Product Name	Bossweld 50/50 Solder
Part Number	300249
SDS Document Number	SDS_Bossweld 50-50 Solder_V1.0_121219
Issue Date	12/12/19

SECTION 1: PRODUCT IDENTIFIER & IDENTITY FOR THE CHEMICAL

Product Identifier

Product Name: Bossweld 50/50 Solder
Part Numbers: 300249

Relevant identified uses of the substance and uses advised against

for welding fume:
In addition to complying with any individual exposure standards for specific contaminants, where current manual welding processes are used, the fume concentration inside the welder's helmet should not exceed 5 mg/m3, when collected in accordance with the appropriate standard (AS 3640, for example).
ES* TWA: 5 mg/m3
TLV* TWA: 5 mg/m3, B2 (a substance of variable composition)
OES* TWA: 5 mg/m3
Most welding, even with primitive ventilation, does not produce exposures inside the welding helmet above 5 mg/m3. That which does should be controlled (ACGIH). Inspirable dust concentrations in a worker's breathing zone shall be collected and measured in accordance with AS 3640, for example. Metal content can be analytically determined by OSHA Method ID25 (ICP-AES) after total digestion of filters and dissolution of captured metals. Sampling of the Respirable Dust fraction requires cyclone separator devices (elutriators) and procedures to comply with AS 2985 (for example).
Soldering - general.

Details of the supplier

Supplier Name: Dynaweld Industrial Supplies Pty Ltd
Address: Building 2, 10 Jessica Place, Prestons NSW 2214, Australia
Phone: +61 2 8761 6500
Email: sales@dynaweld.com.au
Web Site: https://www.dynaweld.com.au

Emergency phone number

Emergency Phone: +61 2 8761 6500 (Australia)

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

HAZARDOUS CHEMICAL. NON-DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.

CHEMWATCH HAZARD RATINGS

		Min	Max
Flammability	0		
Toxicity	2		
Body Contact	2		
Reactivity	2		
Chronic	3		

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

Poisons Schedule	Not Applicable
Classification [1]	Acute Toxicity (Oral) Category 4, Acute Toxicity (Dermal) Category 4, Acute Toxicity (Inhalation) Category 4, Reproductive Toxicity Category 1A, Specific target organ toxicity - repeated exposure Category 2, Chronic Aquatic Hazard Category 1
Legend:	*1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI*

Label elements

Hazard pictogram(s)	
SIGNAL WORD	**DANGER**

Hazard statement(s)

H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H332	Harmful if inhaled.
H360FD	May damage fertility. May damage 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 statement(s) Prevention

P201	Obtain special instructions before use.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.

Precautionary statement(s) Response

P308+P313	IF exposed or concerned: Get medical advice/attention.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P301+P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P330	Rinse mouth.

Precautionary statement(s) Storage

P405	Store locked up.

Precautionary statement(s) Disposal

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

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
Not Available		soldering alloy consisting
7439-92-1	40-70	lead
7440-31-5	30-60	tin
7440-36-0	0-3	antimony
Not Available		which upon use generates
Not Available	NotSpec.	welding fumes
7440-31-5	NotSpec.	tin fume
7439-92-1.	NotSpec.	lead fumes

