



SILVER FERN CHEMICAL, INC.

Safety Data Sheet

Fernol 91-2.5

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

- Trade name SURFACTANT 91 2.5

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

Uses of the Substance / Mixture

- Surfactants for various applications

1.3 Details of the supplier of the safety data sheet

Company

Silver Fern Chemical, Inc.
2226 Queen Anne Avenue North
Seattle, WA 98109, USA
Customer Service: 1-866-282-3384
info@silverfernchemical.com

1.4 Emergency telephone

INFOTRAC(24-Hour Number): 1-800-535-5053 within the United States and Canada, or
1-352-323-3500 for international collect calls.

SECTION 2: Hazards identification

Although OSHA has not adopted the environmental portion of the GHS regulations, this document may include information on environmental effects.

2.1 Classification of the substance or mixture

HCS 2012 (29 CFR 1910.1200)

Eye irritation, Category 2B

H320: Causes eye irritation.

2.2 Label elements

HCS 2012 (29 CFR 1910.1200)

Signal Word

- Warning

Hazard Statements

- H320 Causes eye irritation.

Precautionary Statements

Prevention

- P264 Wash skin thoroughly after handling.

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.
- P337 + P313 If eye irritation persists: Get medical advice/ attention.

2.3 Other hazards which do not result in classification

- H401: Toxic to aquatic life.

SECTION 3: Composition/information on ingredients

3.1 Substance

Hazardous Ingredients and Impurities

Chemical name	Identification number CAS-No.	Concentration [%]
Alcohols, C9-11, ethoxylated	68439-46-3	>= 95 - < 99
Polyethylene Glycol	25322-68-3	>= 1 - < 5

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

3.2 Mixture

- Not applicable, this product is a substance.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice

- Show this material safety data sheet to the doctor in attendance.
- First responder needs to protect himself.
- Place affected apparel in a sealed bag for subsequent decontamination.

In case of inhalation

- Negligible or unlikely exposure pathways
- Move to fresh air in case of accidental inhalation of vapors.

- Consult a physician if necessary.

In case of skin contact

- In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Seek medical advice.
- Wash contaminated clothing before reuse.

In case of eye contact

- Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
- Seek medical advice.

In case of ingestion

- Do not induce vomiting without medical advice.
- If victim is conscious:
- Rinse mouth with water.
- Keep at rest.
- Do not give anything to drink.
- Do not leave the victim unattended.
- Vomiting may occur spontaneously
- Risk of product entering the lungs on vomiting after ingestion.

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- Lay victim on side.
 - Seek medical advice.

4.2 Most important symptoms and effects, both acute and delayed

Effects

- Skin contact may aggravate existing skin disease
- Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician

- All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.
- Treat symptomatically.
- There is no specific antidote available.

SECTION 5: Firefighting measures

<u>Flash point</u>	>200 °F (93 °C) closed cup
	Flammability class: Will burn
<u>Autoignition temperature</u>	No data available
<u>Flammability / Explosive limit</u>	No data available

5.1 Extinguishing media

Suitable extinguishing media

- Water spray
- Foam
- Carbon dioxide (CO₂)
- Multipurpose powders

Unsuitable extinguishing media

- High volume water jet
- (frothing possible)

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire fighting

- Under fire conditions:
- Will burn
- Hazardous decomposition products formed under fire conditions.

Hazardous combustion products:

- On combustion or on thermal decomposition (pyrolysis), releases:
- Carbon oxides

5.3 Advice for firefighters

Special protective equipment for fire-fighters

- Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing.
- Wear full protective clothing and self-contained breathing apparatus.
- Personal protective equipment comprising: suitable protective gloves, safety goggles and protective clothing

Specific fire fighting methods

- Do not use a solid water stream as it may scatter and spread fire.

Further information

- Standard procedure for chemical fires.
- Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
- Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- For further information refer to section 8 "Exposure controls / personal protection."

6.2 Environmental precautions

- Contain the spilled material by diking.
- Stop the leak. Turn leaking containers leak-side up to prevent the escape of liquid.
- Do not flush into surface water or sanitary sewer system.
- Take all necessary measures to avoid accidental discharge of products into drains and waterways due to the rupture of containers or transfer systems.
- Spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies

6.3 Methods and materials for containment and cleaning up

Methods for containment

- Stop leak if safe to do so.

Recovery

- Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).
- Shovel or sweep up.
- Never return spills in original containers for re-use.
- Keep in properly labeled containers.
- Keep in suitable, closed containers for disposal.

Decontamination / cleaning

- Wash nonrecoverable remainder with large amounts of water.
- Clean contaminated surface thoroughly.
- Recover the cleaning water for subsequent disposal.
- Decontaminate tools, equipment and personal protective equipment in a segregated area.

