

# SAFETY DATA SHEET Salem Ultra-Pure 117-Degree Alloy

According to Regulation (EC) No 1907/2006

### 1. IDENTIFICATION

Salem Ultra-Pure 117-Degree Alloy **Product Name** 

Synonyms, Trade Names **BISMUTH ALLOY** 

Identified uses Base metals and alloys, industrial uses: Use of substances as such or in preparations at industrial sites.

Uses advised against No specific uses advised against are identified.

Supplier Salem Fabrication Supplies

Winston-Salem, NC 27103

**United States** 

336-766-1104 (Phone) 336-766-2626 (Fax) www.salemftg.com

**Emergency Telephone** USA: CHEMTREC +1-800-262-8200 (CCN # 19481)

### 2. HAZARD(S) IDENTIFICATION

**Appearance** Metal or metallic Solid Color Silver. - White. Odor Odorless.

**GHS** Pictogram

**Hazard Statements** 



Signal Word Danger

> H331 Toxic if inhaled.

H341 Suspected of causing genetic defects.

H350 May cause cancer.

H361fd Suspected of damaging fertility or the unborn child.

H373 May cause damage to organs through prolonged or repeated exposure.

H410 Very toxic to aquatic life with long lasting effects.

**Precautionary Statements** 

## GO BEYOND THE EDGE

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P201 Obtain special instructions before use.

P273 Avoid release to the environment.

P281 Use personal protective equipment as required.

P308+313 IF exposed or concerned: Get medical advice/attention.

P314 Get medical advice/attention if you feel unwell.

P501 Dispose of contents/container to ...

Contains

GHS Classification

Physical and Chemical Hazards Not classified.

Human health Acute Tox. 3 - H331; Muta. 2 - H341; Carc. 1B - H350; Repr. 2 -

H361fd;STOT RE 2 - H373

Environment Aquatic Acute 1 - H400; Aquatic Chronic 1 - H410

Human Health

Contains lead which can accumulate in the body. Lead is absorbed into the body through inhalation of spray mist or by ingestion.

General Information

Knowledge about health hazard is incomplete. The product contains a substance/a chemical group which is suspected of having harmful long-term effects. Contains a substance which may be potentially carcinogenic.

## Salem Ultra-Pure 117 BISMUTH, LEAD, INDIUM, TIN, CADMIUM ALLOY

#### Inhalation

NOTE! Effects may be delayed. Keep affected person under observation. Vapors may cause headache, fatigue, dizziness and nausea. Dust irritates the respiratory system, and may cause coughing and difficulties in breathing. Prolonged inhalation of high concentrations may damage respiratory system.

Ingestion

May cause discomfort if swallowed. May cause stomach pain or vomiting. May cause nausea, headache, dizziness and intoxication. Ingestion of large amounts may cause unconsciousness.

Skin Contact

Powder may irritate skin. Prolonged and frequent contact may cause redness and irritation.

Eye Contact

Particles in the eyes may cause irritation and smarting. Repeated exposure may cause chronic eye irritation.

Health Warnings

Warning. Contains lead. Lead is accumulated in the body and may cause damage to the brain and nervous system after prolonged exposure. Lead is absorbed into the body through inhalation of spray mist or by ingestion. Warning! Contains cadmium. Dangerous fumes are formed during use. See information supplied by the manufacturer. Comply with the safety instructions. Deep inhalation of the fumes or dust of cadmium and its compounds may cause symptoms such as coughing, dyspnea and tightening of the chest resembling those caused by metal fume fever, but which in the worst case can progress into pneumonia, pulmonary edema and death as a consequence of respiratory arrest. Acute exposure to cadmium compounds can result in residual emphysema or in fibrosis Route Of Entry

Ingestion. Inhalation. Skin and/or eye contact.



## 3. COMPOSITION/INFORMATION ON INGREDIENTS

	44.7%
EC No.: 231-177-4	
	22.6%
EC No.: 231-100-4	
	19.1%
EC No.: 231-180-0	
	8.3%
EC No.: 231-141-8	
	EC No.: 231-100-4  EC No.: 231-180-0



## Salem Ultra-Pure 117 BISMUTH, LEAD, INDIUM, TIN, CADMIUM ALLOY

CADMIUM 5.3%

CAS No.: 7440-43-9 EC No.: 231-152-8

**GHS Classification** 

Acute Tox. 2 - H330; Muta. 2 - H341; Carc. 1B - H350; Repr. 2 - H361fd; STOT RE 1 - H372; Aquatic Acute 1 - H400; Aquatic Chronic 1 - H410

#### **Composition Comments**

Not regarded as a health or environmental hazard in the supplied form. Please ensure that a risk assessment is carried out for your own use if processed or worked.

