

SAFETY DATA SHEET

SECTION 1) IDENTIFICATION

Product Name: SURFOX-M ALU
Synonym: S-16E
Product Code: 54-A 131, 54-A 136

Revision Date: Jun 29, 2022 **Date Printed:** Jun 29, 2022
Version: 1.0 **Supersedes Date:** N.A.

Manufacturer's Name: Canada - Walter Surface Technologies Inc.
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Product/Recommended Uses: Electrolyte for black marking of aluminum.

SECTION 2) HAZARDS IDENTIFICATION

Type of product

Liquid

Classification

Acute aquatic toxicity - Category 1
Carcinogenicity - Category 1A
Chronic aquatic toxicity - Category 1
Eye Irritation - Category 2A
Germ Cell Mutagenicity - Category 2
Reproductive Toxicity - Category 1B
Skin Irritation - Category 2
Skin Sensitizer - Category 1
Specific Target Organ Toxicity - Repeated Exposure - Category 1

Pictograms



Signal Word

Danger

Hazardous Statements - Health

H350 - May cause cancer.
H319 - Causes serious eye irritation
H341 - Suspected of causing genetic defects.
H360Fd - May damage fertility. Suspected of damaging the unborn child.

- H315 - Causes skin irritation
- H317 - May cause an allergic skin reaction
- H372 - Causes damage to organs through prolonged or repeated exposure.

Hazardous Statements - Environmental

- H410 - Very toxic to aquatic life with long lasting effects

Precautionary Statements - General

- P101 - If medical advice is needed, have product container or label at hand.
- P102 - Keep out of reach of children.
- P103 - Read label before use.

Precautionary Statements - Prevention

- P273 - Avoid release to the environment.
- P201 - Obtain special instructions before use.
- P202 - Do not handle until all safety precautions have been read and understood.
- P280 - Wear protective gloves,protective clothing,eye protection/face protection.
- P264 - Wash thoroughly after handling.
- P272 - Contaminated work clothing should not be allowed out of the workplace.
- P260 - Do not breathe dust/fume/gas/mist/vapors/spray.
- P270 - Do not eat, drink or smoke when using this product.

Precautionary Statements - Response

- P391 - Collect spillage.
- P308 + P313 - IF exposed or concerned: Get medical advice/attention.
- 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.
- P302 + P352 - IF ON SKIN: Wash with plenty of water.
- P321 - Specific treatment (see First-Aid on this label).
- P362 + P364 - Take off contaminated clothing. And wash it before reuse.
- P333 + P313 - If skin irritation or a rash occurs: Get medical advice/attention.
- P314 - Get Medical advice/attention if you feel unwell.

Precautionary Statements - Storage

- P405 - Store locked up.

Precautionary Statements - Disposal

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

Hazards Not Otherwise Classified (HNOC) (Physical & Health)

no data available

Acute toxicity of 10.5% of the mixture is unknown

SECTION 3) COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Mixture

The product is a mixture.

CAS	Chemical Name	GHS Classifications	% By Weight
0010101-98-1	SULFURIC ACID, NICKEL(2+) SALT (1:1), HEPTAHYDRATE	N.A.	5.00% - 10.00%
0003251-23-8	CUPRIC NITRATE	Acute Tox. Oral 4, H302; Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Eye Dam. 1, H318; Ox. Sol. 2, H272; Skin Corr. 1C, H314	1.00% - 5.00%

0013106-76-8	MOLYBDATE (MOO42-), AMMONIUM (1:2), (T-4)-	Acute Tox. Oral 4, H302	1.00% - 5.00%
0001762-95-4	AMMONIUM THIOCYANATE	N.A.	1.00% - 5.00%
0000077-92-9	CITRIC ACID	Acute Tox. Oral 5, H303; Eye Irr. 2A, H319; Skin Irr. 3, H316	1.00% - 5.00%

Specific chemical identity and/or exact percentage (concentration) of the composition has been withheld to protect confidentiality.

SECTION 4) FIRST-AID MEASURES

Inhalation

Remove source of exposure or move person to fresh air and keep comfortable for breathing.