SECTION 4 FIRST AID MEASURES

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. ▸ **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. ▸ For "arc eye", i.e. welding flash or UV light burns to the eye: ▸ Place eye pads or light clean dressings over both eyes. ▸ Seek medical assistance. For THERMAL burns: ▸ Do NOT remove contact lens ▸ 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: ▸ Immediately flush body and clothes with large amounts of water, using safety shower if available. ▸ Quickly remove all contaminated clothing, including footwear. ▸ Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre. ▸ Transport to hospital, or doctor. For thermal burns: ▸ Decontaminate area around burn. ▸ Consider the use of cold packs and topical antibiotics. For first-degree burns (affecting top layer of skin) ▸ Hold burned skin under cool (not cold) running water or immerse in cool water until pain subsides. ▸ Use compresses if running water is not available. ▸ Cover with sterile non-adhesive bandage or clean cloth. ▸ Do NOT apply butter or ointments; this may cause infection. ▸ Give over-the counter pain relievers if pain increases or swelling, redness, fever occur. For second-degree burns (affecting top two layers of skin) ▸ Cool the burn by immerse in cold running water for 10-15 minutes. ▸ Use compresses if running water is not available. ▸ Do NOT apply ice as this may lower body temperature and cause further damage. ▸ Do NOT break blisters or apply butter or ointments; this may cause infection. ▸ Protect burn by cover loosely with sterile, nonstick bandage and secure in place with gauze or tape. To prevent shock: (unless the person has a head, neck, or leg injury, or it would cause discomfort): ▸ Lay the person flat. ▸ Elevate feet about 12 inches. ▸ Elevate burn area above heart level, if possible. ▸ Cover the person with coat or blanket. ▸ Seek medical assistance. For third-degree burns Seek immediate medical or emergency assistance. In the mean time: ▸ Protect burn area cover loosely with sterile, nonstick bandage or, for large areas, a sheet or other material that will not leave lint in wound. ▸ Separate burned toes and fingers with dry, sterile dressings. ▸ Do not soak burn in water or apply ointments or butter; this may cause infection. ▸ To prevent shock see above. ▸ For an airway burn, do not place pillow under the person's head when the person is lying down. This can close the airway. ▸ Have a person with a facial burn sit up. ▸ Check pulse and breathing to monitor for shock until emergency help arrives.
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, without delay.
Ingestion	▸ **IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.** ▸ For advice, contact a Poisons Information Centre or a doctor. ▸ Urgent hospital treatment is likely to be needed. ▸ In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition. ▸ If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the SDS should be provided. Further action will be the responsibility of the medical specialist. ▸ If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the SDS. **Where medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:** ▸ **INDUCE** vomiting with fingers down the back of the throat, **ONLY IF CONSCIOUS**. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. **NOTE:** Wear a protective glove when inducing vomiting by mechanical means.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

Copper, magnesium, aluminium, antimony, iron, manganese, nickel, zinc (and their compounds) in welding, brazing, galvanising or smelting operations all give rise to thermally produced particulates of smaller dimension than may be produced if the metals are divided mechanically. Where insufficient ventilation or respiratory protection is available these particulates may produce "metal fume fever" in workers from an acute or long term exposure.

- Onset occurs in 4-6 hours generally on the evening following exposure. Tolerance develops in workers but may be lost over the weekend. (Monday Morning Fever)
- Pulmonary function tests may indicate reduced lung volumes, small airway obstruction and decreased carbon monoxide diffusing capacity but these abnormalities resolve after several months.
- Although mildly elevated urinary levels of heavy metal may occur they do not correlate with clinical effects.
- The general approach to treatment is recognition of the disease, supportive care and prevention of exposure.
- Seriously symptomatic patients should receive chest x-rays, have arterial blood gases determined and be observed for the development of tracheobronchitis and pulmonary edema.

[Ellenhorn and Barceloux: Medical Toxicology]

- Chelation with British Anti-Lewisite (BAL) for serious antimony exposures should be employed.
- Dialyse as needed. The role of exchange diffusion is not clear.
- Be sure to monitor for dysrhythmias.

