

SAFETY DATA SHEET

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Version : Rev. 3.1

Regulation : In accordance with Regulation (EU) 2015/830 (REACH), Annex II, and OSHA 29 CFR 1910.1200

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

1.1 Product identifier

Name of product : HI-FLOW(Grade: BA, MI, MI-V)

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

Relevant identified uses :

- Lubricants and lubricant additives of plastic, paints and rubbers
- Slip additive; mold release, flow modifier

Uses advised against : No information available

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier : SINWON industrial co., LTD.

Street address/P.O. Box : 546, Poseunggongdansunhwan-ro, Poseung-eup, Pyeongtaek-si, Gyeonggi-do

Country ID/Postcode/Place : Not available

Telephone number (if possible, indicate telefax) : +82-31-684-6688

e-mail address of competent person responsible for the SDS : swi@swchem.co.kr

National contact : Not available

1.4 Emergency Telephone

Emergency Telephone number : +82-31-684-6688

Opening hours : Not available

Other comments (e.g. language(s) of the phone service) : Not available

SECTION 2 : HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

HI-FLOW(IL,MI, GP) is not classified according to Regulation (EC) No 1272/2008 [CLP] and OSHA 29 CFR 1910.1200: Not classified

2.2 Label elements

Hazard pictograms : Not applicable

Signal word : Not applicable

Hazard statement : Not applicable

Additional precautionary statements : Not applicable

2.3 Other hazards : According to Annex XII, the substance does not meet PBT or vPvB criteria..

SECTION 3 : COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Mixture

Description of the mixture : Not mixture

CAS No.	EC No.	REACH Registration No.	%[weight]	Name	Classification according to Regulation(EC) No 278/2008(CLP)
91051-01-3	209-151-9	Not available	100	Zinc distearate	See section 2

SECTION 4 : FIRST-AID MEASURES**4.1 Description of first aid measures****General notes**

- Not available

Following inhalation

- Move victim to fresh air.

Following skin contact

- Wash off with plenty of water.

Following eye contact

- Rinse with plenty of water.

Following ingestion

- Clean mouth with water.
- Drink plenty of water afterwards.

Self-protection of the first aider

- Not available

4.2 Most important symptoms and effects, both acute and delayed**Acute effects**

No acute effects are anticipated if first aid treatment is applied and is effective.

Delayed effects

No delayed effects are anticipated if first aid treatment is applied and is effective.

4.3 Indication of immediate medical attention and special treatment needed

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect

SECTION 5 : FIRE-FIGHTING MEASURES**5.1 Extinguishing media**

- Suitable extinguishing media: Water spray, Foam, Carbon dioxide (CO₂), Dry chemical, Sand
- Unsuitable extinguishing media: High volume water jet

5.2 Special hazards arising from the substance or mixture

- Due to thermal decomposition and incomplete combustion gases such as black smoke, carbon monoxide and other toxic gases, danger based on inhalation of such gases may occur.

5.3 Advice for firefighters

- In the event of fire, wear self-contained breathing apparatus.

SECTION 6 : ACCIDENTAL RELEASE MEASURES**6.1 Personal precautions, protective equipment and emergency procedures****For non-emergency personnel**

Protective equipment : Not available

Emergency procedures : Not available

For emergency responders

- Avoid dust formation.
- Remove all sources of ignition.

6.2 Environmental precautions

- Do not flush into surface water or sanitary sewer system.
- Avoid subsoil penetration.

6.3 Methods and material for containment and cleaning up**For containment**

- Not available

For cleaning up

- Use mechanical handling equipment for cleaning up.
- Keep in suitable, closed containers for disposal.

Other information

- Not available

6.4 Reference to other sections

- See also sections 8 and 13 of the Safety Data Sheet.

SECTION 7 : HANDLING AND STORAGE

7.1 Precautions for safe handling

Protective measures :

- Take precautionary measures against static discharges.

Measures to prevent fire :

-Keep away from sources of ignition - No smoking

Measures to prevent aerosol and dust generation

- Avoid formation and build up of dust.

Measures to protect the environment :

- Not available

Advice on general occupational hygiene :

- Not available

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions :

- Store at room temperature in the original container.

- Keep in a dry place.

Packaging materials : Not available

Requirements for storage rooms and vessels : Not available

Further information on storage conditions : Not available

7.3 Specific end use(s)

Recommendations : Not available

Industrial sector specific solutions : Not available

SECTION 8 : EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure limits

Name	Korea regulation	ACGIH regulation	Biological exposure index	OSHA regulation	NIOSH regulation	EU regulation	United Kingdom
Fatty acids, C16-18, zinc salts	Not available	Not available	Not available	Not available	Not available	Not available	Not available

8.2 Exposure controls

8.2.1 Appropriate engineering controls :

Substance/mixture related measures to prevent exposure during identified uses: No specific measures

Structural measures to prevent exposure: No specific measures

Organisational measures to prevent exposure: No specific measures

Technical measures to prevent exposure: No specific measures

8.2.2 Individual protection measures, such as personal protective equipment:

Eye and face protection : Not available

Skin protection

Hand protection : Not available

Other skin protection : Not available

Respiratory protection :Not available

Thermal hazards : Not available

8.2.3 Environmental exposure controls

Prevent entry into waterways, sewers, basements or confined areas

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance

Description : Solid

Color : White

Odor : Odorless

Odor threshold : Not available

pH : Not available

Melting point/freezing point : 121°C (101.325 kPa)

Initial boiling point and boiling range : Not applicable

Flash point : Not applicable

Evaporation rate : Not available

Flammability (solid, gas) : Non-flammable

Upper/lower flammability or explosive limits : Not applicable

Vapor pressure : The volatility of solid substances with a melting point of 121°C can be safely assumed to be negligible.