Get Medical advice/attention if you feel unwell.

If exposed/If you feel unwell/If concerned:

Call a POISON CENTER/doctor.

Eye Contact

If eye irritation persists:

Get medical advice/attention.

Rinse eyes cautiously with lukewarm, gently flowing water for several minutes, while holding the eyelids open.

Remove contact lenses, if present and easy to do.

Continue rinsing for a duration of 15-20 minutes.

Take care not to rinse contaminated water into the unaffected eye or onto the face.

Avoid direct contact. Wear chemical protective gloves, if necessary.

Skin Contact

IF exposed or concerned:

Get medical advice/attention.

Wash with plenty of lukewarm, gently flowing water for a duration of 15-20 minutes.

If skin irritation or a rash occurs:

Wash contaminated clothing before re-use or discard.

Take off immediately all contaminated clothing, shoes and leather goods (e.g. watchbands, belts).

Ingestion

If material has been swallowed and the exposed person is conscious, give small quantities of water to drink.

Never give anything by mouth to an unconscious person.

Rinse mouth.

If exposed/If you feel unwell/If concerned: Call a POISON CENTER/doctor.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Treat according to symptoms (decontamination, vital functions), no known specific antidote. Treatment should be supportive and based on the judgement of the physician in response to the reaction of the patient.

Most important symptoms/effects, acute and delayed

Eye contact

Causes serious eye irritation.

Inhalation

No known significant effects or critical hazards.

Skin contact

Causes skin irritation. May cause an allergic skin reaction.

Ingestion

No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact (OE)

Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation (OE)

Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced fetal weight
increase in fetal deaths
skeletal malformations

Skin contact (OE)

Adverse symptoms may include the following:
irritation
redness
reduced fetal weight
increase in fetal deaths
skeletal malformations

Ingestion (OE)

Adverse symptoms may include the following:
nausea or vomiting
reduced fetal weight
increase in fetal deaths
skeletal malformations

SECTION 5) FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Small Fire : Dry chemical, foam, carbon dioxide, water-spray or alcohol-resistant foam. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Large Fire : Water spray, fog or alcohol-resistant foam.

Unsuitable Extinguishing Media

Do not use straight stream of water.

Specific Hazards in Case of Fire

Carbon, phosphorous and sulfur oxides, and oxygen. In case of fire, hazardous decomposition products may include carbon oxides. Fire will produce irritating gases. Runoff may pollute waterways

Fire-fighting Procedures

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Cool containers with flooding quantities of water until well after fire is out. Caution should be exercised when using water or foam as frothing may occur, especially if sprayed into containers of hot, burning liquid. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

Special Protective Actions

Wear protective pressure self-contained breathing apparatus (SCBA) and full turnout gear.

SECTION 6) ACCIDENTAL RELEASE MEASURES

Emergency Procedure

Stay uphill and/or upstream. Ventilate closed spaces before entering. Do not touch damaged containers or spilled materials unless wearing appropriate protective clothing. Evacuate and isolate hazard area and keep unauthorized personnel away.

Recommended Equipment

Wear chemical protective clothing and positive pressure self-contained breathing apparatus (SCBA).

Personal Precautions

Do not breathe vapor or mist. Do not get on skin, eyes or clothing.

Environmental Precautions

Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems and natural waterways by using sand, earth, or other appropriate barriers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and Materials for Containment and Cleaning up

Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Contaminated absorbent material may pose the same hazard as the spilled product. If spilled material is cleaned up using a regulated solvent, the resulting waste mixture may be regulated. Absorb Liquids in vermiculite, dry sand, earth, or similar inert material and deposit in sealed containers for disposal. Ventilate area after clean-up is complete.

SECTION 7) HANDLING AND STORAGE

General

Wash hands after use. Avoid breathing vapor or mist. Use good personal hygiene practices. Eating, drinking and smoking in work areas is prohibited. Remove contaminated clothing and protective equipment before entering eating areas. All containers must be properly labelled. Do not get in eyes, on skin, or on clothing. Eyewash stations and showers should be available in areas where this material is used and stored

Ventilation Requirements

Use only with adequate ventilation to control air contaminants to their exposure limits. The use of local ventilation is recommended to control emissions near the source. Report ventilation failures immediately.