[Ellenhorn and Barceloux: Medical Toxicology]

- Gastric acids solubilise lead and its salts and lead absorption occurs in the small bowel.
- Particles of less than 1 um diameter are substantially absorbed by the alveoli following inhalation.
- Lead is distributed to the red blood cells and has a half-life of 35 days. It is subsequently redistributed to soft tissue & bone-stores or eliminated. The kidney accounts for 75% of daily lead loss; integumentary and alimentary losses account for the remainder.
- Neurasthenic symptoms are the most common symptoms of intoxication. Lead toxicity produces a classic motor neuropathy. Acute encephalopathy appears infrequently in adults. Diazepam is the best drug for seizures.
- Whole-blood lead is the best measure of recent exposure; free erythrocyte protoporphyrin (FEP) provides the best screening for chronic exposure. Obvious clinical symptoms occur in adults when whole-blood lead exceeds 80 ug/dL.
- British Anti-Lewisite is an effective antidote and enhances faecal and urinary excretion of lead. The onset of action of BAL is about 30 minutes and most of the chelated metal complex is excreted in 4-6 hours, primarily in the bile. Adverse reaction appears in up to 50% of patients given BAL in doses exceeding 5 mg/kg. CaNa2EDTA has also been used alone or in concert with BAL as an antidote. D-penicillamine is the usual oral agent for mobilisation of bone lead; its use in the treatment of lead poisoning remains investigational. 2,3-dimercapto-1-propanesulfonic acid (DMPS) and dimercaptosuccinic acid (DMSA) are water soluble analogues of BAL and their effectiveness is undergoing review. As a rule, stop BAL if lead decreases below 50 ug/dL; stop CaNa2EDTA if blood lead decreases below 40 ug/dL or urinary lead drops below 2 mg/24hrs.

[Ellenhorn & Barceloux: Medical Toxicology]

BIOLOGICAL EXPOSURE INDEX - BEI

These represent the determinants observed in specimens collected from a healthy worker who has been exposed at the Exposure Standard (ES or TLV):

Determinant	Index	Sampling Time	Comments
1. Lead in blood	30 ug/100 ml	Not Critical	
2. Lead in urine	150 ug/gm creatinine	Not Critical	B
3. Zinc protoporphyrin in blood	250 ug/100 ml erythrocytes OR 100 ug/100 ml blood	After 1 month exposure	B

B: Background levels occur in specimens collected from subjects **NOT** exposed.

SECTION 5 FIREFIGHTING MEASURES

Extinguishing media

- **DO NOT** use halogenated fire extinguishing agents.

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.

Special hazards arising from the substrate or mixture

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

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.
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. Ignites spontaneously in air (pyrophoric) and burns with intense heat. May emit poisonous fumes. May emit corrosive fumes. Welding arc and metal sparks can ignite combustibles.
HAZCHEM	Not Applicable

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	▸ Clean up waste regularly and abnormal spills immediately. ▸ Avoid breathing dust and contact with skin and eyes. ▸ Wear protective clothing, gloves, safety glasses and dust respirator. ▸ Use dry clean up procedures and avoid generating dust. ▸ Vacuum up or sweep up. **NOTE:** Vacuum cleaner must be fitted with an exhaust micro filter (HEPA type) (consider explosion-proof machines designed to be grounded during storage and use). ▸ Dampen with water to prevent dusting before sweeping.
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. 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.

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

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	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. ▸ Avoid all personal contact, including inhalation. ▸ Wear protective clothing when risk of exposure occurs. ▸ Use in a well-ventilated area. ▸ Prevent concentration in hollows and sumps. ▸ **DO NOT** enter confined spaces until atmosphere has been checked. ▸ **DO NOT** allow material to contact humans, exposed food or food utensils. ▸ Avoid contact with incompatible materials.
Other information	▸ **DO NOT** store near acids, or oxidising agents ▸ 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. ▸ 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.

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	Welding electrodes should not be allowed to come into contact with strong acids or other substances which are corrosive to metals. ▸ Many metals may incandesce, react violently, ignite or react explosively upon addition of concentrated nitric acid. Metals exhibit varying degrees of activity. 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: ▸ 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. ▸ Many metals in elemental form react exothermically with compounds having active hydrogen atoms (such as acids and water) to form flammable hydrogen gas and caustic products. ▸ Elemental metals may react with azo/diazo compounds to form explosive products. ▸ Some elemental metals form explosive products with halogenated hydrocarbons. ▸ 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.

