



WTD22H04081591C

Safety Data Sheet (SDS)

Applicant: Shenzhen Atten Technology Co., Ltd

Address: Floor 8,Building 2,Senyang High-tech Park,7 West Road
High-tech Park, Guangming New district, Shenzhen, China

Sample Name: Lead-free tin wire



Safety Data Sheet(SDS)

According to GHS

Report No.: WTD22H04081591C

Date: May. 6, 2022

Page 1 of 24

SECTION 1 Identification of the substance / mixture and of the company / undertaking

1.1 Product Identifier

Product name	Lead-free tin wire
--------------	--------------------

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	Solder
--------------------------	--------

1.3 Details of the supplier of the safety data sheet

Manufacture/Supplier	Shenzhen Atten Technology Co., Ltd
Address	Floor 8,Building 2,Senyang High-tech Park,7 West Road High-tech Park, Guangming New district, Shenzhen, China
Telephone	0755-86021389
Fax	--
Email	qad3@atten.com.cn
Export to	Europe, UK and other countries
Transport fashion	Air,sea, rail, highway

1.4 Emergency telephone number

Emergency telephone numbers	15889716103
-----------------------------	-------------

SECTION 2 Hazards identification

2.1 Classification of the substance or mixture

Solid. Does not mix with water. Sinks in water.

Classification	Acute Toxicity (Inhalation) Category 5
----------------	--

2.2 Label elements

Hazard pictogram(s)	Not Applicable
---------------------	----------------

Signal word	Warning
-------------	---------



Safety Data Sheet(SDS)

According to GHS

Report No.: WTD22H04081591C

Date: May. 6, 2022

Page 2 of 24

Hazard statement(s)

Not Applicable

Precautionary statement(s) Prevention

Not Applicable

Precautionary statement(s) Response

Not Applicable

Precautionary statement(s) Storage

Not Applicable

Precautionary statement(s) Disposal

Not Applicable

Physical and Chemical Hazard

Solid. Does not mix with water. Sinks in water.

Toxic smoke/fumes in a fire. Dispose of this material and its container at hazardous or special waste collection point.

Health Hazards

Inhaled	The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation of dusts, or fumes, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress. Inhalation of dusts, generated by the material during the course of normal handling, may be damaging to the health of the individual. Component metals which form part of massive metals and their alloys are "locked" into a metal lattice, and as a result they are not easily absorbed following inhalation. Secondary processes (for example, a change in pH or the action of bacteria in the gut) may allow certain substances to be released in low concentrations. Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled. If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures. The inhalation of small particles of metal oxide results in sudden thirst, a sweet, metallic foul taste, throat irritation, cough, dry mucous membranes, tiredness and general unwellness. Headache, nausea and vomiting, fever or chills, restlessness, sweating, diarrhoea, excessive urination and prostration may also occur.
Ingestion	Metals which form part of massive metals and their alloys, are "locked" into a metal lattice; as a result they are not readily bioavailable following ingestion. Secondary processes (e.g. change in pH or intervention by gastrointestinal microorganisms)



Safety Data Sheet(SDS)

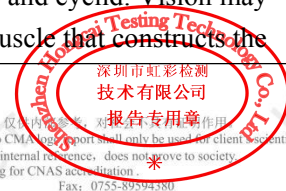
According to GHS

Report No.: WTD22H04081591C

Date: May. 6, 2022

Page 3 of 24

	may allow certain substances to be released in low concentrations. Poorly absorbed from the gut, tin salts are most likely to cause poisoning if injected. Tin is highly toxic, producing diarrhoea, muscle paralysis, twitching and nervous damage. Tin salts are not very toxic. However, at high concentration, nausea, vomiting and diarrhoea can occur. The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence.
Skin Contact	The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting. Particles and foreign bodies produced by high speed processes may penetrate the skin. Even after the wound heals, persons with retained foreign bodies may experience sharp pain with movement or pressure over the site. Discolouration or a visible mass under the epidermis may be obvious. A foreign body pressing against nerves may result in numbness or tingling ("pins and needles"), with decreased sensation. Persons with diabetes, or a history of vascular problems, have a higher potential to acquire an infection. Open cuts, abraded or irritated skin should not be exposed to this material
Eye	Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may cause transient discomfort characterised by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result. Contact with the eye by metal dusts may cause scratching on the cornea and other injuries, which are usually minor. However, foreign body penetration of the eyeball may cause infection or result in permanent loss of vision. High-speed machines (such as drills and saws) can produce white-hot particles of metal that resemble sparks. Any of these white-hot particles can enter the unprotected eye, and become embedded deep within it. Foreign bodies that penetrate the inside of the eye can cause infection (endophthalmitis). During the first hours after injury, symptoms of foreign bodies within the eye may be similar to those of scratching of the cornea. However, people with foreign bodies within the eye may also have a noticeable loss of vision. Fluid may leak from the eye, although this may not be noticeable if the foreign body is small. Pain may also increase after the first few hours. Scratches of the cornea, caused by particles and foreign bodies, usually cause pain, tearing, and a feeling that there is something in the eye. They may also cause redness (due to inflamed blood vessels on the surface of the eye), or occasionally, a swelling of the eye and eyelid. Vision may become blurred. Light may be a source of irritation or may cause the muscle that constructs the



