



SAFETY DATA SHEET TIN-LEAD-NICKEL

1. Identification

Product identifier

Product name TIN-LEAD-NICKEL

Product number 4005/6100

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 RE 1 - H372

Environmental hazards Aquatic Chronic 2 - H411

Label elements

Pictogram



Signal word

Danger

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.
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.
H411 Toxic to aquatic life with long lasting effects.

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

Other hazards

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

3. Composition/information on ingredients

Mixtures

CITRIC ACID	20-25%
CAS number: 77-92-9	
Classification	
Eye Irrit. 2 - H319	
ETHYLENEDIAMINE	10-15%
CAS number: 107-15-3	
Classification	
Flam. Liq. 3 - H226	
Acute Tox. 4 - H302	
Acute Tox. 4 - H312	
Skin Corr. 1B - H314	
Eye Dam. 1 - H318	
Resp. Sens. 1 - H334	
Skin Sens. 1 - H317	
STANNOUS OXIDE	5-10%
CAS number: 21651-19-4	
Classification	
Acute Tox. 4 - H302	

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NICKEL FORMATE	1-5%
CAS number: 3349-06-2	
M factor (Acute) = 1	M factor (Chronic) = 1
Classification 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	
LEAD CITRATE	1-5%
CAS number: 512-26-5	
M factor (Acute) = 1	M factor (Chronic) = 1
Classification Acute Tox. 4 - H302 Acute Tox. 4 - H332 STOT RE 2 - H373 Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410	
FORMIC ACID ...%	<1%
CAS number: 64-18-6	
Classification Skin Corr. 1A - H314 Eye Dam. 1 - H318	

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.

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Skin contact May cause serious chemical burns to the skin.

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 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.

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8. Exposure Controls/personal protection

Control parameters

Occupational exposure limits

ETHYLENEDIAMINE

Long-term exposure limit (8-hour TWA): OSHA 10 ppm 25 mg/m³

STANNOUS OXIDE

Long-term exposure limit (8-hour TWA): ACGIH 2 mg/m³
as Sn

FORMIC ACID ...%

Long-term exposure limit (8-hour TWA): ACGIH 5 ppm 9.4 mg/m³

Long-term exposure limit (8-hour TWA): OSHA 5 ppm 9 mg/m³

Short-term exposure limit (15-minute): ACGIH 10 ppm 19 mg/m³

OSHA = Occupational Safety and Health Administration.

ACGIH = American Conference of Governmental Industrial Hygienists.

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	Purple.
Odor	No characteristic odor.
pH	pH (concentrated solution): 7-8
Relative density	1.18-1.20 @ 20 C°
Other information	Not available.

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Volatile organic compound This product contains a maximum VOC content of EDA 127 g/l. This product contains a maximum VOC content of FORMIC ACID 2.4 g/l.

10. Stability and reactivity

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. Strong alkalis.
Hazardous decomposition products	None at ambient temperatures.

11. Toxicological information

Information on toxicological effects

Acute toxicity - oral

ATE oral (mg/kg) 3,211.10420551

Acute toxicity - dermal

ATE dermal (mg/kg) 10,377.35849057

Acute toxicity - inhalation

ATE inhalation (gases ppm) 409,090.90909091

ATE inhalation (vapours mg/l) 1,000.0

ATE inhalation (dusts/mists mg/l) 136.36363636

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	This chemical can be hazardous when inhaled and/or touched. Prolonged exposure to the preparation may cause serious health effects.
Route of entry	Ingestion Inhalation Skin and/or eye contact

Toxicological information on ingredients.

