HypoThermosol® FRS

Safety Data Sheet

according to Federal Register / Vol. 89, No. 98 / Monday, May 20, 2024 / Rules and Regulations, Canada Hazardous Products Regulations (HPR) / Règlement sur les produits dangereux (RPD), Mexico NOM-018-STPS-2015
Issue date: 09 Mar 2026 Version: 06

SECTION 1: Identification

1.1. Product identifier

Product form : Mixture
Name : HypoThermosol® FRS

1.2. Other means of identification

Synonyms : HTS-FRS

1.3. Recommended use of the chemical and restrictions on use

Recommended use : Hypothermic storage of biological material.
Restrictions on use : Any use not specified.

1.4. Supplier's details

BioLife Solutions, Inc.
3303 Monte Villa Parkway
Suite 310
Bothell, WA 98021 United States of America
Tel.: +1 (425) 402-1400 (Monday - Friday, 8:00 am - 5:00 pm Pacific)
Email: info@biolifesolutions.com

1.5. Emergency phone number

Emergency number : +1 (866) 424-6543 (Monday - Friday, 8:00 am - 5:00 pm Pacific)

SECTION 2: Hazard Identification

2.1. Classification of the substance or mixture

GHS classification

Skin corrosion/irritation, Category 2	H315	Causes skin irritation.
Serious eye damage/eye irritation, Category 2	H319	Causes serious eye irritation.

Full text of H statements : see section 16

2.2. Label elements

GHS labeling

Hazard pictograms (GHS) :

Signal word (GHS) : Warning
Hazard statements (GHS) : H315 - Causes skin irritation
H319 - Causes serious eye irritation
Precautionary statements (GHS) : P264 - Wash hands, forearms and face thoroughly after handling.
P280 - Wear protective gloves.
P302+P352 - If on skin: Wash with plenty of water.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P321 - Specific treatment (see supplemental first aid instruction on this label).
P332+P313 - If skin irritation occurs: Get medical advice or attention.
P337+P313 - If eye irritation persists: Get medical advice or attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.

2.3. Hazards associated with known or reasonably anticipated uses

No additional information available

2.4. Hazards not otherwise classified

No additional information available

2.5. Unknown acute toxicity

0.7% of the mixture consists of ingredient(s) of unknown acute toxicity (Oral)
100% of the mixture consists of ingredient(s) of unknown acute toxicity (Dermal)
100% of the mixture consists of ingredient(s) of unknown acute toxicity (Inhalation (Dust/Mist))

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS classification
Sodium hydroxide	CAS-No.: 1310-73-2	0.1 – 1	Met. Corr. 1, H290 Skin Corr. 1A, H314 Eye Dam. 1, H318
Potassium hydroxide	CAS-No.: 1310-58-3	< 0.2	Acute Tox. 4 (Oral), H302 Skin Corr. 1A, H314

Chemical name, CAS number and/or exact concentration have been withheld as a trade secret
Full text of hazard classes and H-statements : see section 16

SECTION 4: First aid measures

4.1. Description of necessary first-aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice.
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Allow affected person to breathe fresh air. Allow the victim to rest.
First-aid measures after skin contact : Wash skin with plenty of water. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
First-aid measures after eye contact : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if pain, blinking or redness persists.
First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Call a poison center/doctor/physician if you feel unwell.

4.2. Most important symptoms/effects, acute and delayed

Potential Adverse human health effects and symptoms : Causes skin irritation. Causes eye irritation.
Symptoms/effects after inhalation : None under normal conditions.
Symptoms/effects after skin contact : Causes skin irritation.
Symptoms/effects after eye contact : Causes serious eye irritation.
Symptoms/effects after ingestion : None under normal conditions.

4.3. Indication of immediate medical attention and special treatment needed, if necessary

Treatment : Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide. Sand.
Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Fire hazard	:	The product is not flammable.
Explosion hazard	:	Product is not explosive.
Hazardous decomposition products in case of fire	:	Toxic fumes may be released.