Solubility (ies) : Ranges from 0.3 to 1.8 mg/L depending on test conditions.

Vapor density : Not available

Relative density : Not available

Partition coefficient: n-octanol/water : Not applicable

Auto ignition temperature : Not applicable

Decomposition temperature : 330°C

Viscosity : Not available

Explosive properties : Not applicable

Oxidizing properties : Not applicable

Molecular weight : $\geq 576.22 \leq 632.33$ g/mol

Surface tension : 64.56 mN/m at 20.5 °C (90 % saturated aqueous solution)

9.2 Other information

- Not available

SECTION 10 : STABILITY AND REACTIVITY

10.1 Reactivity

- Not available

10.2 Chemical stability

- Not available

10.3 Possibility of hazardous reactions

- Not available

10.4 Conditions to avoid

- Not available

10.5 Incompatible materials

- Not available

10.6 Hazardous decomposition products

- Not available

SECTION 11 : TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

(a) Acute toxicity;

Oral

- Rat, LD₅₀ > 5000 mg/kg bw (OECD TG 401)

Dermal

- Rabbit, LD₅₀ > 2000 mg/kg bw

Inhalation

- Rat, 4hr -LC₅₀ > 50 mg/L

(b) Skin Corrosion/ Irritation;

- In test on skin irritation with rabbits, skin irritations were not observed (OECD TG 404).

(c) Serious Eye Damage/ Irritation;

- In test on eye irritation with rabbits, eye irritations were not observed (OECD

- TG 405).
- (d) Respiratory sensitization; - Taking into account the complete absence of skin sensitization potential of zinc compounds, respiratory sensitization is not expected to be of concern for the zinc and zinc compounds including Fatty acids, C16-18, zinc salts.
- (e) Skin Sensitization; - No skin sensitization reactions were observed in humans (Schwartz-Peck Prophetic Patch and Draize-Shelanski Repeated Insult Patch Tests).
- (f) Carcinogenicity; - Not available
- (g) Mutagenicity; - The overall weight of the evidence from the existing in vitro and in vivo genotoxicity assays suggests that zinc compounds do not have biologically relevant genotoxic activity.
- (h) Reproductive toxicity; - No evidence exists that would justify classification of zinc compounds for effects to neither fertility nor developmental toxicity.
- (i) Specific target organ toxicity (single exposure); - In acute inhalation toxicity test with rats, depression was observed.
- (j) Specific target organ toxicity (repeat exposure); - In repeated oral toxicity study with mice for 13 weeks, repeated toxicity related effects were not observed. (NOEL = 3000 mg/kg bw/day). Animals in the 30,000 ppm group showed retarded growth along with low food intake, abnormal values in a few hematological parameters and regressive changes of the pancreatic exocrine gland. There were no remarkable clinical signs in either sex in groups ≤ 3,000 ppm (OECD TG 408, read across; CAS No. 7733-02-0).
- (k) Aspiration Hazard; - Not available

SECTION 12 : ECOLOGICAL INFORMATION

12.1 Toxicity

Acute toxicity

- Fish - 96hr-LC₅₀ (*Brachydanio rerio*) >10000 mg/L (EU Method C.1, GLP)
- Invertebrates - 48hr-LC₅₀ (*Daphnia magna*) > 100 mg/L (nominal at pH 6)(mobility, OECD TG 202, GLP)
- Algae - 72hr-EC₅₀ (*Pseudokirchneriella subcapitata*) = 70.9 mg/L (growth rate, OECD TG 201, GLP)

Chronic toxicity

- Fish - 96hr-NOEC (Species not reported) = 0.9 mg/L (OECD TG 203)
- Invertebrates - Not available
- Algae - 72hr-NOEC (*Pseudokirchneriella subcapitata*) = 19.3 mg/L (growth rate, OECD TG 201, GLP)

12.2 Persistence and Degradability

Persistence : Not available
 Degradability : readily biodegradable, but failing 10-day window (93% biodegradation observed after 28 d)(OECD TG 301D)

12.3 Bioaccumulative potential

- Based on read-across of zinc bioaccumulation data and the fact that Fatty acids, C16-18, zinc salts is readily biodegradable, the substance is not expected to be bioaccumulative .

12.4 Mobility in soil

- Not applicable

12.5 Results of PBT and vPvB assessment

- Not available

12.6 Other adverse effects

- Not available

SECTION 13 : DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product/Packaging disposal

Not available

Waste codes / Waste designation according to LoW(2015) : Not available

Waste treatment-relevant information

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Sewage disposal-relevant information

Consider the required attentions in accordance with waste treatment management regulation.