CITRIC ACID

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 11,700.0

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Species Rabbit

ETHYLENEDIAMINE**Acute toxicity - oral**

Acute toxicity oral (LD₅₀ mg/kg) 1,200.0

Species Rat

ATE oral (mg/kg) 500.0

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 560.0

Species Rabbit

ATE dermal (mg/kg) 1,100.0

Acute toxicity - inhalation

Acute toxicity inhalation (LC₅₀ dust/mist mg/l) 14.7

Species Rat

ATE inhalation (vapours mg/l) 11.0

STANNOUS OXIDE**Acute toxicity - oral**

Acute toxicity oral (LD₅₀ mg/kg) 775.0

Species Mouse

ATE oral (mg/kg) 775.0

FORMIC ACID ...%**Acute toxicity - oral**

Acute toxicity oral (LD₅₀ mg/kg) 730.0

Species Rat

ATE oral (mg/kg) 730.0

Acute toxicity - inhalation

Acute toxicity inhalation (LC₅₀ vapours mg/l) 7.4

Species Rat

ATE inhalation (vapours mg/l) 7.4

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

Toxicity No data available.

Ecological information on ingredients.

CITRIC ACID

Acute toxicity - fish LC₅₀, 96 hour: 440-706 mg/l, Carassius auratus (Goldfish)

ETHYLENEDIAMINE

Acute toxicity - fish , 96 hour: 115.7 mg/l, Pimephales promelas (Fat-head Minnow)

Acute toxicity - aquatic invertebrates , 48 hour: 3 mg/l, Daphnia magna

Acute toxicity - aquatic plants , 96 hour: 151 mg/l, Pseudokirchneriella subcapitata

NICKEL FORMATE

Acute aquatic toxicity

LE(C)₅₀ 0.1 < L(E)C₅₀ ≤ 1

M factor (Acute) 1

Acute toxicity - fish LC₅₀, 96 hour: 18.95 mg/l, Pimephales promelas (Fat-head Minnow)

Chronic aquatic toxicity

M factor (Chronic) 1

LEAD CITRATE

Acute aquatic toxicity

LE(C)₅₀ 0.1 < L(E)C₅₀ ≤ 1

M factor (Acute) 1

Chronic aquatic toxicity

M factor (Chronic) 1

FORMIC ACID ...%

Acute toxicity - fish LC₅₀, 96 hours: 130 mg/l, Brachydanio rerio (Zebra Fish)

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 365 mg/l, Daphnia magna

Acute toxicity - aquatic plants EC₅₀, 72 hours: 1240 mg/l, Selastrum capricornutum

Persistence and degradability

Persistence and degradability No data available.

Ecological information on ingredients.

ETHYLENEDIAMINE

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Biodegradation - 94: ~ 28 days

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.

Ecological information on ingredients.**FORMIC ACID ...%**

Surface tension 71.5 mN/m @ 20°C/°F

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. (ETHYLENEDIAMINE, NICKEL FORMATE)
Proper shipping name (IMDG) CORROSIVE LIQUID, N.O.S. (ETHYLENEDIAMINE, NICKEL FORMATE)
Proper shipping name (ICAO) CORROSIVE LIQUID, N.O.S. (ETHYLENEDIAMINE, NICKEL FORMATE)
Proper shipping name (DOT) CORROSIVE LIQUID, N.O.S. (ETHYLENEDIAMINE, NICKEL FORMATE)

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 II

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IMDG packing group II

ICAO packing group II

DOT packing group II

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**

Ethylenediamine
10,000 lbs

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

Ethylenediamine
Final CERCLA RQ: 5000 lbs
Formic Acid
Final CERCLA RQ: 5000 lbs

SARA Extremely Hazardous Substances EPCRA Reportable Quantities

Ethylenediamine
EPCRA RQ: 5000 lbs

SARA 313 Emission Reporting

Formic Acid

CAA Accidental Release Prevention

Ethylenediamine
Threshold Quantity: 20,000 lbs

SARA (311/312) Hazard Categories

Acute
Chronic

OSHA Highly Hazardous Chemicals

Exempt.

US State Regulations**California Proposition 65 Carcinogens and Reproductive Toxins**

Lead Citrate

California Directors List of Hazardous Substances

Ethylenediamine
Formic Acid

Inventories

TIN-LEAD-NICKEL**US - TSCA**

All ingredients are present.

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	8/3/2017
Revision	2
Hazard statements in full	H226 Flammable liquid and vapor. H302 Harmful if swallowed. H312 Harmful in contact with skin. H314 Causes severe skin burns and eye damage. 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. 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. H373 May cause 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	Extremely hazardous, serious injury. (3)
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.