Disposal

- Dispose of in accordance with local regulations.

Additional advice

-
- Material can create slippery conditions.

6.4 Reference to other sections

- 7. HANDLING AND STORAGE
- 8. EXPOSURE CONTROLS/PERSONAL PROTECTION
- 13. DISPOSAL CONSIDERATIONS

SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Ethylene oxide may collect in container head space.
- Provide adequate ventilation.
- Handle in accordance with good industrial hygiene and safety practice.
- Avoid inhalation of vapor or mist.
- Avoid contact with skin and eyes.

Hygiene measures

- Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this materials:
 - 1) Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored.
 - 2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.
 - 3) Wash exposed skin promptly to remove accidental splashes or contact with material.
- The user is responsible for monitoring the working environment in accordance with local laws and regulations.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions

- Take all necessary measures to avoid accidental discharge of products into drains and waterways due to the rupture of containers or transfer systems.
- Stable under normal conditions.
- Keep in a dry, cool and well-ventilated place.
- Keep container tightly closed.
- Keep away from open flames, hot surfaces and sources of ignition.
- Keep away from incompatible materials to be indicated by the manufacturer
- Keep away from: Hazardous reactions may occur on contact with certain chemicals. (Refer to the list of incompatible materials section 10: "Stability-Reactivity").

Requirements for storage rooms and vessels

Recommended storage temperature: 59 - 104 °F (15 - 40 °C)

7.3 Specific end use(s)

- no data available

SECTION 8: Exposure controls/personal protection

Introductory Remarks: These recommendations provide general guidance for handling this product. Because specific work

environments and material handling practices vary, safety procedures should be developed for each intended application. Assistance with selection, use and maintenance of worker protection equipment is generally available from equipment manufacturers.

8.1 Control parameters

Components with workplace occupational exposure limits

Components	Value type	Value	Basis
Polyethylene Glycol	WEEL	10 mg/m ³	American Industrial Hygiene Association
Form of exposure : aerosol			

Hazardous components without workplace control parameters

Chemical name	Identification number CAS-No.	Exposure Limit Values
Alcohols, C9-11, ethoxylated	68439-46-3	None

8.2 Exposure controls

Control measures

Engineering measures

- Where engineering controls are indicated by use conditions or a potential for excessive exposure exists, the following traditional exposure control techniques may be used to effectively minimize employee exposures :
- Effective exhaust ventilation system
- Extract at emission point.

Individual protection measures

Respiratory protection

- When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industrial recommendations.
- Use a respirator with an approved filter if a risk assessment indicates this is necessary.

Hand protection

- Where there is a risk of contact with hands, use appropriate gloves
- Gloves must be inspected prior to use.
- Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
- Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

Suitable material

- Neoprene gloves

Eye protection

- Eye and face protection requirements will vary dependent upon work environment conditions and material handling practices. Appropriate ANSI Z87 approved equipment should be selected for the particular use intended for this material.
- Eye contact should be prevented through the use of:
 - Safety glasses with side-shields
 - In case of contact through splashing:
 - Face-shield

Skin and body protection

- Recommended preventive skin protection
- Footwear protecting against chemicals
- Impervious clothing

- Full protective suit

- Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures

- Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this materials:
 - 1) Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored.
 - 2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.
 - 3) Wash exposed skin promptly to remove accidental splashes or contact with material.

- The user is responsible for monitoring the working environment in accordance with local laws and regulations.

Protective measures

- Ensure that eyewash stations and safety showers are close to the workstation location.
- Emergency equipment immediately accessible, with instructions for use.
- Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use, and the potential hazards, and/or risks that may occur during use.

- The protective equipment must be selected in accordance with current local regulations and in cooperation with the supplier of the protective equipment.

SECTION 9: Physical and chemical properties

Physical and Chemical properties here represent typical properties of this product. Contact the business area using the Product information phone number in Section 1 for its exact specifications.

9.1 Information on basic physical and chemical properties

<u>Appearance</u>	<u>Physical state:</u> liquid <u>Color:</u> clear
<u>Odor</u>	mild
<u>Odor Threshold</u>	No data available
<u>pH</u>	6.0 - 7.5 (1 %)
<u>Melting point/freezing point</u>	<u>Freezing point:</u> < 45 °F (7 °C)
<u>Initial boiling point and boiling range</u>	> 450 °F (232 °C)
<u>Flash point</u>	> 200 °F (93 °C) closed cup Flammability class: Will burn
<u>Evaporation rate (Butylacetate = 1)</u>	No data available