Storage Room Requirements

Use non-sparking ventilation systems, approved explosion-proof equipment and intrinsically safe electrical systems in areas where this product is used and stored. Store in a cool, dry, well ventilated area, away from sources of ignition and incompatibilities. Keep containers securely sealed when not in use. Containers that have been opened must be carefully resealed to prevent leakage. Indoor storage should meet OSHA standards and appropriate fire codes. Empty containers retain residue and may be dangerous.

SECTION 8) EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye protection

Wear safety glasses complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. Wear eye protection with side shields or goggles. Wear indirect-vent, impact and splash resistant goggles when working with liquids.

Skin Protection

Use of gloves approved to relevant standards made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Use of an apron and over-boots of chemically impervious materials such as neoprene or nitrile rubber. Launder soiled clothes or properly disposed of contaminated material, which cannot be decontaminated.

Respiratory protection

If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker, a respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 should be followed. Check with respiratory protective equipment suppliers.

Appropriate Engineering Controls

If vapor or mist is generated when material is heated or handled, provide adequate ventilation to keep the airborne concentrations of vapors below their respective threshold limit value. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Chemical Name	ACGIH TWA (mg/m ³)	ACGIH TWA (ppm)	ACGIH STEL (mg/m ³)	ACGIH STEL (ppm)	ACGIH Carcinogen	ACGIH TLV Basis	ACGIH Notations	OSHA TWA (mg/m ³)
SULFURIC ACID, NICKEL (2+) SALT (1:1), HEPTAHYDRATE	[0.1 (l)]; [0.2 (l)];				[A1]; [A4];	[Lung cancer]; [Lung dam; nasal cancer];	[A1]; [A4];	

Chemical Name	OSHA TWA (ppm)	OSHA STEL (mg/m ³)	OSHA STEL (ppm)	OSHA Carcinogen	OSHA Tables (Z1, Z2, Z3)	OSHA Skin designation	CAN_ONtmg	CAN_ONtppm
SULFURIC ACID, NICKEL (2+) SALT (1:1), HEPTAHYDRATE								

Chemical Name	CAN_ONsmg	CAN_ONsppm
SULFURIC ACID, NICKEL (2+) SALT (1:1), HEPTAHYDRATE		

(C) - Ceiling limit, (I) - Inhalable fraction, A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans, dam - Damage, irr - Irritation, LRT - Lower respiratory tract

The information in this Section does not list non-hazardous components that might have relevant ACGIH TWA (mg/m3), ACGIH Carcinogen, ACGIH TLV Basis, ACGIH Notations regulatory values, if they are present at less than 5%. Please contact manufacturer for more information.

SECTION 9) PHYSICAL AND CHEMICAL PROPERTIES

9.1 Physical and Chemical Properties

Type of product : liquid.

Density	8.35 lb/gal
Specific Gravity	1.00
% VOC	0.00%
Density VOC	0.00 lb/gal

Appearance	green liquid
Odor Threshold	N/A
Odor Description	Characteristic
pH	N/A
Water Solubility	N/A
Flammability	
Flash Point Symbol	N/A
Flash Point	93.30 °C
Viscosity	N/A
Lower Explosion Level	N/A
Upper Explosion Level	N/A
Vapor Density	N/A
Freezing Point	N/A
Melting Point	N/A
Low Boiling Point	N/A
High Boiling Point	N/A
Auto Ignition Temp	N/A
Evaporation Rate	N/A
Coefficient Water/Oil	N/A

SECTION 10) STABILITY AND REACTIVITY

Stability

Stable under normal storage and handling conditions.

Conditions To Avoid

Avoid heat, sparks, flame, high temperature and contact with incompatible materials.

Hazardous Reactions/Polymerization

Will not occur.

Incompatible Materials

Strong bases, acids, and oxidizing agents.

Hazardous Decomposition Products

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

SECTION 11) TOXICOLOGICAL INFORMATION

Acute Toxicity

Based on available data, the classification criteria are not met.