Safety Data Sheet(SDS)

According to GHS

Report No.: WTD22H04081591C

Date: May. 6, 2022

Page 4 of 24

	pupil to undergo a painful spasm. Injuries that penetrate the eye may cause similar symptoms. If a foreign object penetrates the inside of the eye, fluid may leak out. Contact with the eye by metal dusts may cause mechanical abrasion or foreign body penetration of the eyeball.
Chronic	Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Metallic dusts generated by the industrial process give rise to a number of potential health problems. The larger particles, above 5 micron, are nose and throat irritants. Chronic exposure to tin dusts and fume can result in substantial amounts being deposited in the lungs and result in reduced lung function and difficulty breathing.

Environmental Hazards

See Section 12

2.3 Other hazards

Not Applicable

SECTION 3 Composition / information on ingredients

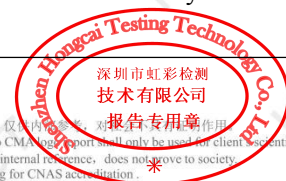
Substances/Mixtures

Ingredient Name	CAS No.	EC No.	Content (%)
Tin (Sn)	7440-31-5	231-141-8	99.3
Copper (Cu)	7440-50-8	231-159-6	0.7
Resin Rosin	65997-05-9	500-163-2	1.1-3.3

SECTION 4 First aid measures

4.1 Description of first aid measures

Eye Contact	If this product comes in contact with the eyes: Wash out immediately with fresh running water. Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. Seek medical attention without delay; if pain persists or recurs seek medical attention. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
--------------------	--



Safety Data Sheet(SDS)

According to GHS

Report No.: WTD22H04081591C

Date: May. 6, 2022

Page 5 of 24

	DO NOT attempt to remove particles attached to or embedded in eye . Lay victim down, on stretcher if available and pad BOTH eyes, make sure dressing does not press on the injured eye by placing thick pads under dressing, above and below the eye. Seek urgent medical assistance, or transport to hospital. Particulate bodies from welding spatter may be removed carefully. DO NOT attempt to remove particles attached to or embedded in eye. Lay victim down, on stretcher if available and pad BOTH eyes, make sure dressing does not press on the injured eye by placing thick pads under dressing, above and below the eye. Seek urgent medical assistance, or transport to hospital.
Skin Contact	If skin or hair contact occurs: Flush skin and hair with running water (and soap if available). Seek medical attention in event of irritation. In case of burns: Immediately apply cold water to burn either by immersion or wrapping with saturated clean cloth. DO NOT remove or cut away clothing over burnt areas. DO NOT pull away clothing which has adhered to the skin as this can cause further injury. DO NOT break blister or remove solidified material. Quickly cover wound with dressing or clean cloth to help prevent infection and to ease pain. For large burns, sheets, towels or pillow slips are ideal; leave holes for eyes, nose and mouth. DO NOT apply ointments, oils, butter, etc. to a burn under any circumstances. Water may be given in small quantities if the person is conscious. Alcohol is not to be given under any circumstances. Reassure. Treat for shock by keeping the person warm and in a lying position. Seek medical aid and advise medical personnel in advance of the cause and extent of the injury and the estimated time of arrival of the patient.
Inhalation	If fumes or combustion products are inhaled remove from contaminated area. Lay patient down. Keep warm and rested. Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. Transport to hospital, or doctor. If dust is inhaled, remove from contaminated area. Encourage patient to blow nose to ensure clear breathing passages



Safety Data Sheet(SDS)

According to GHS

Report No.: WTD22H04081591C

Date: May. 6, 2022

Page 6 of 24

	Ask patient to rinse mouth with water but to not drink water. Seek immediate medical attention.
Ingestion	Immediately give a glass of water. First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

4.2 Most important symptoms and effects, both acute and delayed

This product is not classified as harmful to human health.