#### 4. FIRST-AID MEASURES

#### Description of first aid measures

#### General Information

CAUTION! First aid personnel must be aware of own risk during rescue!

Inhalation

Move the exposed person to fresh air at once. Rinse nose and mouth with water. Get medical attention if any discomfort continues. Ingestion

NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Immediately rinse mouth and drink plenty of water. Keep person under observation. If person becomes uncomfortable seek hospital and bring these instructions.

Skin Contact

Remove affected person from source of contamination. Remove contaminated clothing. Wash the skin immediately with soap and water. Get medical attention if any discomfort continues. Eye Contact

Make sure to remove any contact lenses from the eyes before rinsing. Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

### Most important symptoms and effects, both acute and delayed

#### **General Information**

The severity of the symptoms described will vary dependant of the concentration and the length of exposure. NOTE! Effects may be delayed. Keep affected person under observation. Inhalation

Vapors may cause headache, fatigue, dizziness and nausea. Unconsciousness and convulsions can occur. Ingestion

Due to the physical nature of this material it is unlikely that swallowing will occur. May cause discomfort if swallowed. May cause stomach pain or vomiting. The molten product can cause serious burns. Skin Contact

Prolonged skin contact may cause redness and irritation.

Eye Contact

May cause temporary eye irritation.



#### Indication of any immediate medical attention and special treatment needed

Notes To The Physician

No recommendation given, but first aid may still be required in case of accidental exposure, inhalation or ingestion of this chemical. If in doubt, GET MEDICAL ATTENTION PROMPTLY!

### 5. FIRE-FIGHTING MEASURES

#### Extinguishing Media

Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media

DO NOT use water if avoidable.

Hazardous combustion products

Fire or high temperatures create: Toxic gases/vapors/fumes of: Metal oxides.

Unusual Fire & Explosion Hazards

Dust may form explosive mixture with air.

Specific Hazards

When heated and in case of fire, harmful vapors/gases may be formed.

Special Fire Fighting Procedures

Avoid breathing fire vapors. Fight advanced or massive fires from safe distance or protected location.

## Salem Ultra-Pure 117 BISMUTH, LEAD, INDIUM, TIN, CADMIUM ALLOY

Protective Equipment For Fire-Fighters

Self contained breathing apparatus and full protective clothing must be worn in case of fire.

### 6. ACCIDENTAL RELEASE MEASURES

### Personal Precautions

Warn everybody of potential hazards and evacuate if necessary. Avoid inhalation of dust and vapors. Avoid contact with skin and eyes. Wear protective clothing as described in Section 8 of this material safety data sheet. Environmental Precautions

Avoid discharge into drains, water courses or onto the ground. Avoid spreading dust or contaminated materials.

Spill Clean Up Methods

Avoid generation and spreading of dust. Should be prevented from entering drains. Remove spillage with vacuum cleaner. If not possible, collect spillage with shovel, broom or the like. Ensure that waste and contaminated materials are collected and removed from the work area as soon as possible in a suitably labelled container. For waste disposal, see section 13. Reference to other sections

For personal protection, see section 8. For waste disposal, see section 13.

### 7. HANDLING AND STORAGE

#### Handling

Pregnant women should not work with the product, if there is the least risk of lead exposure. Avoid handling which leads to dust formation. Avoid inhalation of dust and contact with skin and eyes. Avoid excessive heat for prolonged periods of time. Good personal hygiene is necessary. Wash hands and contaminated areas with water and soap before leaving the work site. Change work clothing daily before leaving work place. Wash contaminated clothing before reuse. Storage

Store in a cool and well-ventilated place.

Specific end use(s)



The identified uses for this product are detailed in Section 1.2.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

COMPONENT	STD	TWA (8-hrs)		STEL (15 min)		Notes
CADMIUM	ACGIH		0,002 mg/m3			A2, as Cd
CADMIUM	PEL		0,005 mg/m3			as Cd
INDIUM	ACGIH		0,1 mg/m3			as In
LEAD	ACGIH		0,05 mg/m3			A3, as Pb
TIN	ACGIH		2 mg/m3			as Sn

ACGIH=American Conference of Governmental Industrial Hygienists.

A3: Confirmed Animal Carcinogen with Unknown Relevance to Humans.

A2: Suspected Human Carcinogen.

Protective Equipment







**Process Conditions** 

Provide eyewash station.

**Engineering Measures** 

Provide adequate ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of dust.

Respiratory Equipment

If ventilation is insufficient, suitable respiratory protection must be provided.

