



MATERIAL SAFETY DATA SHEET

ZDBC (BZ) ZINC DIBUTYLDITHIOCARBAMATE

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

1.1 Product identifier

Trade name:	Rubber Accelerator ZDBC
Substance name:	Zinc bis(dibutyldithiocarbamate), Zinc Dibutyldithiocarbamate
REACH Reg. No.:	No registration number is given yet for this phase-in substance since the transition period for its registration according to Article 23 of REACH has not yet expired.
Index No.:	006-081-00-9
CAS No.:	136-23-2
EC No.:	205-232-8

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

Identified uses: Used as rubber accelerator in rubber goods manufacture.

Uses advised against: No information available.

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [CLP]

This substance is classified in the Annex VI of Regulation (EC) No 1272/2008 as such:

Eye Irritation, Category 2; H319

Specific target organ toxicity, Single exposure, Category 3; H335

Skin irritation, Category 2; H315

Skin sensitisation, Category 1; H317

Hazardous to the aquatic environment, Acute category 1; H400

Hazardous to the aquatic environment, Chronic category 1; H410

Classification according to Council Directive 67/548/EEC [DSD]

This substance is classified in the Annex I of Directive 67/548/EEC as such:

Xi; R36/37/38 - R43 - N; R50/53

Additional information

Full text of R-phrases and H-statements: see section 16.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 [CLP]



Index No.: 006-081-00-9

Hazard pictograms:



GHS07



GHS09

Signal word:

Warning.

Hazard statements:

H319: Causes serious eye irritation.
H335: May cause respiratory irritation.
H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H410: Very toxic to aquatic life with long lasting effects.

Precautionary statements:

Prevention:

P273: Avoid release to the environment.
P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P302 + P352: IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Disposal:

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

Supplemental Hazard information (EUH):

No information available.

Special rules for supplemental label elements for certain mixtures:

No information available.



2.3 Other hazards

No information available.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance information Hazardous ingredient:

Substance name	CAS No.	EC No.	Molecular formula	Classification under DSD	Classification under CLP	% (w/w)
Zinc bis(dibutylthiocarbamate)	136-23-2	205-232-8	$C_{18}H_{36}N_2S_4Zn$	Xi; R36/37/38 Xi; R43 N; R50/53	Eye Irrit. 2; H319 STOT SE 3; H335 Skin Irrit. 2; H315 Skin Sens. 1; H317 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	95 - 99

Remark: The rest unspecified ingredients are impurities, and they are not hazard.
Full text of R-phrases and H-statements: see section 16.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General notes: In all cases of doubt, or when symptoms persist, seek medical attention.

Following inhalation:

Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, get immediate medical attention.

Following skin contact:

Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention if irritation persists.

Following eye contact:

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/ attention.

Following ingestion:

Rinse mouth. Give water to drink. In all cases of doubt, seek medical advice.

Notes for the doctor:

Treat symptomatically and supportively.



4.2 Most important symptoms and effects, both acute and delayed

Ingestion: Nausea, vomiting and diarrhea may occur.

Inhalation: Respiratory failure, requiring ventilatory support, has been reported following ingestions.

Skin contact: Exposure to dusts, sprays, solutions, wettable powder suspensions or emulsions of these agents may lead to skin and mucous membrane irritation.

4.3 Indication of the immediate medical attention and special treatment needed

Persons with pre-existing skin, eye, or respiratory disease may be at increased risk from the irritant or allergic properties of this material. Attending physician should treat exposed patients symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media:

Water spray, foam, carbon dioxide, dry chemical.

Unsuitable extinguishing media:

Water jet.

5.2 Special hazards arising from the substance or mixture

Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame. Decomposition: sulfur oxides, nitrogen oxides, carbon oxides and zinc oxides.

5.3 Advice for fire-fighters

Do not stay in dangerous zone without self-contained breathing apparatus. In order to avoid contact with skin, keep a safety distance and wear suitable protective clothing. Prevent fire-fighting water from entering surface water or groundwater.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.



6.3 Methods and material for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 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 information on disposal.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

7.2 Conditions for safe storage, including any incompatibilities

Store closed containers in a cool, dry, well-ventilated area. Avoid exposure to direct sunlight.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8 : EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational exposure limit values:

There are no occupational exposure limit values established for the substance.

DNEL(Derived No Effect Level) for workers:

There are no DNEL values for workers available for the substance.