4.3 Indication of any immediate medical attention and special treatment needed

If skin irritation or rash occurs, consult a doctor.

SECTION 5 Firefighting measures

5.1 Extinguishing media

Metal dust fires need to be smothered with sand, inert dry powders.

DO NOT USE WATER, CO2 or FOAM.

Use DRY sand, graphite powder, dry sodium chloride based extinguishers, G-1 or Met L-X to smother fire.

Confining or smothering material is preferable to applying water as chemical reaction may produce flammable and explosive hydrogen gas.

Chemical reaction with CO2 may produce flammable and explosive methane.

If impossible to extinguish, withdraw, protect surroundings and allow fire to burn itself out.

DO NOT use halogenated fire extinguishing agents.

5.2 Special hazards arising from the substrate or mixture

Fire	Reacts with acids producing flammable / explosive hydrogen (H2) gas
Incompatibility	None known.

5.3 Advice for firefighters

Fire Fighting	Alert Fire Brigade and tell them location and nature of hazard. Wear breathing apparatus plus protective gloves in the event of a fire. Prevent, by any means available, spillage from entering drains or water courses. Use fire fighting procedures suitable for surrounding area. DO NOT approach containers suspected to be hot. Cool fire exposed containers with water spray from a protected location. If safe to do so, remove containers from path of fire.
----------------------	--



Safety Data Sheet(SDS)

According to GHS

Report No.: WTD22H04081591C

Date: May. 6, 2022

Page 7 of 24

	Equipment should be thoroughly decontaminated after use.
Fire/Explosion Hazard	DO NOT disturb burning dust. Explosion may result if dust is stirred into a cloud, by providing oxygen to a large surface of hot metal. DO NOT use water or foam as generation of explosive hydrogen may result. With the exception of the metals that burn in contact with air or water (for example, sodium), masses of combustible metals do not represent unusual fire risks because they have the ability to conduct heat away from hot spots so efficiently that the heat of combustion cannot be maintained - this means that it will require a lot of heat to ignite a mass of combustible metal. Generally, metal fire risks exist when sawdust, machine shavings and other metal 'fines' are present. Metal powders, while generally regarded as non-combustible: May burn when metal is finely divided and energy input is high. May react explosively with water. May be ignited by friction, heat, sparks or flame. May REIGNITE after fire is extinguished. Will burn with intense heat. Note: Metal dust fires are slow moving but intense and difficult to extinguish. Containers may explode on heating. Dusts or fumes may form explosive mixtures with air. Gases generated in fire may be poisonous, corrosive or irritating. Hot or burning metals may react violently upon contact with other materials, such as oxidising agents and extinguishing agents used on fires involving ordinary combustibles or flammable liquids. Temperatures produced by burning metals can be higher than temperatures generated by burning flammable liquids Some metals can continue to burn in carbon dioxide, nitrogen, water, or steam atmospheres in which ordinary combustibles or flammable liquids would be incapable of burning. Decomposition may produce toxic fumes of: metal oxides May emit poisonous fumes. Explosions can occur with coils of foil that have been submerged or partially submerged in water for an extended period of time. Water can penetrate between the layers of foil, react with the aluminum surface and generate heat and hydrogen gas. When the coils are removed from the cooling effects of the water, rapid temperature increases can occur causing steam explosions which result in the rupture of the coils and discharge of debris. Coils of foil may be a potential hazard under the following conditions: Coil has been annealed (annealing removes residual oil that could prevent penetration of



Safety Data Sheet(SDS)

According to GHS

Report No.: WTD22H04081591C

Date: May. 6, 2022

Page 8 of 24

	water - Foil is very thin gauge (5-9 μm thickness which increases surface area) - Coil has been immersed for an extended period of time (several hours or more) - Wetted coil has recently been removed from the cooling effects of the water In such situations, the coils should be isolated (30 meters from any personnel) for at least 72 hours as soon as possible after removal from the water. Coils making crackling sounds or emitting steam should not be approached or transported in commerce. Wetted coils should not be charged into a furnace for remelting until completely dry. Strong heating produces toxic fumes of tin oxide (SnO).
--	---