Hand Protection

Use suitable protective gloves if risk of skin contact. The most suitable glove must be chosen in consultation with the gloves supplier, who can inform about the breakthrough time of the glove material. Eye Protection

Use approved safety goggles or face shield.

Hygiene Measures

DO NOT SMOKE IN WORK AREA! Wash hands at the end of each work shift and before eating, smoking and using the toilet. Wash promptly if skin becomes contaminated. Promptly remove any clothing that becomes contaminated. When using do not eat, drink or smoke. Change work clothing daily if there is any possibility of contamination. Wash contaminated clothing before reuse.

Salem Ultra-Pure 117 BISMUTH, LEAD, INDIUM, TIN, CADMIUM ALLOY

Skin Protection

Wear suitable protective clothing as protection against splashing or contamination.

Thermal hazards



The molten product can cause serious burns.

**Environmental Exposure Controls** 

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance Metal or metallic Solid

Color Silver. - White.
Odor Odorless.

Solubility Insoluble in water

Melting point (°C) 117°F
Relative density 9.36

None. Mol. Weight Not applicable.

#### 10. STABILITY AND REACTIVITY

#### Reactivity

Will react violently with: Strong oxidizing agents.

Stability

Stable under normal temperature conditions and recommended use.

Hazardous Polymerisation

Not relevant

Conditions To Avoid

Avoid excessive heat for prolonged periods of time.

Materials To Avoid

Strong acids. Strong oxidizing substances.

**Hazardous Decomposition Products** 

When heated, vapors/gases hazardous to health may be formed.

## 11. TOXICOLOGICAL INFORMATION

#### Carcinogenicity:

Contains a substance which may be potentially carcinogenic.

## Reproductive Toxicity:

Based on available data the classification criteria are not met. Pregnant women should not work with the product, if there is the least risk of lead exposure. Lead is accumulated in the body and may cause damage to the brain and nervous system after prolonged exposure. CLP only - May damage the unborn child. Lead is absorbed into the body through inhalation of spray mist or by ingestion.

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### Toxicological Information on Ingredients:

INDIUM (CAS: 7440-74-6)

Toxic Dose 1 - LD 50 > 2000 mg/kg (oral rat)
Toxicological information

Germ cell mutagenicity:

Genotoxicity - In Vitro

Not applicable.

Carcinogenicity:

Carcinogenicity

Not applicable.

Salem Ultra-Pure 117 BISMUTH, LEAD, INDIUM, TIN, CADMIUM ALLOY BISMUTH (CAS: 7440-69-9)

Toxic Dose 1 - LD 50 >2000 mg/kg (oral rat)

Skin Corrosion/Irritation:

Human Skin Model Test Cell Viability (85.2%) 15 min Not irritating.

Serious eye damage/irritation:

Not Irritating.

Respiratory or skin sensitisation:

Skin sensitisation Local Lymph Node Assay (LLNA) Mouse Not Sensitising.

Germ cell mutagenicity:

Genotoxicity - In Vitro Gene Mutation.

Negative.

Specific target organ toxicity - repeated exposure:

STOT - Repeated exposure NOAEL 1000 mg/kg Oral Rat

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TIN (CAS: 7440-31-5)

#### Acute toxicity:

Acute Toxicity (Oral LD50) > 2000 mg/kg Rat

Acute Toxicity (Dermal LD50)

> 2000 mg/kg Rat

Acute Toxicity (Inhalation LC50) > 4.75 mg/l (dust/mist) Rat 4 hours

### Skin Corrosion/Irritation:

Dose

500mg tin metal powder 4 hr Rabbit

Not irritating.

### Serious eye damage/irritation:

Not Irritating.

CADMIUM (CAS: 7440-43-9)

Toxic Dose 1 - LD 50

225 mg/kg (oral rat)

Toxic Conc. - LC 50

25 mg/l/4h (inh-rat)

Toxicological information

This material is toxic.

Other Health Effects

IARC Int. Agency for Cancer Research. OSHA Carcinogen Candidate List. NTP Carcinogens (DHHS). Carcinogen Category 1. ACGIH Carcinogen List. In accordance with 3.1.1 Annex III Dir 83/467/EEC. Carcinogen Category 2. Mutagen Category 3. Teratogen Category 3.

## 12. ECOLOGICAL INFORMATION

#### Ecotoxicity

The product contains a substance which is toxic to aquatic organisms and which may cause long term adverse effects in the aquatic environment. Not regarded as a health or environmental hazard in the supplied form. Please ensure that a risk assessment is carried out for your own use if processed or worked.