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting	:	Do not enter fire area without proper protective equipment, including respiratory protection. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	:	Stop leak if safe to do so. Absorb spillage to prevent material-damage. Notify authorities if product enters sewers or public waters.

For non-emergency personnel

Protective equipment	:	Wear recommended personal protective equipment.
Emergency procedures	:	Evacuate unnecessary personnel. Ventilate spillage area.

For emergency responders

Protective equipment	:	Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures	:	Evacuate unnecessary personnel. Stop leak if safe to do so. Ventilate area.
Environmental precautions	:	Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.2. Methods and materials for containment and cleaning up

For containment	:	Stop leak, if possible without risk. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Absorb spilled material with sand or earth.
Methods for cleaning up	:	Take up liquid spill into absorbent material. Collect spillage. Store away from other materials.
Other information	:	Dispose of materials or solid residues at an authorized site.

For further information refer to section 13, See Heading 8, Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	:	Wear personal protective equipment. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.
Hygiene measures	:	Do not eat, drink or smoke when using this product. Wash hands, forearms and face thoroughly after handling.

7.2. Conditions for safe storage, including incompatibilities

Storage conditions	:	Store refrigerated.
Incompatible materials	:	Strong acids, strong bases, strong oxidizers. Strong reducing agents. Halogenated organic and mineral acids. Halides. Metal salts. Zinc. Steel. Some plastics. Acid chlorides. Maleic anhydride. Water reactive materials.
Storage temperature	:	2 – 8 °C
Specific end uses	:	Low temperature storage of biological material.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Sodium hydroxide (1310-73-2)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Sodium hydroxide
ACGIH® TLV® C	2 mg/m³
Remark (ACGIH®)	TLV® Basis: Eye, Skin & URT irr
Regulatory reference	ACGIH 2025
USA - OSHA - Occupational Exposure Limits	
Local name	Sodium hydroxide
OSHA PEL TWA	2 mg/m³
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1
USA - NIOSH - Occupational Exposure Limits	
Local name	Sodium hydroxide
NIOSH REL C	2 mg/m³
Regulatory reference (US-NIOSH)	OSHA Annotated Table Z-1 (NIOSH Pocket Guide to Chemical Hazards (NPG))
Mexico - Exposure Limits	
CT o P	2 mg/m³
Connotation	P
Alteration/Effect on health	Irritation of the upper respiratory tract, eyes, and skin

Potassium hydroxide (1310-58-3)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Potassium hydroxide
ACGIH® TLV® C	2 mg/m³
Remark (ACGIH®)	TLV® Basis: URT, eye, & skin irr
Regulatory reference	ACGIH 2021
USA - NIOSH - Occupational Exposure Limits	
NIOSH REL C	2 mg/m³
Mexico - Exposure Limits	
CT o P	2 mg/m³
Connotation	P
Alteration/Effect on health	Irritation of the upper respiratory tract, eyes, and skin

8.2. Appropriate engineering controls

Appropriate engineering controls : Industrial and professional. Perform risk assessment prior to use. Ensure good ventilation of the work station.

Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures, such as personal protective equipment

Personal protective equipment:

Wear recommended personal protective equipment. Avoid all unnecessary exposure.

Hand protection:
Wear protective gloves. Wear water impervious gloves. Butyl rubber. Nitrile rubber gloves. VITON gloves.

Eye protection:
Chemical goggles or safety glasses.

Skin and body protection:
Long sleeved protective clothing.

Respiratory protection:
None under normal use. If needed, use an air-purifying respirator with organic vapor cartridges and a dust/mist prefilter.