<u>Flammability (solid, gas)</u>	No data available
<u>Flammability (liquids)</u>	No data available
<u>Flammability / Explosive limit</u>	No data available
<u>Autoignition temperature</u>	No data available
<u>Vapor pressure</u>	No data available
<u>Vapor density</u>	No data available
<u>Density</u>	0.99 g/cm ³ (68 °F (20 °C))

<u>Relative density</u>	No data available
<u>Solubility</u>	<u>Water solubility:</u> soluble

<u>Partition coefficient: n-octanol/water</u>	No data available
<u>Decomposition temperature</u>	No data available
<u>Viscosity</u>	No data available
<u>Explosive properties</u>	No data available
<u>Oxidizing properties</u>	No data available

9.2 Other information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

- no data available

10.2 Chemical stability

- Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

- polymerization**
 - Hazardous polymerization does not occur.

10.4 Conditions to avoid

- Keep away from heat and sources of ignition.
- Keep away from flames and sparks.

10.5 Incompatible materials

-
- no data available

10.6 Hazardous decomposition products

Hazardous decomposition products

- On combustion or on thermal decomposition (pyrolysis), releases:
- (Carbon oxides (CO + CO₂)).

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity

Alcohols, C9-11, ethoxylated

LD50 : > 4,000 mg/kg - Rat , male and female
Not classified as hazardous for acute oral toxicity according to GHS.
Published data

Acute inhalation toxicity

No data available

Acute dermal toxicity

Alcohols, C9-11, ethoxylated

LD50 : > 2,000 mg/kg - Rat
Not classified as hazardous for acute dermal toxicity according to GHS.
Published data

Acute toxicity (other routes of administration)

No data available

Skin corrosion/irritation

Alcohols, C9-11, ethoxylated

No skin irritation
category approach

Serious eye damage/eye irritation

Alcohols, C9-11, ethoxylated

Mild eye irritation
category approach

Respiratory or skin sensitization

Alcohols, C9-11, ethoxylated

Does not cause skin sensitization.
category approach
Published data

Mutagenicity

Genotoxicity in vitro

Alcohols, C9-11, ethoxylated

category approach
In vitro tests did not show mutagenic effects

Genotoxicity in vivo

Alcohols, C9-11, ethoxylated

category approach
In vivo tests did not show mutagenic effects

Carcinogenicity No data available

This product does not contain any ingredient designated as probable or suspected human carcinogens by:

NTP
IARC
OSHA

Toxicity for reproduction and development

Toxicity to reproduction / fertility No data available

Developmental Toxicity/Teratogenicity No data available

STOT

STOT-single exposure

Alcohols, C9-11, ethoxylated

The substance or mixture is not classified as specific target organ toxicant, single exposure according to GHS criteria.
internal evaluation, category approach

STOT-repeated exposure No data available

Experience with human exposure No data available

Aspiration toxicity No data available

SECTION 12: Ecological information

12.1 Toxicity

Aquatic Compartment

Acute toxicity to fish

Alcohols, C9-11, ethoxylated

LC50 - 96 h : 5.2 - 7.3 mg/l - Fishes, *Salmo gairdneri*
End point: mortality
static test

Fresh water
Published data

LC50 - 96 h : 6.4 mg/l - *Oncorhynchus mykiss* (rainbow trout)
Method: OECD Test Guideline 203

Fresh water
Published data
CESIO

Toxic to fish.

Acute toxicity to daphnia and other aquatic invertebrates

Alcohols, C9-11, ethoxylated EC50 - 48 h : 2.5 mg/l - Daphnia magna (Water flea)
Fresh water
Published data
Toxic to aquatic invertebrates.

Toxicity to aquatic plants

Alcohols, C9-11, ethoxylated EbC50 - 96 h : 1.4 mg/l - Algae : Pseudokirchneriella subcapitata (Selenastrum capricornutum)
Method: OECD Test Guideline 201
Fresh water
Published data
CESIO
Toxic to algae.

Toxicity to microorganisms No data available

Chronic toxicity to fish No data available

Chronic toxicity to daphnia and other aquatic invertebrates No data available

12.2 Persistence and degradability

Abiotic degradation No data available

Physical- and photo-chemical elimination No data available

Biodegradation

Biodegradability

Alcohols, C9-11, ethoxylated Ready biodegradability study:
Method: OECD Test Guideline 301 F
78 % - 28 Days
The substance fulfills the criteria for ultimate aerobic biodegradability and ready biodegradability
Published data
Readily biodegradable

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water No data available

Bioconcentration factor (BCF) No data available

12.4 Mobility in soil

Adsorption potential (Koc) No data available

Known distribution to environmental compartments No data available

12.5 Results of PBT and vPvB assessment

Alcohols, C9-11, ethoxylated This substance is not considered to be persistent, bioaccumulating, and toxic (PBT).
This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6 Other adverse effects

