



**SAFETY DATA SHEET
ZINC-NICKEL LHE**

1. Identification

Product identifier

Product name ZINC-NICKEL LHE

Product number 4018/5970

Recommended use of the chemical and restrictions on use

Application Industrial Use

Details of the supplier of the safety data sheet

Supplier SIFCO Applied Surface Concepts
5708 E. Schaaf Road
Independence, Ohio 44131
U.S.A.
Tel.: +1 216-524-0099
Fax: +1 216-524-6331
E-Mail: info@sifcoasc.com

Emergency telephone number

Emergency telephone CHEMTREC (United States) (800) 424-9300; CHEMTREC (International) +1 703-527-3887

2. Hazard(s) identification

Classification of the substance or mixture

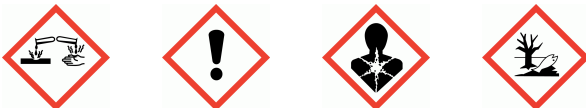
Physical hazards Not Classified

Health hazards Skin Corr. 1B - H314 Eye Dam. 1 - H318 Resp. Sens. 1 - H334 Skin Sens. 1 - H317 Muta. 2 - H341 Carc. 1A - H350 Repr. 1B - H360D STOT SE 3 - H335 STOT RE 1 - H372

Environmental hazards Aquatic Acute 1 - H400 Aquatic Chronic 2 - H411

Label elements

Pictogram



Signal word

Danger

ZINC-NICKEL LHE

Hazard statements

H314 Causes severe skin burns and eye damage.
 H317 May cause an allergic skin reaction.
 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 H335 May cause respiratory irritation.
 H341 Suspected of causing genetic defects.
 H350 May cause cancer.
 H360D May damage the unborn child.
 H372 Causes damage to organs through prolonged or repeated exposure.
 H400 Very toxic to aquatic life.
 H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

P260 Do not breathe vapor/ spray.
 P264 Wash contaminated skin thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
 P284 [In case of inadequate ventilation] wear respiratory protection.
 P302+P352 If on skin: Wash with plenty of water.
 P304+P340 If inhaled: Remove person to fresh air and keep comfortable for breathing.
 P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P403+P233 Store in a well-ventilated place. Keep container tightly closed.
 P501 Dispose of contents/ container in accordance with national regulations.
 P301+P310 If swallowed: Immediately call a poison center/ doctor.

Contains

ZINC SULPHATE, 16.2%, NICKEL SULPHATE

Other hazards

This product does not contain any substances classified as PBT or vPvB.

3. Composition/information on ingredients

Mixtures

ZINC SULPHATE 15-20% CAS number: 7733-02-0 M factor (Acute) = 1 M factor (Chronic) = 1
Classification Acute Tox. 4 - H302 Eye Dam. 1 - H318 Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410
AMMONIA 16.2% 15-20% CAS number: 1336-21-6 M factor (Acute) = 1
Classification Skin Corr. 1B - H314 Eye Dam. 1 - H318 STOT SE 3 - H335 Aquatic Acute 1 - H400

ZINC-NICKEL LHE

AMMONIUM CITRATE	10-15%
CAS number: 3458-72-8	
Classification Skin Irrit. 2 - H315 Eye Irrit. 2A - H319 STOT SE 3 - H335	
NICKEL SULPHATE	1-5%
CAS number: 7786-81-4	
M factor (Acute) = 1	M factor (Chronic) = 1
Classification Acute Tox. 4 - H302 Acute Tox. 4 - H332 Skin Irrit. 2 - H315 Resp. Sens. 1 - H334 Skin Sens. 1 - H317 Muta. 2 - H341 Carc. 1A - H350i Repr. 1B - H360D STOT RE 1 - H372 Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410	
SODIUM CITRATE	<1%
CAS number: 68-04-2	
Classification Not Classified	

The full text for all hazard statements is displayed in Section 16.

4. First-aid measures

Description of first aid measures

Inhalation	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Never give anything by mouth to an unconscious person. Get medical attention.
Ingestion	Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Skin Contact	Remove contaminated clothing immediately and wash skin with soap and water. Continue to rinse for at least 15 minutes and get medical attention.
Eye contact	Remove affected person from source of contamination. Rinse immediately with plenty of water. Continue to rinse for at least 15 minutes and get medical attention.

Most important symptoms and effects, both acute and delayed

Inhalation	Coughing, chest tightness, feeling of chest pressure.
Ingestion	May cause chemical burns in mouth and throat. May cause stomach pain or vomiting.
Skin contact	May cause serious chemical burns to the skin.

ZINC-NICKEL LHE

Eye contact Causes severe burns. May cause serious eye damage.

Indication of immediate medical attention and special treatment needed

Notes for the doctor No specific recommendations.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media The product is not flammable. Use fire-extinguishing media suitable for the surrounding fire.

Special hazards arising from the substance or mixture

Specific hazards Toxic and corrosive gases or vapors.

Advice for firefighters

Protective actions during firefighting Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

Special protective equipment for firefighters Use protective equipment appropriate for surrounding materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Follow precautions for safe handling described in this safety data sheet. Avoid inhalation of vapors. Provide adequate general and local exhaust ventilation.