The Acute Toxicity Estimate (ATE) for an oral exposure to this mixture is >5000 mg/kg body weight

The Acute Toxicity Estimate (ATE) for a dermal exposure to this mixture is >5000 mg/kg body weight

The Acute Toxicity Estimate (ATE) for an inhalation (vapour) exposure to this mixture is >20 mg/l

Aspiration Hazard

Based on available data, the classification criteria are not met.

Carcinogenicity

May cause cancer.

Germ Cell Mutagenicity

Suspected of causing genetic defects.

Reproductive Toxicity

May damage fertility. Suspected of damaging the unborn child.

Respiratory/Skin Sensitization

May cause an allergic skin reaction

Serious Eye Damage/Irritation

Causes serious eye irritation

Skin Corrosion/Irritation

Causes skin irritation

Specific Target Organ Toxicity - Repeated Exposure

Causes damage to organs through prolonged or repeated exposure.

Specific Target Organ Toxicity - Single Exposure

Based on available data, the classification criteria are not met.

Likely Routes of Exposure

Inhalation, Ingestion, Skin contact, Eye contact

SECTION 12) ECOLOGICAL INFORMATION

Toxicity

Very toxic to aquatic life

Very toxic to aquatic life with long lasting effects

Persistence and Degradability

No data available.

Bioaccumulative Potential

No data available.

Mobility in Soil

No data available.

Other Adverse Effects

No data available.

SECTION 13) DISPOSAL CONSIDERATIONS

Waste Disposal

It is the responsibility of the user of the product to determine at the time of disposal whether the product meets local criteria for hazardous waste. Waste management should be in full compliance with national, state and local laws. Empty Containers retain product residue which may exhibit hazards of material, therefore do not pressurize, cut, glaze, weld or use for any other purposes.

SECTION 14) TRANSPORT INFORMATION

	IATA Information	IMDG Information	U.S. DOT Information	Canada TDG Information
UN number:	UN3082	UN3082	UN3082	UN3082
Proper shipping name:	Environmentally hazardous substances, liquid, n.o.s. (CUPRIC NITRATE)	Environmentally hazardous substances, liquid, n.o.s. (CUPRIC NITRATE)	Environmentally hazardous substances, liquid, n.o.s. (CUPRIC NITRATE)	Environmentally hazardous substances, liquid, n.o.s. (CUPRIC NITRATE)
Hazard class:				9.6
Hazard class:	9	9	9	
Packaging group:	III	III	III	III
Hazardous substance (RQ):			No Data Available	
Marine Pollutant:	NA	No Data Available	No Data Available	No Data Available
Note / Special Provision:	No Data Available	No Data Available	No Data Available	No Data Available
Toxic-Inhalation Hazard:	NA	NA	No Data Available	No Data Available

SECTION 15) REGULATORY INFORMATION

U.S. Federal regulations

Clean Water Act (CWA) 307: Nickel(II) sulfate heptahydrate; Copper dinitrate; Ammonium thiocyanate
Clean Water Act (CWA) 311: Nickel(II) sulfate heptahydrate; Copper dinitrate; Ammonium thiocyanate

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)

Listed

Clean Air Act Section 602 Class I Substances

None of the components are listed.

Clean Air Act Section 602 Class II Substances

None of the components are listed.

DEA List I Chemicals (Precursor Chemicals)

None of the components are listed.

DEA List II Chemicals (Essential Chemicals)

None of the components are listed.

SARA 302/304

None of the components are listed.

SARA 313

None of the components are listed.

SARA 311/312

SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A
SKIN SENSITIZATION - Category 1
GERM CELL MUTAGENICITY - Category 2
CARCINOGENICITY - Category 1A
TOXIC TO REPRODUCTION (Unborn child) - Category 1B
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1

States regulations

Massachusetts : The following components are listed: Copper dinitrate; Ammonium thiocyanate
New York : The following components are listed: Copper dinitrate; Ammonium thiocyanate
New Jersey : The following components are listed: Nickel(II) sulfate heptahydrate; Copper dinitrate;
Ammonium molybdate(VI); Ammonium thiocyanate
Pennsylvania : The following components are listed: Nickel(II) sulfate heptahydrate; Copper dinitrate;
Ammonium thiocyanate

Canada

Canada inventory (DSL NDSL) : All components are listed or exempted.

