

Mobility in soil:

No data available

Hazardous to the ozone layer:

No data available

【13. Disposal considerations】

Do NOT dump this product in the environment or in the household waste. Before disposal or incineration, contents of this product should be neutralized or stabilized if it's possible.

Obey local/regional/national/international regulations about the disposal or the incineration of this product (both contents and containers).

【14. Transport information】

UN number:	Not Applicable on UN classification
US DOT:	No classification assigned
TDG:	No classification assigned
ADR:	No classification assigned
RID:	No classification assigned
IATA:	No classification assigned
ICAO:	No classification assigned
IMDG:	No classification assigned
Marine pollutant:	Not applicable
Particular safety measures for transportation:	Avoid damage to the container while loading this product. Do not put heavy objects on top of this product. Load carefully to prevent the collapse of cargo. Avoid direct sunlight to this product during transport.

【15. Regulatory information】**Inventory information**

Inventory Name	Zinc stearate		Fatty acids, C16-18, zinc salts	
	Status	Registry Number	Status	Registry Number
AICS (Australia):	Present	—	Unlisted	—
DSL (Canada):	Present	—	Unlisted	—
IECSC (China):	Present	30048	Present	41808
EINECS (EU):	Present	209-151-9	Present	293-049-4
ENCS (Japan):	Present	(2)-615	Present	(2)-615
KECL (Korea):	Present	KE-26418	Unlisted	—
INSQ (Mexico):	Present	—	Unlisted	—
NZIoC (New Zealand):	Present	HSR003105	Present	—
PICCS (Philippines):	Present	—	Present	—
HPV Chemicals (Turkey):	Present	209-151-9	Present	286-484-6
Inventory (Turkey):	Present	EC No. 209-151-9	Present	EC No. 293-049-4
TSCA (U.S.A.):	Present	—	Unlisted	—

【16. Other Information】

References

- 1 ChemADVISOR, Inc. (2014). *Fatty acids, C16-18, zinc salts* [Data file]. Retrieved from LOLI database.
- 2 ChemADVISOR, Inc. (2014). *Zinc stearate* [Data file]. Retrieved from LOLI database.
- 3 European Communities. (2008). Risk Assessment Report. *Zinc Distearate (Final Report)*, 44 .
- 4 IUCLID. (2000). Dataset for *Fatty acids, C16-18, zinc salts* [Data file].
- 5 IUCLID. (2000). Dataset for *Zinc stearate* [Data file].
- 6 National Institute of Technology and Evaluation (NITE). (2006). *Fatty acids, C16-18, zinc salts* [Data file].
- 7 National Institute of Technology and Evaluation (NITE). (2006). *Zinc stearate* [Data file].
- 8 National Institute of Technology and Evaluation (NITE). (2006). *Classification result e(ID801-900)* [Data file]. Retrieved from [http://www.safe.nite.go.jp/english/files/ghs_xls/classification_result_e\(ID801-900\).xls](http://www.safe.nite.go.jp/english/files/ghs_xls/classification_result_e(ID801-900).xls).
- 9 United Nations. (2013). *Globally Harmonized System of Classification and Labelling of Chemicals (GHS) (5th ed.)*. (The Japanese GHS Inter-ministerial Committee, Trans.). Tokyo: The Chemical Daily Co., Ltd..

Key/ Legend

ACGIH - American Conference of Governmental Industrial Hygienists

AICS - Australia Inventory of Chemical Substances

ADR - European Road Transport

CAS - Chemical Abstracts Service

°C - degree Celsius

DSL - Domestic Substances List

EINECS - European Inventory of Existing Commercial Chemical Substances (European Union)

ENCS - Existing and New Chemical Substances (Japan)

GHS - Globally Harmonized System of Classification and Labelling of Chemicals

HPV - High Production Volume

HS code - Harmonized System code

IATA - International Air Transport Association

ICAO - International Civil Aviation Organization

IECSC - Inventory of Existing Chemical Substances (China)

IMDG - International Maritime Dangerous Goods

INSQ - National Inventory of Chemical Substances (Mexico)

IUCLID - International Uniform Chemical Information Database

KECL - Korea Existing Chemicals Inventory

NITE - National Institute of Technology and Evaluation

LD50 - Lethal Dose, 50% or Median Lethal Dose

LOLI - List Of Lists™-ChemADVISOR's Regulatory Database

NZIoC - New Zealand Inventory of Chemicals

PICCS - Philippines Inventory of Chemicals and Chemical Substances

RTECS - Registry of Toxic Effects of Chemical Substances®

RID - European Rail Transport

STOT - Specific Target Organ Toxicity

TDG - Transportation of Dangerous Goods

TLV - Threshold Limit Value

TSCA - Toxic Substances Control Act (U.S.A.)

TWA - Time Weighted Average

UN - United Nations

US DOT - United States Department of Transportation

Safety Data Sheet

Manufacture disclaimer

All information given in this SDS is based on the data which is considered to be accurate, but the information do not guarantee enough safety. All chemical material may have an unknown hazard to human and conditions of methods of handling , storage, use and disposal of the product are beyond suppliers' control; therefore all risks and consequences of use the product are on users' responsibilities and users need to set appropriate safety measures for special use.

In addition, all classification in this SDS was written in accordance with the GHS classification of the fifth revised edition. However, GHS mentioned that countries are free to determine which of the building blocks will be applied in different parts of label elements and building blocks. Therefore, many countries set own requirements of label elements and building blocks. In the cases of export from Japan or use in other countries, SDSs and labels are needed, which are in accordance with the local laws and regulations of exporting countries or user countries. Please contact supplier beforehand for checking SDSs and labels are suitable for the local laws and regulations.