



**SAFETY DATA SHEET  
TIN-ZINC 90/10**

**1. Identification**

**Product identifier**

**Product name**                      TIN-ZINC 90/10

**Product number**                      5936

**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

**Environmental hazards**                      Aquatic Acute 3 - H402

**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.  
H402 Harmful to aquatic life.

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<b>Precautionary statements</b>	<p>P260 Do not breathe vapor/ spray.</p> <p>P264 Wash contaminated skin thoroughly after handling.</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>P270 Do not eat, drink or smoke when using this product.</p> <p>P301+P310 If swallowed: Immediately call a poison center/ doctor.</p> <p>P403+P233 Store in a well-ventilated place. Keep container tightly closed.</p>
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**Contains** ETHYLENEDIAMINE

### Other hazards

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

### 3. Composition/information on ingredients

#### Mixtures

<b>CITRIC ACID</b>	<b>20-25%</b>
CAS number: 77-92-9	
<b>Classification</b>	
Eye Irrit. 2 - H319	
<b>ETHYLENEDIAMINE</b>	<b>10-15%</b>
CAS number: 107-15-3	
<b>Classification</b>	
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	
<b>STANNOUS OXIDE</b>	<b>5-10%</b>
CAS number: 21651-19-4	
<b>Classification</b>	
Acute Tox. 4 - H302	

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<b>ZINC FORMATE</b> <span style="float: right;"><b>1-5%</b></span>
CAS number: 557-41-5 M factor (Acute) = 1
<b>Classification</b> Acute Tox. 4 - H302 Eye Irrit. 2 - H319 Aquatic Acute 1 - H400
<b>FORMIC ACID ...%</b> <span style="float: right;"><b>&lt;1%</b></span>
CAS number: 64-18-6
<b>Classification</b> 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**

<b>Inhalation</b>	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.
<b>Ingestion</b>	Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.
<b>Skin Contact</b>	Remove contaminated clothing immediately and wash skin with soap and water. Continue to rinse for at least 15 minutes and get medical attention.
<b>Eye contact</b>	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**

<b>Inhalation</b>	Coughing, chest tightness, feeling of chest pressure.
<b>Ingestion</b>	May cause chemical burns in mouth and throat. May cause stomach pain or vomiting.
<b>Skin contact</b>	May cause serious chemical burns to the skin.
<b>Eye contact</b>	Causes severe burns. May cause serious eye damage.

**Indication of immediate medical attention and special treatment needed**

<b>Notes for the doctor</b>	No specific recommendations.
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**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.

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**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. Stop leak if possible without risk. DO NOT touch spilled material! Absorb in vermiculite, dry sand or earth and place into containers. Collect spillage for reclamation or disposal in sealed containers via a licensed waste contractor. Avoid the spillage or runoff entering drains, sewers or watercourses. Inform authorities if large amounts are involved. 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. Persons susceptible to allergic reactions should not handle this product.

#### Conditions for safe storage, including any incompatibilities

**Storage precautions** Store in tightly-closed, original container in a dry, cool and well-ventilated place. Keep only in the original container.

**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

#### Control parameters

#### Occupational exposure limits

##### **ETHYLENEDIAMINE**

Long-term exposure limit (8-hour TWA): OSHA 10 ppm 25 mg/m<sup>3</sup>

##### **STANNOUS OXIDE**

Long-term exposure limit (8-hour TWA): ACGIH 2 mg/m<sup>3</sup>  
as Sn

##### **FORMIC ACID ...%**

Long-term exposure limit (8-hour TWA): ACGIH 5 ppm 9.4 mg/m<sup>3</sup>

Long-term exposure limit (8-hour TWA): OSHA 5 ppm 9 mg/m<sup>3</sup>

Short-term exposure limit (15-minute): ACGIH 10 ppm 19 mg/m<sup>3</sup>

OSHA = Occupational Safety and Health Administration.

ACGIH = American Conference of Governmental Industrial Hygienists.

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### 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	Amber.
Odor	No characteristic odor.
pH	pH (concentrated solution): 7.3-8.6
Relative density	1.18-1.250 @ 20°C
Other information	Not available.
Volatile organic compound	This product contains a maximum VOC content of FORMIC ACID 5 g/l. This product contains a maximum VOC content of EDA 138 g/l.

## 10. Stability and reactivity

Reactivity	Acid-reactive materials.
Stability	Stable at normal ambient temperatures and when used as recommended.
Possibility of hazardous reactions	Acid-reactive materials.
Conditions to avoid	Avoid excessive heat for prolonged periods of time.
Materials to avoid	Acids - oxidizing.