SECTION 6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

See section 8

Measures for Preventing Secondary Contamination

Refer to section above

6.2 Environmental precautions

See section 12

6.3 Methods and material for containment and cleaning up

Minor Spills	Remove all ignition sources. Clean up all spills immediately. Avoid contact with skin and eyes. Control personal contact with the substance, by using protective equipment. Use dry clean up procedures and avoid generating dust. Place in a suitable, labelled container for waste disposal.
Major Spills	- Do not use compressed air to remove metal dusts from floors, beams or equipment - Vacuum cleaners, of flame-proof design, should be used to minimise dust accumulation. - Use non-sparking handling equipment, tools and natural bristle brushes. - Provide grounding and bonding where necessary to prevent accumulation of static charges during metal dust handling and transfer operations - Cover and reseal partially empty containers. - Do not allow chips, fines or dusts to contact water, particularly in enclosed areas. If molten: Contain the flow using dry sand or salt flux as a dam. All tooling (e.g., shovels or hand tools) and containers which come in contact with molten metal must be preheated or specially coated, rust free and approved for such use. Allow the spill to cool before remelting scrap.

Safety Data Sheet(SDS)

According to GHS

Report No.: WTD22H04081591C

Date: May. 6, 2022

Page 9 of 24

	Moderate hazard. CAUTION: Advise personnel in area. Alert Emergency Services and tell them location and nature of hazard. Control personal contact by wearing protective clothing. Prevent, by any means available, spillage from entering drains or water courses. Recover product wherever possible. IF DRY: Use dry clean up procedures and avoid generating dust. Collect residues and place in sealed plastic bags or other containers for disposal. IF WET: Vacuum/shovel up and place in labelled containers for disposal. ALWAYS: Wash area down with large amounts of water and prevent runoff into drains. If contamination of drains or waterways occurs, advise Emergency Services.
--	--

Personal Protective Equipment advice is contained in Section 8 of the SDS.

6.4 Reference to other sections

For information on safe operation, see section 7.

For information on personal protective equipment, see section 8.

SECTION 7 Handling and storage

7.1 Precautions for safe handling

Safe handling	Develop work practices and procedures that prevent particulate from coming in contact with worker skin, hair, or personal clothing. If work practices and/or procedures are ineffective in controlling airborne exposure or visual particulate from deposition on skin, hair, or clothing, provide appropriate cleaning/washing facilities. Procedures should be written that clearly communicate the facility's requirements for protective clothing and personal hygiene. These clothing and personal hygiene requirements help keep particulate from being spread to non-production areas or from being taken home by the worker. Never use compressed air to clean work clothing or other surfaces. Fabrication processes may leave a residue of particulate on the surface of parts, products or equipment that could result in employee exposure during subsequent material handling activities. As necessary, clean loose particulate from parts between processing steps. As a standard hygiene practice, wash hands before eating or smoking. To prevent exposure, remove surface scale or oxidation formed on cast or heat treated products in an adequately ventilated process prior to working the surface.
---------------	--



Safety Data Sheet(SDS)

According to GHS

Report No.: WTD22H04081591C

Date: May. 6, 2022

Page 10 of 24

	Exposure to elements found in the metal, its alloys or recycled materials, may result as a result of inhalation, ingestion, and skin contact, when melting, casting, dross handling, pickling, chemical cleaning, heat treating, abrasive cutting, welding, grinding, sanding, polishing, milling, crushing, or otherwise heating or abrading the surface of this material in a manner which generates particulates. Exposure may also occur during repair or maintenance activities on contaminated equipment such as: furnace rebuilding, maintenance or repair of air cleaning equipment, structural renovation, welding, etc. Particulate depositing on hands, gloves, and clothing, can be transferred to the breathing zone and inhaled during normal hand to face motions such as rubbing of the nose or eyes, sneezing, coughing, etc. For molten metals: · Molten metal and water can be an explosive combination. The risk is greatest when there is sufficient molten metal to entrap or seal off water. Water and other forms of contamination on or contained in scrap or remelt ingot are known to have caused explosions in melting operations. While the products may have minimal surface roughness and internal voids, there remains the possibility of moisture contamination or entrapment. If confined, even a few drops can lead to violent explosions. · All tooling, containers, molds and ladles, which come in contact with molten metal must be preheated or specially coated, rust free and approved for such use. · Any surfaces that may contact molten metal (e.g. concrete) should be specially coated · Drops of molten metal in water (e.g. from plasma arc cutting), while not normally an explosion hazard, can generate enough flammable hydrogen gas to present an explosion hazard. Vigorous circulation of the water and removal of the particles minimise the hazard. During melting operations, the following minimum guidelines should be observed: · Inspect all materials prior to furnace charging and completely remove surface contamination such as water, ice, snow, deposits of grease and oil or other surface contamination resulting from weather exposure, shipment, or storage. · Store materials in dry, heated areas with any cracks or cavities pointed downwards. · Preheat and dry large objects adequately before charging in to a furnace containing molten metal. This is typically done by the use of a drying oven or homogenising furnace. The dry cycle should bring the metal temperature of the coldest item of the batch to 200 degree C (400 deg F) and then hold at that temperature for 6 hours.
Other information	Store in original containers. Keep containers securely sealed. Store in a cool, dry area protected from environmental extremes. Store away from incompatible materials and foodstuff containers. Protect containers against physical damage and check regularly for leaks.