Ecotoxicity assessment

Short-term (acute) aquatic hazard
Alcohols, C9-11, ethoxylated Toxic to aquatic life.
category approach

Long-term (chronic) aquatic hazard
Alcohols, C9-11, ethoxylated Not classified due to data which are conclusive although insufficient for
classification.
category approach

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product Disposal

- Chemical additions, processing or otherwise altering this material may make the waste management information presented in this SDS incomplete, inaccurate or otherwise inappropriate. Please be advised that state and local requirements for waste disposal may be more restrictive or otherwise different from federal laws and regulations. Consult state and local regulations regarding the proper disposal of this material.

Waste Code

- Environmental Protection Agency
- Hazardous Waste – NO

Advice on cleaning and disposal of packaging

- Rinse with an appropriate solvent.
- Dispose of in accordance with local regulations.

SECTION 14: Transport information

DOT

not regulated

TDG

not regulated

NOM

not regulated

IMDG

not regulated

IATA

not regulated

Note: The above regulatory prescriptions are those valid on the date of publication of this sheet. Given the possible evolution of transportation regulations for hazardous materials, it would be advisable to check their validity with your sales office.

SECTION 15: Regulatory information**15.1 Notification status**

Inventory Information	Status
United States TSCA Inventory	- All substances listed as active on the TSCA inventory
Canadian Domestic Substances List (DSL)	- Listed on Inventory
Australia Inventory of Chemical Substances (AICS)	- Listed on Inventory
Japan. CSCL - Inventory of Existing and New Chemical Substances	- Listed on Inventory
Korea. Korean Existing Chemicals Inventory (KECI)	- Listed on Inventory
China. Inventory of Existing Chemical Substances in China (IECSC)	- Listed on Inventory
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	- Listed on Inventory
Taiwan Chemical Substance Inventory (TCSI)	- Listed on Inventory
New Zealand. Inventory of Chemical Substances	- All components are listed on the NZIOC inventory. The HSNO status of the product has not been assessed.
EU. European Registration, Evaluation, Authorisation and Restriction of Chemical (REACH)	- When purchased from an entity based in the EEA ("European Economic Area"), this product is compliant with the registration provisions of the REACH Regulation (EC) No. 1907/2006 as all its components are either excluded, exempt, and/or registered. When purchased from a legal entity outside of the EEA, please contact your local representative for additional information.

15.2 Federal Regulations

US. EPA EPCRA SARA Title III

Section 313 Toxic Chemicals (40 CFR 372.65)

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Section 302 Emergency Planning Extremely Hazardous Substance Threshold Planning Quantity (40 CFR 355)

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

Section 302 Emergency Planning Extremely Hazardous Substance Reportable Quantity (40 CFR 355)

Components	CAS-No.	Reportable quantity
Ethylene Oxide	75-21-8	10 lb

Section 304 Emergency Release Notification Reportable Quantity (40 CFR 355)



Components	CAS-No.	Reportable quantity
Ethylene Oxide	75-21-8	10 lb

US. EPA CERCLA Hazardous Substances and Reportable Quantities (40 CFR 302.4)

Components	CAS-No.	Reportable quantity
Ethylene Oxide	75-21-8	10 lb
1,4-Dioxane	123-91-1	100 lb

15.3 State Regulations

US. California Safe Drinking Water & Toxic Enforcement Act (Proposition 65)

-  This product can expose you to chemicals including 1,4-Dioxane (CAS # 123-91-1), Ethylene Oxide (CAS # 75-21-8), which is/are known to the State of California to cause cancer, and
-  This product can expose you to chemicals including Ethylene Oxide (CAS # 75-21-8), which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

SECTION 16: Other information

NFPA (National Fire Protection Association) - Classification

Health	2 moderate
Flammability	1 slight
Instability or Reactivity	0 minimal

HMIS (Hazardous Materials Identification System (Paint & Coating)) - Classification

Health	2 moderate
Flammability	1 slight
Reactivity	0 minimal
PPE	Determined by User; dependent on local conditions

Further information

- Product evaluated under the US GHS format.

Date Prepared: 07/15/2019

Key or legend to abbreviations and acronyms used in the safety data sheet

- | | |
|---------|---|
| - TWA | 8-hr TWA |
| - ACGIH | American Conference of Governmental Industrial Hygienists |
| - OSHA | Occupational Safety and Health Administration |
| - NTP | National Toxicology Program |
| - IARC | International Agency for Research on Cancer |
| - NIOSH | National Institute for Occupational Safety and Health |

Disclaimer

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