Environmental precautions

Environmental precautions Do not discharge into drains or watercourses or onto the ground. Inform the relevant authorities if environmental pollution occurs (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

Methods for cleaning up Wear suitable protective equipment, including gloves, goggles/face shield, respirator, boots, clothing or apron, as appropriate. Flush contaminated area with plenty of water. Avoid the spillage or runoff entering drains, sewers or watercourses. Collect and dispose of spillage as indicated in Section 13. Wash thoroughly after dealing with a spillage.

Reference to other sections Wear protective clothing as described in Section 8 of this safety data sheet. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.

7. Handling and storage

Precautions for safe handling

Usage precautions Avoid spilling. Avoid contact with skin and eyes. Avoid inhalation of vapors and spray/mists. Provide adequate general and local exhaust ventilation.

Conditions for safe storage, including any incompatibilities

Storage precautions Store in tightly-closed, original container in a dry, cool and well-ventilated place. Protect from freezing and direct sunlight.

Storage class Toxic storage. Corrosive storage.

Specific end uses(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.

8. Exposure Controls/personal protection

ZINC-NICKEL LHE

Control parameters

Occupational exposure limits

NICKEL SULPHATE

Long-term exposure limit (8-hour TWA): ACGIH 0.1 mg/m³

as Ni

A4

ACGIH = American Conference of Governmental Industrial Hygienists.

A4 = Not Classifiable as a Human Carcinogen.

Exposure controls

Protective equipment



Appropriate engineering controls

As this product contains ingredients with exposure limits, process enclosures, local exhaust ventilation or other engineering controls should be used to keep worker exposure below any statutory or recommended limits, if use generates dust, fumes, gas, vapor or mist.

Eye/face protection

Tight-fitting safety glasses.

Hand protection

It is recommended that chemical-resistant, impervious gloves are worn. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected. It is recommended that gloves are made of the following material: Nitrile rubber.

Other skin and body protection

Appropriate footwear and additional protective clothing complying with an approved standard should be worn if a risk assessment indicates skin contamination is possible.

Hygiene measures

Do not eat, drink or smoke when using this product. Wash at the end of each work shift and before eating, smoking and using the toilet.

Respiratory protection

If ventilation is inadequate, suitable respiratory protection must be worn. Respiratory protection must be used if the airborne contamination exceeds the recommended occupational exposure limit.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance	Liquid.
Color	Blue-green.
Odor	Ammonia.
pH	pH (concentrated solution): 8.6-9
Melting point	> 0°C/32°F
Initial boiling point and range	> 100°C/212°F @
Flash point	Not determined.
Evaporation rate	Not determined.
Relative density	1.261-1.273 @ 20°C
Other information	Not available.

10. Stability and reactivity

ZINC-NICKEL LHE

Reactivity	There are no known reactivity hazards associated with this product.
Stability	Stable at normal ambient temperatures and when used as recommended.
Possibility of hazardous reactions	Not determined.
Conditions to avoid	Avoid excessive heat for prolonged periods of time.
Materials to avoid	Strong acids.
Hazardous decomposition products	None at ambient temperatures.

11. Toxicological information

Information on toxicological effects

Acute toxicity - oral

ATE oral (mg/kg) 2,538.07106599

Acute toxicity - inhalation

ATE inhalation (dusts/mists mg/l) 75.15151515

Inhalation	Vapor from this product may be hazardous by inhalation.
Ingestion	Toxic if swallowed. Causes severe burns. May cause chemical burns in mouth, esophagus and stomach.
Skin Contact	May cause serious chemical burns to the skin. May cause sensitization or allergic reactions in sensitive individuals.
Eye contact	Causes serious eye damage. Immediate first aid is imperative.
Acute and chronic health hazards	Causes severe burns. May cause cancer.
Route of entry	Ingestion Inhalation Skin and/or eye contact

Toxicological information on ingredients.

ZINC SULPHATE

Acute toxicity - oral

ATE oral (mg/kg) 500.0

AMMONIA 16.2%

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 350.0

Species Rat

NICKEL SULPHATE

Acute toxicity - oral

ZINC-NICKEL LHE

Acute toxicity oral (LD₅₀ mg/kg)	361.9
Species	Rat
ATE oral (mg/kg)	500.0
<u>Acute toxicity - inhalation</u>	
Acute toxicity inhalation (LC₅₀ dust/mist mg/l)	2.48
Species	Rat
ATE inhalation (dusts/mists mg/l)	2.48

12. Ecological Information

Ecotoxicity The product contains a substance which may have hazardous effects on the environment.

Toxicity No data available.