DNEL(Derived No Effect Level) for the general population:

There are no DNEL values for the general population available for the substance.

PNEC(Predicted No Effect Concentration) values:

There are no PNEC values available for the substance.



8.2 Exposure controls

Appropriate engineering controls:

Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal protective equipment:

Eye and face protection:

Safety goggles or eye protection in combination with breathing protection.

Skin protection:

Use protective rubber gloves and protective clothing.

Respiratory protection:

Appropriate respiratory protection shall be worn when applied engineering controls are not adequate to protect against inhalation exposure.

Environmental exposure controls:

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Industrial hygiene:

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance:	Solid, powder or pellets
Colour:	Off-white
Odour:	Odourless
pH:	No data available.
Melting point:	100 °C
Boiling point:	Not determined.
Density:	1.270 g/cm ³ at 20 °C
Bulk density:	310 - 350 kg/m ³
Vapour pressure:	Negligible.
Partition coefficient (n-octanol/water):	No data available.
Solubility(ies):	Practically insoluble in water. Soluble in acetone.
Flash point:	Not applicable.
Auto-ignition temperature:	400 °C
Explosion limits: Lower explosion limit:	20 g/m ³
Oxidising properties:	No oxidizing properties.



9.2 Other information

Residues on 63 µm sieve:	0.5% max.
Zinc content:	13.0 - 15.0% max.
Loss on drying:	0.5% max.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Stable under recommended storage and handling conditions (see section 7).

10.2 Chemical stability

Stable under recommended storage and handling conditions (see section 7).

10.3 Possibility of hazardous reactions

No hazardous reactions known. Hazardous polymerization does not occur.

10.4 Conditions to avoid

Incompatible materials. Strong heating.

10.5 Incompatible materials

Strong oxidizing agents, strong acids.

10.6 Hazardous decomposition products

Sulfur oxides, nitrogen oxides, carbon oxides and zinc oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Toxicokinetics, metabolism and distribution

Metabolism/Metabolites: Carbon disulfide and its main metabolite 2-thiothiazolidine -4-carboxylic acid are metabolites common to almost all dithiocarbamates. A significant increase in urinary concentration of this compound has been observed for different conditions of exposure and for various dithiocarbamates. (HSDB)

11.2 Information on toxicological effects

Acute toxicity:

Acute Oral toxicity: LD₅₀ > 5000 mg/kg (rat) (OECD Guide-line 401);

Acute Inhalation toxicity: No data available.

Acute Dermal toxicity: LD₅₀ > 2000 mg/kg (rabbit) (OECD Guide-line 402).

Skin corrosion/irritation:

May causes skin irritation.

Serious eye damage/irritation:

May causes serious eye irritation.



Respiratory or skin sensitization:

May cause respiratory irritation.
May cause an allergic skin reaction.

CMR effects (Carcinogenicity, Mutagenicity and Toxicity for Reproduction):

Carcinogenicity: Not listed as carcinogen by ACGIH, IARC, NIOSH, NTP, or OSHA. No adverse effect was reported and no statistically significant increases in tumor incidences were observed.

Mutagenicity: Genetic Toxicity 'in Vitro' - Ames test:
negative, no mutagenicity observed;

Reproductive toxicity: No valid substance specific data is available..

STOT-single exposure and repeated exposure:

Specific target organ toxicity - single exposure, Category 3: May cause respiratory irritation.

Specific target organ toxicity - repeated exposure: Not classified.

Additional information:

No aspiration toxicity classification.

RTECS No: ZH0175000

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Acute toxicity to fish:

LC₅₀ = 520 mg/l/96h (Oncorhynchus mykiss)(OECD Guide-line 203);

LC₅₀ = 880 mg/l/96h (Lepomis macrochirus)(OECD Guide-line 203);

Acute toxicity to daphnia:

EC₅₀ = 0.74 mg/l/48h (Daphnia magna)(OECD Guide-line 202);

Acute toxicity to algae:

No data available.

12.2 Persistence and degradability

Dithiocarbamate salts are known to rapidly hydrolyze under acidic conditions. No biodegradation data were located for zinc dibutyldithiocarbamate. However, 68% and 17% CO₂ production after 50 days with and without sediment, respectively, were reported for analogous zinc dimethyldithiocarbamate using an adapted water sediment medium. This suggests biodegradation under anaerobic conditions may be an important environmental fate process for zinc dibutyldithiocarbamate. (HSDB)

12.3 Bioaccumulative potential

No bio-concentration data were located for zinc dibutyldithiocarbamate. However, BCFs of 90 and 4.7 were reported for analogous zinc dimethyldithiocarbamate using



trout and guppies, respectively, which were exposed over a 2-week period. According to a classification scheme, these BCFs suggest the potential for bio-concentration in aquatic organisms is moderate, provided the compound is not metabolized by the organism. (HSDB)

12.4 Mobility in soil

Based on best current information, there is no data known associated with this product.