Safety Data Sheet(SDS)

According to GHS

Report No.: WTD22H04081591C

Date: May. 6, 2022

Page 11 of 24

	Observe manufacturer's storage and handling recommendations contained within this SDS. For major quantities: Consider storage in bunded areas - ensure storage areas are isolated from sources of community water (including stormwater, ground water, lakes and streams). Ensure that accidental discharge to air or water is the subject of a contingency disaster management plan; this may require consultation with local authorities.
--	---

7.2 Conditions for safe storage, including any incompatibilities

Suitable container	Bulk bags: Reinforced bags required for dense materials. CARE: Packing of high density product in light weight metal or plastic packages may result in container collapse with product release Heavy gauge metal packages / Heavy gauge metal drums Polyethylene or polypropylene container. Check all containers are clearly labelled and free from leaks.
Storage incompatibility	The material is described as an electropositive metal. The activity or electromotive series of metals is a listing of the metals in decreasing order of their reactivity with hydrogen-ion sources such as water and acids. In the reaction with a hydrogen-ion source, the metal is oxidised to a metal ion, and the hydrogen ion is reduced to H₂. The ordering of the activity series can be related to the standard reduction potential of a metal cation. The more positive the standard reduction potential of the cation, the more difficult it is to oxidise the metal to a hydrated metal cation and the later that metal falls in the series Three notable groups comprise the series - very electropositive metals - electropositive metals - electronegative metals Electropositive metals have electronegativities that fall between 1.4 and 1.9. Cations of these metals generally have standard reduction potentials between 0.0 and -1.6 V They: - do not react very readily with water to release hydrogen - react with H⁺ (acids) Electropositive metals do not burn in air as readily as do very electropositive metals. The surfaces of these metals will tarnish in the presence of oxygen forming a protective oxide coating. This coating protects the bulk of the metal against further oxidation (the metal is passivated). Reaction is reduced in the massive form (sheet, rod, or drop), compared with finely divided forms. The less active metals will not burn in air but:



Safety Data Sheet(SDS)

According to GHS

Report No.: WTD22H04081591C

Date: May. 6, 2022

Page 12 of 24

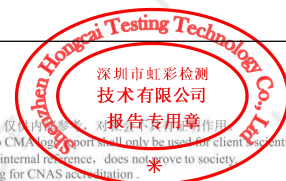
can react exothermically with oxidising acids to form noxious gases.
catalyse polymerisation and other reactions, particularly when finely divided
react with halogenated hydrocarbons (for example, copper dissolves when heated in carbon tetrachloride), sometimes forming explosive compounds.
Elemental metals may react with azo/diazo compounds to form explosive products

Finely divided metal powders develop pyrophoricity when a critical specific surface area is exceeded; this is ascribed to high heat of oxide formation on exposure to air.
Safe handling is possible in relatively low concentrations of oxygen in an inert gas
Several pyrophoric metals, stored in glass bottles have ignited when the container is broken on impact. Storage of these materials moist and in metal containers is recommended.
The reaction residues from various metal syntheses (involving vacuum evaporation and co-deposition with a ligand) are often pyrophoric

If the surface of the metal is in contact with both oxygen and water, corrosion can occur. In corrosion, the metal acts as an anode and is oxidised.

Many metals may incandesce, react violently, ignite or react explosively upon addition of concentrated nitric acid.
Some electropositive metals do not react with nitric acid because they are passivated.