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**Hazardous decomposition products**      None at ambient temperatures.

**11. Toxicological information****Information on toxicological effects****Acute toxicity - oral**

**ATE oral (mg/kg)**                      2,737.07

**Acute toxicity - dermal**

**ATE dermal (mg/kg)**                      9,734.51

**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.****CITRIC ACID****Acute toxicity - oral**

**Acute toxicity oral (LD<sub>50</sub> mg/kg)**      11,700.0

**Species**                                      Rabbit

**ETHYLENEDIAMINE****Acute toxicity - oral**

**Acute toxicity oral (LD<sub>50</sub> mg/kg)**      1,200.0

**Species**                                      Rat

**ATE oral (mg/kg)**                      500.0

**Acute toxicity - dermal**

**Acute toxicity dermal (LD<sub>50</sub> mg/kg)**      560.0

**Species**                                      Rabbit

**ATE dermal (mg/kg)**                      1,100.0

**Acute toxicity - inhalation**

**Acute toxicity inhalation (LC<sub>50</sub> dust/mist mg/l)**      14.7

**Species**                                      Rat

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ATE inhalation (vapours  
mg/l) 11.0

**STANNOUS OXIDE****Acute toxicity - oral**

Acute toxicity oral (LD<sub>50</sub>  
mg/kg) 775.0

Species Mouse

ATE oral (mg/kg) 775.0

**ZINC FORMATE****Acute toxicity - oral**

ATE oral (mg/kg) 500.0

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

Acute toxicity oral (LD<sub>50</sub>  
mg/kg) 730.0

Species Rat

ATE oral (mg/kg) 730.0

**Acute toxicity - inhalation**

Acute toxicity inhalation  
(LC<sub>50</sub> vapours mg/l) 7.4

Species Rat

ATE inhalation (vapours  
mg/l) 7.4

**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.****CITRIC ACID**

Acute toxicity - fish LC<sub>50</sub>, 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

**TIN-ZINC 90/10****ZINC FORMATE****Acute aquatic toxicity**LE(C)<sub>50</sub> 0.1 < L(E)C<sub>50</sub> ≤ 1

M factor (Acute) 1

**FORMIC ACID ...%**Acute toxicity - fish LC<sub>50</sub>, 96 hours: 130 mg/l, Brachydanio rerio (Zebra Fish)Acute toxicity - aquatic invertebrates EC<sub>50</sub>, 48 hours: 365 mg/l, Daphnia magnaAcute toxicity - aquatic plants EC<sub>50</sub>, 72 hours: 1240 mg/l, Selenastrum capricornutum**Persistence and degradability****Persistence and degradability** No data available.**Ecological information on ingredients.****ETHYLENEDIAMINE**

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 proper shipping name****Proper shipping name (TDG)** CORROSIVE LIQUID, N.O.S. (CONTAINS ETHYLENEDIAMINE, FORMIC ACID ...%)



**TIN-ZINC 90/10****Proper shipping name (IMDG)** CORROSIVE LIQUID, N.O.S. (CONTAINS ETHYLENEDIAMINE, FORMIC ACID ...%)**Proper shipping name (ICAO)** CORROSIVE LIQUID, N.O.S. (CONTAINS ETHYLENEDIAMINE, FORMIC ACID ...%)**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

IMDG packing group II

ICAO packing group II

**Environmental hazards****Environmentally Hazardous Substance**

No.

**Special precautions for user****EmS** F-A, S-B**Transport in bulk according to** Not applicable.**Annex II of MARPOL 73/78****and the IBC Code****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: 5,000 lbs  
Formic Acid  
Final CERCLA RQ: 5,000 lbs**SARA Extremely Hazardous Substances EPCRA Reportable Quantities**

Ethylenediamine

**SARA 313 Emission Reporting**

Formic Acid

**CAA Accidental Release Prevention**Ethylenediamine  
Threshold Quantity: 20,000 lbs

**TIN-ZINC 90/10****SARA (311/312) Hazard Categories**

Acute  
Chronic

**OSHA Highly Hazardous Chemicals**

Exempt.

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

Exempt.

**California Directors List of Hazardous Substances**

Formic Acid

**Inventories****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**

8/7/2017

**Revision**

1

**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.  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H400 Very toxic to aquatic life.  
H402 Harmful to aquatic life.

**NFPA - instability hazard**

Normally stable. (0)

**NFPA - health hazard**

Temporary incapacitation, injury. (2)

**NFPA - flammability hazard**

Will not burn. (0)

## TIN-ZINC 90/10

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.