Other disposal recommendations

Not available

SECTION 14 : TRANSPORT INFORMATION

14.1 UN Number : Not applicable

14.2 UN Proper shipping name : Not applicable

14.3 Transport Hazard class : Not applicable

14.4 Packing group : Not applicable

14.5 Environmental hazards : Not applicable

14.6 Special precautions for user

in case of fire : Not applicable

in case of leakage : Not applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not Available

SECTION 15 : REGULATORY INFORMATION

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

EU Regulatory Information

EU classification :

EU CLP 2008 :

Classification : Not regulated

Hazard statement codes : Not applicable

Precautionary statement codes : Not applicable

EU SVHC list : Not regulated

EU Authorisation List : Not regulated

EU Restriction list : Not regulated

Foreign Regulatory Information

External information :

U.S.A management information (OSHA Regulation) : Not regulated

U.S.A management information (CERCLA Regulation) : Not regulated

U.S.A management information (EPCRA 302 Regulation) : Not regulated

U.S.A management information (EPCRA 304 Regulation) : Not regulated

U.S.A management information (EPCRA 313 Regulation) : Not regulated

Korea management information : Not regulated

Substance of Roterdame Protocol : Not regulated

Substance of Stockholme Protocol : Not regulated

Substance of Montreal Protocol : Not regulated

15.2 Chemical safety assessment : In accordance with REACH Article 14, a Chemical Safety Assessment has been carried out for this substance.

SECTION 16 : OTHER INFORMATION

Product safety data sheet for HI-FLOW(MI,IL,GP) prepared in accordance with Regulation (EU) 2015/830 (REACH), Annex II, and OSHA 29 CFR 1910.1200

16.1 Indication of changes

Date Updated : 20 Oct. 2020

Version : Rev. 3.1

16.2 Abbreviations and acronyms

ACGIH = American Conference of Government Industrial Hygienists
CLP = Classification Labelling Packaging Regulation ; Regulation (EC) No 1272/2008
CAS No. = Chemical Abstracts Service number
DMEL = Derived Minimal Effect Levels
DNEL = Derived No Effect Level
EC Number = EINECS and ELINCS Number (see also EINECS and ELINCS)
EU = European Union
IARC = International Agency for Research on Cancer
ISHL = Industrial Safety & Health Law
NIOSH = National Institute for Occupational Safety & Health
NTP = National Toxicology Program
OSHA = European Agency for Safety and Health at work
PBT = Persistent, Bioaccumulative and Toxic substance
PNEC(s) = Predicted No Effect Concentration(s)
REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 2015/830
STP = Sewage Treatment Plant
SVHC = Substances of Very High Concern
vPvB = Very Persistent and Very Bioaccumulative
UN = United Nations
MARPOL = International Convention for the Prevention of Pollution from Ships (IMO)
IBC = Intermediate Bulk Container
CERCLA = Comprehensive Environmental Response, Compensation & Liability Act (US)
EPCRA = Emergency Planning and Community Right-to-Know Act (US)
EINECS = European Inventory of Existing Commercial chemical Substances
ELINCS = European List of Notified Chemical Substances

16.3 Key literature reference and sources for data :

OECD SIDS; <http://webnet.oecd.org/hpv/ui/Search.aspx>
 REACH information on registered substances; <http://apps.echa.europa.eu/registered/registered-sub.aspx>
 International Uniform Chemical Information Database(IUCLID); <http://esis.jrc.ec.europa.eu/>
 European Union Risk Assessment Report (RAR); <http://esis.jrc.ec.europa.eu/>
 U.S. National library of Medicine(NLM) Hazardous Substances Data Bank(HSDB); <http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB>
 TOMES-LOLI®; <http://www.rightanswerknowledge.com/loginRA.asp>
 ECOTOX; <http://cfpub.epa.gov/ecotox/>
 National Emergency Management Agency-Korea dangerous material inventory management system;
<http://www.nema.go.kr/hazmat/main/main.jsp>
 The Chemical Database -The Department of Chemistry at the University of Akron; <http://ull.chemistry.uakron.edu/erd/>
 Korea Maritime Dangerous Goods Inspection Center; <http://www.komdi.or.kr/index.html>

16.4 Classification and procedure used to derive the classification for mixtures according to Regulation(EC) 1272/2008(CLP):

Classification according to Regulation (EC) 1272/2008 Classification procedure

16.5 Relevant R-phrases and/or H-statements (number and full text) : Not available

16.6 Training advice :

- Do not handle until all safety precautions have been read and understood.

16.7 Further information :

This safety data sheet (SDS) is based on the legal provisions of the REACH Regulation and OSHA 29 CFR 1910.1200, as amended. Its contents are intended as a guide to the appropriate precautionary handling of the material. It is the responsibility of recipients of this SDS to ensure that the information contained therein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. Information and instructions provided in this SDS are based on the current state of scientific and technical knowledge at the date of issue indicated. It should not be construed as any guarantee of technical performance, suitability for particular applications, and does not establish a legally valid contractual relationship. This version of the SDS supersedes all previous versions.