Ecological information on ingredients.**ZINC SULPHATE****Acute aquatic toxicity**

LE(C)₅₀ 0.1 < L(E)C₅₀ ≤ 1

M factor (Acute) 1

Chronic aquatic toxicity

M factor (Chronic) 1

AMMONIA 16.2%**Acute aquatic toxicity**

LE(C)₅₀ 0.1 < L(E)C₅₀ ≤ 1

M factor (Acute) 1

Acute toxicity - fish LC₅₀, 96 hours: 0.53 mg/l, Freshwater fish
 LC₅₀, 96 hours: 0.75 -3.4 mg/l, Freshwater fish
 LC₅₀, 96 hours: 8.2 mg/l, Freshwater fish

**Acute toxicity - aquatic
invertebrates** EC₅₀, 48 hours: 0.66 mg/l, Daphnia magna

NICKEL SULPHATE**Acute aquatic toxicity**

LE(C)₅₀ 0.1 < L(E)C₅₀ ≤ 1

M factor (Acute) 1

Chronic aquatic toxicity

M factor (Chronic) 1

Persistence and degradability

ZINC-NICKEL LHE

Persistence and degradability No data available.

Bioaccumulative potential

Bio-Accumulative Potential The product does not contain any substances expected to be bioaccumulating.

Mobility in soil

Mobility The product is soluble in water.

Other adverse effects

Other adverse effects Not determined.

13. Disposal considerations

Waste treatment methods

General information Disposal of this product, process solutions, residues and by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any local authority requirements.

14. Transport information

UN Number

UN No. (TDG)	1760
UN No. (IMDG)	1760
UN No. (ICAO)	1760
UN No. (DOT)	1760

UN proper shipping name

Proper shipping name (TDG)	CORROSIVE LIQUID, N.O.S. (AMMONIA ...%, ZINC SULPHATE)
Proper shipping name (IMDG)	CORROSIVE LIQUID, N.O.S. (AMMONIA ...%, ZINC SULPHATE)
Proper shipping name (ICAO)	CORROSIVE LIQUID, N.O.S. (AMMONIA ...%, ZINC SULPHATE)
Proper shipping name (DOT)	CORROSIVE LIQUID, N.O.S. (AMMONIA ...%, ZINC SULPHATE)

Transport hazard class(es)

TDG class	8
TDG label(s)	8
IMDG Class	8
ICAO class/division	8

Transport labels



Packing group

TDG Packing Group	III
IMDG packing group	III
ICAO packing group	III
DOT packing group	III

ZINC-NICKEL LHE

Environmental hazards

Environmentally Hazardous Substance



Special precautions for user

EmS F-A, S-B

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information required.

15. Regulatory information

US Federal Regulations

SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities

Exempt.

CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)

Ammonium Hydroxide
Final CERCLA RQ: 1000 lbs
Nickel Sulphate
Final CERCLA RQ: 100 lbs
Zinc Sulphate
Final CERCLA RQ: 1000 lbs

SARA Extremely Hazardous Substances EPCRA Reportable Quantities

Exempt.

SARA 313 Emission Reporting

Ammonium Hydroxide
Nickel Sulphate
Zinc Sulfate

CAA Accidental Release Prevention

HAP
Nickel Sulphate

SARA (311/312) Hazard Categories

Acute
Chronic

OSHA Highly Hazardous Chemicals

Exempt.

US State Regulations

California Proposition 65 Carcinogens and Reproductive Toxins

Nickel Sulphate

California Directors List of Hazardous Substances

Nickel Sulphate
Zinc Sulphate

Inventories

US - TSCA

All ingredients are present.

ZINC-NICKEL LHE

16. Other information

Classification abbreviations and acronyms	Acute Tox. = Acute toxicity Carc. = Carcinogenicity Eye Dam. = Serious eye damage Eye Irrit. = Eye irritation Flam. Liq. = Flammable liquid Muta. = Germ cell mutagenicity Repr. = Reproductive toxicity Resp. Sens. = Respiratory sensitisation Skin Corr. = Skin corrosion Skin Irrit. = Skin irritation Skin Sens. = Skin sensitisation STOT RE = Specific target organ toxicity-repeated exposure STOT SE = Specific target organ toxicity-single exposure
Revision date	10/17/2017
Revision	2
Hazard statements in full	H302 Harmful if swallowed. H314 Causes severe skin burns and eye damage. H315 Causes skin irritation. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H319 Causes serious eye irritation. H332 Harmful if inhaled. H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled. H335 May cause respiratory irritation. H341 Suspected of causing genetic defects. H350 May cause cancer. H350i May cause cancer by inhalation. H360D May damage the unborn child. H372 Causes damage to organs through prolonged or repeated exposure. H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects. H411 Toxic to aquatic life with long lasting effects.
NFPA - instability hazard	Normally stable. (0)
NFPA - health hazard	Temporary incapacitation, injury. (2)
NFPA - flammability hazard	Will not burn. (0)

The Information in this data sheet is believed to be correct but neither we nor our employees or agents give any warranty or make any representation to the accuracy thereof and accept no liability for any loss, injury or damage which may result in it's use. The sole purpose of this data sheet is to provide guidance on the safe handling and use of the products to which it relates. It does not form part of any product specification nor part of any contract. It is not practical for the guidance and information in this data sheet to cover every conceivable application of a product and as we may not be aware of the use to which the products covered by this data sheet are to be put it remains the responsibility of the user to conduct it's own tests and to satisfy itself as to the suitability of the product.