Canadian NPRI The following components are listed: Nickel(II) sulfate heptahydrate; Copper dinitrate;
Ammonium molybdate(VI); Ammonium thiocyanate

CEPA Toxic substances : The following components are listed: Nickel(II) sulfate heptahydrate

International lists

Australia : All components are listed or exempted.

China : All components are listed or exempted.

New Zealand : All components are listed or exempted.

Taiwan : All components are listed or exempted.

Europe : All components are listed or exempted.

Republic of Korea : All components are listed or exempted.

California Proposition 65

CAS	Chemical Name	% By Weight	Regulation List
0010101-98-1	SULFURIC ACID, NICKEL(2+) SALT (1:1), HEPTAHYDRATE	5.00% - 10.00%	Canada_NPRI
0003251-23-8	CUPRIC NITRATE	1.00% - 5.00%	Canada_NPRI,DSL,TSCA
0000077-92-9	CITRIC ACID	1.00% - 5.00%	DSL,TSCA

The information in this Section does not list non-hazardous components that might have relevant Canada_NPRI, DSL, TSCA regulatory values, if they are present at less than 5%. Please contact manufacturer for more information.



WARNING:This product can expose you to chemicals including Sulfuric acid, nickel(2+) salt (1:1), heptahydrate, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

SECTION 16) OTHER INFORMATION

Glossary

ACGIH- American Conference of Governmental Industrial Hygienists; ANSI- American National Standards Institute; Canadian TDG Canadian Transportation of Dangerous Goods; CAS- Chemical Abstract Service; Chemtrec- Chemical Transportation Emergency Center(US); CHIP- Chemical Hazard Information and Packaging; DSL- Domestic Substances List; EC- Equivalent Concentration; EH40 (UK)- HSE Guidance Note EH40 Occupational Exposure Limits; EPCRA- Emergency Planning and Community Right-To-Know Act; ESL Effects screening levels; HMIS- Hazardous Material Information Service; LC- Lethal Concentration; LD- Lethal Dose; NFPA- National Fire Protection Association; OEL- Occupational Exposure Limits; OSHA- Occupational Safety and Health Administration, US Department of Labor; PEL- Permissible Exposure Limit; SARA (Title III)- Superfund Amendments and Reauthorization Act; SARA 313- Superfund Amendments and Reauthorization Act, Section 313; SCBA- Self Contained Breathing Apparatus; STEL-Short Term Exposure Limit; TCEQ Texas Commission on Environmental Quality; TLV- Threshold Limit Value; TSCA- Toxic Substances Control Act Public Law 94-469; TWA Time Weighted Value; US DOT- US Department of Transportation; WHMIS- Workplace Hazardous Materials Information System. ACGIH - American Conference of Governmental Industrial Hygienists; CAS - Chemical Abstracts Service ; Chemtrec - Chemical Transportation Emergency Center; DSL - Domestic Substances List; ESL- Effects screening levels; GHS - "Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations; HMIS - Hazardous Material Information Service; IATA - Dangerous Goods Regulations (DGR) for the air transport (IATA); IMDG - International Maritime Dangerous Goods Code; LC - Lethal Concentration; LD - Lethal Dose; NFPA - National Fire Protection Association; OEL - Occupational Exposure Limits; OSHA- Occupational Safety and Health

Version 1.0:

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First Edition.

Full text of H-Statements referred to under Section 3

- H316 Causes mild skin irritation
- H318 Causes serious eye damage
- H319 Causes serious eye irritation
- H314 Causes severe skin burns and eye damage
- H302 Harmful if swallowed
- H303 May be harmful if swallowed
- H272 May intensify fire; Oxidizer
- H400 Very toxic to aquatic life
- H410 Very toxic to aquatic life with long lasting effects

DISCLAIMER

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.