### Salem Ultra-Pure 117 BISMUTH, LEAD, INDIUM, TIN, CADMIUM ALLOY

#### Degradability

The product solely consists of inorganic compounds which are not biodegradable.

Bioaccumulative potential

Bioaccumulation is unlikely to be significant because of the low water solubility of this product.

Mobility:

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The product is insoluble in water.

Results of PBT and vPvB assessment

Not Classified as PBT/vPvB by current EU criteria.

Other adverse effects

None known.

**Ecological Information on Ingredients:** 

#### BISMUTH (CAS: 7440-69-9)

#### **Ecotoxicity**

The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. LC 50, 96 Hrs, Fish mg/l

>100 mg/l (danio rerio)

EC 50, 48 Hrs, Daphnia, mg/l

>100 mg/l (daphnia magna)

Degradability

The product solely consists of inorganic compounds which are not biodegradable.

Bioaccumulative potential

Bioaccumulation is unlikely to be significant because of the low water solubility of this product.

Mobility:

The product is insoluble in water.

Results of PBT and vPvB assessment

Not Classified as PBT/vPvB by current EU criteria.

Other adverse effects

None known.

Acute Toxicity - Aquatic Plants

EC50 72 hours > 100 mg/l Freshwater algae

Pseudokirchnerella subcapitata

Acute Toxicity - Microorganisms

NOEC 3 hours > 300 mg/l Activated Sludge

CADMIUM (CAS: 7440-43-9)

#### **Ecotoxicity**

The product contains substances which are toxic to aquatic organisms and which may cause long term adverse effects in the aquatic environment.

LC 50, 96 Hrs, Fish mg/l

15.5

Degradability

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The product solely consists of inorganic compounds which are not biodegradable.

Bioaccumulative potential

Bioaccumulation is unlikely to be significant because of the low water solubility of this product.

Partition coefficient

Not applicable.

Mobility:

The product is insoluble in water.

Results of PBT and vPvB assessment

Not Classified as PBT/vPvB by current EU criteria.

Other adverse effects

None known.

Biodegradation

Not available.

Salem Ultra-Pure 117 BISMUTH, LEAD, INDIUM, TIN, CADMIUM ALLOY

## 13. DISPOSAL CONSIDERATIONS

Waste Management

When handling waste, consideration should be made to the safety precautions applying to handling of the product.

Disposal Methods

Recover and reclaim or recycle, if practical. Dispose of waste and residues in accordance with local authority requirements.

### 14. TRANSPORT INFORMATION

General The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA,

DOT).

Transport Labels

No transport warning sign required.

Environmentally Hazardous Substance/Marine Pollutant

No.

Transport in Bulk according to Annex II of MARPOL 73/78 and the IBC Code Notes

Not applicable.

## 15. REGULATORY INFORMATION

#### **US Federal Regulations**

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

None of the ingredients are listed.

SARA 313 Emission Reporting

The following ingredients are listed.

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**CADMIUM 5.30%** 

CAA Accidental Release Prevention

None of the ingredients are listed.

#### **US State Regulations**

California Proposition 65 Carcinogens and Reproductive Toxins

The following ingredients are listed.

CADMIUM; Known to the State of California to cause cancer.

LEAD; Known to the State of California to cause cancer.

Massachusetts "Right To Know" List

The following ingredients are listed.

**CADMIUM** 

**INDIUM** 

**LEAD** 

TIN

Rhode Island "Right To Know" List

The following ingredients are listed.

**INDIUM** 

TIN

Minnesota "Right To Know" List

The following ingredients are listed.

INDIUM

TIN

New Jersey "Right To Know" List

The following ingredients are listed.

**CADMIUM** 

**INDIUM** 

LEAD

TIN

Pennsylvania "Right To Know" List

The following ingredients are listed.

**CADMIUM** 

**INDIUM** 

LEAD

TIN

Salem Ultra-Pure 117 BISMUTH, LEAD, INDIUM, TIN, CADMIUM ALLOY

#### **International Inventories**

Canada - DSL/NDSL

All ingredients are listed or exempt.

US - TSCA

All ingredients are listed or exempt.

US - TSCA 12(b) Export Notification

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The following ingredients are listed. LEAD

## **16. OTHER INFORMATION**

**General Information** 

Only trained personnel should use this material.

Information Sources

US-EPA Ecotox databases Hazardous Substance Data Bank (HSDB®) eChemPortal Handbook of chemistry and Physics 91st Edition, W.M. Haynes NIOSH RTECS ® databases (Registry of Toxic Effects of Chemical Substances) European Chemicals Agency (ECHA) databases

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#### Disclaimer

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