<https://www.wou.edu/las/physci/ch412/activity.htm>
Chips, fines and dust are considerably more reactive in the presence of:
Water - slowly generates flammable/explosive hydrogen gas and heat (generation rate is greatly increased with smaller particles (e.g., fines and dusts).
Heat - oxidise at a rate dependent upon temperature and particle size.
Strong oxidisers - violent reaction with considerable heat generation; an react explosively with nitrates (e.g., ammonium nitrate and fertilizers containing nitrate) when heated or molten.
Acids and alkalis - reacts to generate flammable/explosive hydrogen gas; generation rate is greatly increased with smaller particles (e.g., fines and dusts).
Halogenated compounds including halogenated fire extinguishing agents, which may react violently with finely divided or molten metals
Iron oxide (rust) and other metal oxides (e.g., copper and lead oxides) which may produce a violent thermit reaction, initiated by a weak ignition source, generating considerable heat..
Iron powder and water which may react explosively forming hydrogen gas when heated above 800 degrees C (1470 deg F).



Safety Data Sheet(SDS)

According to GHS

Report No.: WTD22H04081591C

Date: May. 6, 2022

Page 13 of 24

	Finely divided metals (e.g., powders or wire) may have enough surface oxide to produce thermit reactions/explosions Metals and their oxides or salts may react violently with chlorine trifluoride and bromine trifluoride. These trifluorides are hypergolic oxidisers. They ignite on contact (without external source of heat or ignition) with recognised fuels - contact with these materials, following an ambient or slightly elevated temperature, is often violent and may produce ignition. The state of subdivision may affect the results. Many metals may incandesce, react violently, ignite or react explosively upon addition of concentrated nitric acid. Avoid storage with halogens, cupric nitrate, turpentine, sodium and potassium peroxide, sulfur and acids. Reacts vigorously with chlorine and turpentine and may cause adjacent combustible materials to ignite. Contact of powder with sulfur will produce incandescence
--	--

7.3 Specific end use(s)

Not Available

SECTION 8 Exposure controls / personal protection

8.1 Control parameters

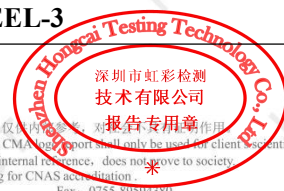
Occupational Exposure Limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
China Occupational Exposure Limits for Hazardous Agents in the Workplace - Dust	tin	Other dust	8 mg/m3	Not Available	Not Available	(Name (a - refers to dust with free SiO2 less than 10 %, free of asbestos and toxic substances, and no occupational exposure limit has been established.))

Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
------------	--------	--------	--------



Safety Data Sheet(SDS)

According to GHS

Report No.: WTD22H04081591C

Date: May. 6, 2022

Page 14 of 24

Ingredient	TEEL-1	TEEL-2	TEEL-3
tin	6 mg/m3	67 mg/m3	400 mg/m3

Ingredient	Original IDLH	Revised IDLH
tin	Not Available	Not Available

8.2 Exposure controls

Appropriate engineering controls	Metal dusts must be collected at the source of generation as they are potentially explosive. Avoid ignition sources. Good housekeeping practices must be maintained. Dust accumulation on the floor, ledges and beams can present a risk of ignition, flame propagation and secondary explosions. Do not use compressed air to remove settled materials from floors, beams or equipment Vacuum cleaners, of flame-proof design, should be used to minimise dust accumulation. Use non-sparking handling equipment, tools and natural bristle brushes. Cover and reseal partially empty containers. Provide grounding and bonding where necessary to prevent accumulation of static charges during metal dust handling and transfer operations. Do not allow chips, fines or dusts to contact water, particularly in enclosed areas. Metal spraying and blasting should, where possible, be conducted in separate rooms. This minimises the risk of supplying oxygen, in the form of metal oxides, to potentially reactive finely divided metals such as aluminium, zinc, magnesium or titanium. Work-shops designed for metal spraying should possess smooth walls and a minimum of obstructions, such as ledges, on which dust accumulation is possible. Wet scrubbers are preferable to dry dust collectors. Bag or filter-type collectors should be sited outside the workrooms and be fitted with explosion relief doors. Cyclones should be protected against entry of moisture as reactive metal dusts are capable of spontaneous combustion in humid or partially wetted states. Local exhaust systems must be designed to provide a minimum capture velocity at the fume source, away from the worker, of 0.5 metre/sec. Local ventilation and vacuum systems must be designed to handle explosive dusts. Dry vacuum and electrostatic precipitators must not be used, unless specifically approved for use with flammable/ explosive dusts. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the
----------------------------------	--



Safety Data Sheet(SDS)