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment information is not available as the chemical safety assessment not conducted.

12.6 Other adverse effects

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. For further information, please contact Henan Connect Rubber Chemical Limited.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company.

SECTION 14: TRANSPORT INFORMATION

14.1 Land transport (ADR/RID/GGVSE)

UN-No.:	3077
Official transport designation:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc Dibutyldithiocarbamate)
Class:	9
Classification Code:	M7
Packing group:	III
Hazard label:	9

14.2 Sea transport (IMDG-Code/GGVSee)

Proper Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc Dibutyldithiocarbamate)
Class:	9
UN-No.:	3077
Packing group:	III
Marine pollutant:	yes



14.3 Air transport (ICAO-TI/IATA-DGR)

Proper Shipping Name:

ENVIRONMENTALLY HAZARDOUS
SUBSTANCE, SOLID, N.O.S. (Zinc
Dibutyldithiocarbamate)

Class:

9

UN-No.:

3077

Packing group:

III

14.4 Additional information

No relevant information available.

SECTION 15: REGULATORY INFORMATION

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

EU regulation:

Authorisations:

No information available.

Restrictions on use:

No information available.

EINECS:

CAS# 136-23-2 is listed in the inventory.

DSD (67/548/EEC):

CAS# 136-23-2 is listed in the Annex I.

Other chemical regulation:

USA - TSCA:

CAS# 136-23-2 is listed in the inventory.

Canada - DSL:

CAS# 136-23-2 is listed in the inventory.

Australia - AICS:

CAS# 136-23-2 is listed in the inventory.

Korea - ECL:

CAS# 136-23-2 is listed in the inventory.

Japan - ENCS:

CAS# 136-23-2 is listed in the inventory.

China - IECSC:

CAS# 136-23-2 is listed in the inventory.

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

SECTION 16: OTHER INFORMATION

16.1 Revision Information:

Date of the previous revision: Not applicable.

Date of this revision: 20/01/2011.

Revision summary: The first new SDS

16.2 Abbreviations and acronyms

CLP: EU regulation (EC) No 1272/2008 on classification, labelling and packaging of chemical substances and mixtures.

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

EINECS: European Inventory of Existing Commercial Chemical Substances.



RID:	European Rail Transport.
IMDG:	International Maritime Code for Dangerous Goods.
IATA:	International Air Transport Association.
OSHA:	The United States Occupational Safety and Health Administration.
PEL:	Permissible exposure limits.
ACGIH:	American Conference of Governmental Industrial Hygienists.
TSCA:	Toxic Substances Control Act, The American chemical inventory.
DSD:	Dangerous Substance Directive (67/548/EEC).
DSL:	Domestic Substances List, The Canadian chemical inventory.
AICS:	The Australian Inventory of Chemical Substances.
ECL:	Existing Chemicals List, the Korean chemical inventory.
ENCS:	Japanese Existing and New Chemical Substances.
IECSC:	Inventory of existing chemical substances in China.

16.3 Key literature references and sources for data

ESIS IUCLID Dataset: European chemical Substances Information System.

HSDB: Hazardous Substances Data Bank.

16.4 Relevant R-phrases and H-statements

R-phrases (code and full text):

R36/37/38: Irritating to eyes, respiratory system and skin.

R43: May cause sensitization by skin contact.

R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

H-statements (code and full text):

H319: Causes serious eye irritation.

H335: May cause respiratory irritation.

H315: Causes skin irritation.

H317: May cause an allergic skin reaction.

H400: Very toxic to aquatic life.

H410: Very toxic to aquatic life with long lasting effects.

16.5 Training advice

Provide adequate information, instruction and training for operators.

16.6 Declare to reader

The information in this Safety Data Sheet (SDS) was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable.



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According to REACH Article 31(5), the SDS shall be supplied in an official language of the Member State(s) where the substance or mixture is placed on the market, unless the recipient Member State(s) concerned provide otherwise. It should also be noted that this SDS is applicable to the countries with English as an official language.