Other information:

Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Basic physical and chemical properties

Physical state	:	Liquid
Appearance	:	Clear
Color	:	Colorless or slightly yellow
Odor	:	Odorless
Odor threshold	:	No data available
pH	:	7.5 – 7.7
Melting point	:	No data available
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Flammability	:	No data available
Vapor pressure	:	No data available
Relative vapor density at 20°C	:	No data available
Relative density	:	No data available
Solubility	:	Soluble in water
Log Pow	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Explosion limits	:	No data available
Particle characteristics	:	No data available

Sodium hydroxide	
Particle characteristics	No data available

Potassium hydroxide	
Particle characteristics	No data available

9.2. Data relevant with regard to physical hazard classes (supplemental)

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 of use.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids, strong bases, strong oxidizers. Strong reducing agents. Halogenated organic and mineral acids. Methyl bromide. Sodium hydride. Halides. Metal salts of oxoacids. Metal salts. Zinc. Steel. Some plastics. Acid chlorides. Boron compounds. Maleic anhydride. Water reactive materials.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

Likely routes of exposure : Skin and eye contact.

11.1. Information on toxicological effects

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

HypoThermosol® FRS	
Unknown acute toxicity (GHS)	0.7% of the mixture consists of ingredient(s) of unknown acute toxicity (Oral) 100% of the mixture consists of ingredient(s) of unknown acute toxicity (Dermal) 100% of the mixture consists of ingredient(s) of unknown acute toxicity (Inhalation (Dust/Mist))

Potassium hydroxide (1310-58-3)	
LD50 Oral rat	333 mg/kg body weight
ATE (oral)	500 mg/kg body weight

Skin corrosion/irritation : Causes skin irritation.
pH: 7.5 – 7.7

Sodium hydroxide (1310-73-2)	
pH	14 Source: GESTIS

Potassium hydroxide (1310-58-3)	
pH	≈ 13.5 Temp.: 25 °C Concentration: 5,611 g/L

Serious eye damage/irritation : Causes serious eye irritation.
pH: 7.5 – 7.7

Sodium hydroxide (1310-73-2)	
pH	14 Source: GESTIS

Potassium hydroxide (1310-58-3)	
pH	≈ 13.5 Temp.: 25 °C Concentration: 5,611 g/L

Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
STOT-single exposure : Not classified

STOT-repeated exposure : Not classified

Sodium hydroxide (1310-73-2)	
NOAEC (inhalation,rat,gas,90 days)	50 ppm

Aspiration hazard : Not classified

HypoThermosol® FRS	
Viscosity, kinematic	No data available

Sodium hydroxide (1310-73-2)	
Viscosity, kinematic	0.119 mm²/s

Potassium hydroxide (1310-58-3)	
Viscosity, kinematic	No data available

Potential Adverse human health effects and symptoms : Causes skin irritation. Causes eye irritation.
Symptoms/effects after inhalation : None under normal conditions.
Symptoms/effects after skin contact : Causes skin irritation.
Symptoms/effects after eye contact : Causes serious eye irritation.
Symptoms/effects after ingestion : None under normal conditions.

SECTION 12: Ecological information

12.1. Ecotoxicity

Unknown hazards to the aquatic environment (GHS) : Contains 0.1 % of components with unknown hazards to the aquatic environment
Hazardous to the aquatic environment, short–term (acute) : Not classified
Hazardous to the aquatic environment, long–term (chronic) : Not classified

Sodium hydroxide (1310-73-2)	
LC50 fish	> 84 mg/l
EC50 crustacea	40.4 mg/l Test organisms (species): *Ceriodaphnia sp*.
ErC50 algae	240 mg/l

12.2. Persistence and degradability

HypoThermosol® FRS	
Persistence and degradability	Rapidly degradable

Sodium hydroxide (1310-73-2)	
Persistence and degradability	Rapidly degradable

Potassium hydroxide (1310-58-3)	
Persistence and degradability	Rapidly degradable

12.3. Bioaccumulative potential

Sodium hydroxide (1310-73-2)	
Log Pow	-0.3

12.4. Mobility in soil

No additional information available.

12.5. Other adverse effects

Fluorinated greenhouse gases : No.
Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.
Waste disposal recommendations : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.
Additional information : Do not re-use empty containers.
Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA

14.1. UN number

Not regulated for transport

14.2. UN Proper Shipping Name

Proper Shipping Name (DOT) : Not regulated.
Proper Shipping Name (TDG) : Not regulated.
Proper Shipping Name (IMDG) : Not regulated.
Proper Shipping Name (IATA) : Not regulated.