According to GHS

Report No.: WTD22H04081591C

Date: May. 6, 2022

Page 15 of 24

	contaminant. <table border="1"> <tr> <td>Type of Contaminant:</td><td>Air Speed:</td></tr> <tr> <td>welding, brazing fumes (released at relatively low velocity into moderately still air)</td><td>0.5-1.0 m/s (100-200 f/min.)</td></tr> </table> Within each range the appropriate value depends on: <table border="1"> <tr> <td>Lower end of the range</td><td>Upper end of the range</td></tr> <tr> <td>1: Room air currents minimal or favourable to capture</td><td>1: Disturbing room air currents</td></tr> <tr> <td>2: Contaminants of low toxicity or of nuisance value only.</td><td>2: Contaminants of high toxicity</td></tr> <tr> <td>3: Intermittent, low production.</td><td>3: High production, heavy use</td></tr> <tr> <td>4: Large hood or large air mass in motion</td><td>4: Small hood-local control only</td></tr> </table> Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2.5 m/s (200-500 f/min.) for extraction of gases discharged 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.	Type of Contaminant:	Air Speed:	welding, brazing fumes (released at relatively low velocity into moderately still air)	0.5-1.0 m/s (100-200 f/min.)	Lower end of the range	Upper end of the range	1: Room air currents minimal or favourable to capture	1: Disturbing room air currents	2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity	3: Intermittent, low production.	3: High production, heavy use	4: Large hood or large air mass in motion	4: Small hood-local control only
Type of Contaminant:	Air Speed:														
welding, brazing fumes (released at relatively low velocity into moderately still air)	0.5-1.0 m/s (100-200 f/min.)														
Lower end of the range	Upper end of the range														
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents														
2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity														
3: Intermittent, low production.	3: High production, heavy use														
4: Large hood or large air mass in motion	4: Small hood-local control only														
Personal protection															
Eye and face protection	Safety glasses with side shields Chemical goggles. Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye														



Safety Data Sheet(SDS)

According to GHS

Report No.: WTD22H04081591C

Date: May. 6, 2022

Page 16 of 24

	redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]
Skin protection	See Hand protection below
Hands/feet protection	The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application. The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended. Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: · frequency and duration of contact, · chemical resistance of glove material, · glove thickness and · dexterity Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent). · When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended. · When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended. · Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use. · Contaminated gloves should be replaced. As defined in ASTM F-739-96 in any application, gloves are rated as: · Excellent when breakthrough time > 480 min · Good when breakthrough time > 20 min · Fair when breakthrough time < 20 min · Poor when glove material degrades For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended. It should be emphasised that glove thickness is not necessarily a good predictor of glove



Safety Data Sheet(SDS)

According to GHS

Report No.: WTD22H04081591C

Date: May. 6, 2022

Page 17 of 24

	resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times. Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers technical data should always be taken into account to ensure selection of the most appropriate glove for the task. Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example: · Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of. · Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended. Protective gloves eg. Leather gloves or gloves with Leather facing Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present. - polychloroprene. - nitrile rubber. - butyl rubber. - fluorocautchouc. - polyvinyl chloride. Gloves should be examined for wear and/ or degradation constantly.
Body protection	See Other protection below
Other protection	· During repair or maintenance activities the potential exists for exposures to toxic metal particulate in excess of the occupational standards. Under these circumstances, protecting workers can require the use of specific work practices or procedures involving the combined use of ventilation, wet and vacuum cleaning methods, respiratory protection, decontamination, special protective clothing, and when necessary, restricted work zones. · Protective over-garments or work clothing must be worn by persons who may become contaminated with particulate during activities such as machining, furnace rebuilding, air cleaning equipment filter changes, maintenance, furnace tending, etc. Contaminated work clothing and over-garments must be managed in a controlled manner to prevent secondary exposure to workers of third parties, to prevent the spread of particulate to other areas, and to prevent particulate from being taken home by workers. · Personnel who handle and work with <u>molten metal</u> should utilise primary protective clothing like polycarbonate face shields, fire resistant tapper's jackets, neck shades (snoods), leggings,



Safety Data Sheet(SDS)

According to GHS

Report No.: WTD22H04081591C

Date: May. 6, 2022

Page 18 of 24

	spats and similar equipment to prevent burn injuries. In addition to primary protection, secondary or day-to-day work clothing that is fire resistant and sheds metal splash is recommended for use with molten metal. Synthetic materials should never be worn even as secondary clothing (undergarments).
--	---

Respiratory protection

Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:001, ANSI Z88 or national equivalent)

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	P1 Air-line*	- -	PAPR-P1 -
up to 50 x ES	Air-line**	P2	PAPR-P2
up to 100 x ES	-	P3	-
		Air-line*	-
100+ x ES	-	Air-line**	PAPR-P3

* - Negative pressure demand ** - Continuous flow

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO₂), G = Agricultural chemicals, K = Ammonia(NH₃), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.

The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).

Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.

Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.

Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)

Use approved positive flow mask if significant quantities of dust becomes airborne.

Try to avoid creating dust conditions.

SECTION 9 Physical and chemical properties

Safety Data Sheet(SDS)

According to GHS

Report No.: WTD22H04081591C

Date: May. 6, 2022

Page 19 of 24

9.1 Information on basic physical and chemical properties

Color	Silver white
Form	Ribbon filament
Appearance	Solid
Odour	No data
Melting Range (°C)	Not Applicable
Boiling Range (°C)	227
Flash Point (°C)	No data
Decomposition Temp (°C)	No data
Autoignition Temp (°C)	No data
Upper Explosive Limit (%)	No data
Lower Explosive Limit (%)	No data
Volatile Component (%vol)	No data
Molecular Weight	No data
Viscosity	No data
Solubility in water (g/L)	No data
pH (1% solution)	No data
pH (as supplied)	No data
Vapour Pressure (kPa)	No data
Specific Gravity (water=1)	No data
Relative Vapour Density (air=1)	No data
Evaporation Rate	No data

9.2 Other information

Not Available

SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	Product is considered stable and hazardous polymerisation will not occur.
Possibility of hazardous	See section 7



Safety Data Sheet(SDS)

According to GHS

Report No.: WTD22H04081591C

Date: May. 6, 2022

Page 20 of 24

reactions	
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 Toxicological information

11.1 Information on toxicological affects

Acute Toxicity	
LD/LC50 values relevant for classification	No data.
Primary irritant effect	
On the skin	No data.
On the eyes	No data.
Inhaled	No data.
Sensitization	No known sensitizing effects.
More information on toxicity	According to the calculation method of the general EU classification guidelines for preparations (printed in the latest edition), there are no classification restrictions for this product. There are no obvious acute toxicity data to confirm the literature search.

11.2 Information on other hazards

No data.

SECTION 12 Ecological information

12.1 Toxicity

tin	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
Legend:	Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data				



Safety Data Sheet(SDS)

According to GHS

Report No.: WTD22H04081591C

Date: May. 6, 2022

Page 21 of 24

12.2 Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
	No Data available for all ingredients	No Data available for all ingredients

12.3 Bioaccumulative potential

Ingredient	Bioaccumulation
	No Data available for all ingredients

12.4 Mobility in soil

Ingredient	Mobility
	No Data available for all ingredients

12.5 Results of PBT and vPvB assessment

No Data.

12.6 Endocrine disrupting properties

No Data.

12.7 Other adverse effects

No Data.



Safety Data Sheet(SDS)

According to GHS

Report No.: WTD22H04081591C

Date: May. 6, 2022

Page 22 of 24

SECTION 13 Disposal considerations

13.1 Waste treatment methods

Waste chemicals:	Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked. A Hierarchy of Controls seems to be common - the user should investigate: Reduction Reuse Recycling Disposal (if all else fails) This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate. In most instances the supplier of the material should be consulted. DO NOT allow wash water from cleaning or process equipment to enter drains. It may be necessary to collect all wash water for treatment before disposal. In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. Where in doubt contact the responsible authority.
Contaminated packing materials:	Refer to section above
Precautions for Transport:	Refer to section above



Safety Data Sheet(SDS)

According to GHS

Report No.: WTD22H04081591C

Date: May. 6, 2022

Page 23 of 24

SECTION 14 Transport information

14.1 UN number or ID number

Not Applicable

14.2 UN proper shipping name

Not Applicable

14.3 Transport hazard class(es)

Not Applicable

14.4 Packing group

Not Applicable

14.5 Environmental hazards

Not Applicable

14.6 Special precautions for user

Not Applicable

14.7 Maritime transport in bulk according to IMO instruments

Not Applicable

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

The product should follow the relevant regulations of EU Directive/Hazardous substances regulations.

15.2 Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

The SDS should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Statement:

1. This report is considered invalid without approved signature and special seal;



Safety Data Sheet(SDS)

According to GHS

Report No.: WTD22H04081591C

Date: May. 6, 2022

Page 24 of 24

2. This information of section 1, 3 and 9 was provided by the applicant who should be responsible for the authenticity which HCT hasn't verified;
3. The content shown in this report refer only to the sample applied;
4. Without written approval of HCT, this report can't be reproduced except in full.

End