14.3. Transport hazard class(es)

DOT
Transport hazard class(es) (DOT) : Not regulated.

TDG
Transport hazard class(es) (TDG) : Not regulated.

IMDG
Transport hazard class(es) (IMDG) : Not regulated.

IATA
Transport hazard class(es) (IATA) : Not regulated.

14.4. Packing group

Packing group (DOT) : Not regulated.
Packing group (TDG) : Not regulated.
Packing group (IMDG) : Not regulated.
Packing group (IATA) : Not regulated.

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Transport in bulk

Not applicable

14.7. Special precautions for user

DOT
Not regulated.

TDG
Not regulated.

IMDG
Not regulated.

IATA
Not regulated.

SECTION 15: Regulatory information

15.1. Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
Sodium hydroxide	1310-73-2	Present	Active	
Potassium hydroxide	1310-58-3	Present	Active	

This product or mixture is not known to contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

Sodium hydroxide (1310-73-2)	
CERCLA RQ	1000 lb

Potassium hydroxide (1310-58-3)	
CERCLA RQ	1000 lb

15.2. International regulations

CANADA

Sodium hydroxide (1310-73-2)
Listed on the Canadian DSL (Domestic Substances List)

Potassium hydroxide (1310-58-3)
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

Sodium hydroxide (1310-73-2)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

Sodium hydroxide (1310-73-2)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China) Listed on the Chinese Catalog of Hazardous Chemicals. Listed on KECL/KECI (Korean Existing Chemicals Inventory) Listed on the TCSI (Taiwan Chemical Substance Inventory) Listed on NZIoC (New Zealand Inventory of Chemicals) Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances) Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory) Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory Listed on INSQ (Mexican National Inventory of Chemical Substances) Listed on KECI (Korean Existing Chemicals Inventory)

Potassium hydroxide (1310-58-3)
Listed on INSQ (Mexican National Inventory of Chemical Substances)

15.3. State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm.

SECTION 16: Other information

according to Federal Register / Vol. 89, No. 98 / Monday, May 20, 2024 / Rules and Regulations, Canada Hazardous Products Regulations (HPR) / Règlement sur les produits dangereux (RPD), Mexico NOM-018-STPS-2015

Issue date : 2/16/2026

Data sources : Internal Company test data. Manufacturer Information.

Full text of H-phrases	
H290	May be corrosive to metals
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H318	Causes serious eye damage
H319	Causes serious eye irritation

Abbreviations and acronyms	
ACGIH	American Conference of Government Industrial Hygienists
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
CAS-No.	Chemical Abstract Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
COD	Chemical oxygen demand (COD)
CSA	Chemical safety assessment
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
ED	Endocrine disruptor
EN	European Standard
EWC	European waste catalogue

Abbreviations and acronyms	
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
Log Kow	Partition coefficient n-octanol/water (Log Kow)
Log Pow	Partition coefficient n-octanol/water (Log Pow)
MAK	maximum workplace concentration
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
N.O.S.	Not Otherwise Specified
OECD	Organization for Economic Co-operation and Development
OEL	Occupational Exposure Limit
OSHA	Occupational Safety Health Administration
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
PPE	Personal protection equipment
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
TF	Technical function
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
TWA	Time Weighted Average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and Very Bioaccumulative
UFI	Unique Formula Identifier

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.

Signature Manifest

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Effective Date: 09 Mar 2026

All dates and times are in US/Pacific.

HypoThermosol® FRS Safety Data Sheet (NA)

Collaboration Step

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Department Approval

Name/Signature	Title	Date	Meaning/Reason
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Training Approval

Name/Signature	Title	Date	Meaning/Reason
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Document Control Approval

Name/Signature	Title	Date	Meaning/Reason
Misti Long (MLONG)	QA Specialist I	06 Mar 2026, 12:45:48 PM	Approved

Notification

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