Factors influencing the pyrophoricity of metals are particle size, presence of moisture, nature of the surface of the particle, heat of formation of the oxide, or nitride, mass, hydrogen content, stress, purity and presence of oxide, among others.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	lead	Lead, inorganic dusts & fumes (as Pb)	0.05 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	tin	Tin, metal	2 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	antimony	Antimony & compounds (as Sb)	0.5 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	welding fumes	Welding fumes (not otherwise classified)	5 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	tin fume	Tin, metal	2 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	lead fumes	Lead, inorganic dusts & fumes (as Pb)	0.05 mg/m3	Not Available	Not Available	Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
lead	Lead	0.15 mg/m3	120 mg/m3	700 mg/m3
tin	Tin	6 mg/m3	67 mg/m3	400 mg/m3
antimony	Antimony	1.5 mg/m3	13 mg/m3	80 mg/m3
tin fume	Tin	6 mg/m3	67 mg/m3	400 mg/m3
lead fumes	Lead	0.15 mg/m3	120 mg/m3	700 mg/m3

Ingredient	Original IDLH	Revised IDLH
lead	Not Available	Not Available
tin	Not Available	Not Available
antimony	Not Available	Not Available
welding fumes	Not Available	Not Available
tin fume	Not Available	Not Available
lead fumes	Not Available	Not Available

Exposure controls

Appropriate engineering controls

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.
The basic types of engineering controls are:
Process controls which involve changing the way a job activity or process is done to reduce the risk.
Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.
Employers may need to use multiple types of controls to prevent employee overexposure.

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.

Personal protection

Eye and face protection

- Goggles or other suitable eye protection shall be used during all gas welding or oxygen cutting operations. Spectacles without side shields, with suitable filter lenses are permitted for use during gas welding operations on light work, for torch brazing or for inspection.
- For most open welding/brazing operations, goggles, even with appropriate filters, will not afford sufficient facial protection for operators. Where possible use welding helmets or handshields corresponding to EN 175, ANSI Z49:12005, AS 1336 and AS 1338 which provide the maximum possible facial protection from flying particles and fragments. [WRIA-WTIA Technical Note 7]
- An approved face shield or welding helmet can also have filters for optical radiation protection, and offer additional protection against debris and sparks.
- UV blocking protective spectacles with side shields or welding goggles are considered primary protection, with the face shield or welding helmet considered secondary protection.
- The optical filter in welding goggles, face mask or helmet must be a type which is suitable for the sort of work being done.A filter suitable for gas welding, for instance, should not be used for arc welding.

For submerged arc welding use a lens shade which gives just sufficient arc brightness to allow weld pool control.

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. ▸ Protective gloves eg. Leather gloves or gloves with Leather facing ▸ Welding gloves conforming to Standards such as EN 12477:2001, ANSI Z49.1, AS/NZS 2161:2008 produced from leather, rubber, treated cotton,or alumininised ▸ These gloves protect against mechanical risk caused by abrasion, blade cut, tear and puncture ▸ Other gloves which protect against thermal risks (heat and fire) might also be considered - these comply with different standards to those mentioned above. ▸ One pair of gloves may not be suitable for all processes. For example, gloves that are suitable for low current Gas Tungsten Arc Welding (GTAW) (thin and flexible) would not be proper for high-current Air Carbon Arc Cutting (CAC-A) (insulated, tough, and durable) 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. ▸ fluorocaoutchouc. ▸ polyvinyl chloride. Gloves should be examined for wear and/ or degradation constantly.
Body protection	See Other protection below
Other protection	Before starting; consider that protection should be provided for all personnel within 10 metres of any open arc welding operation. Welding sites must be adequately shielded with screens of non flammable materials. Screens should permit ventilation at floor and ceiling levels. ·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 molten metal should utilise primary protective clothing like polycarbonate face shields, fire resistant tapper's jackets, neck shades (snoods), leggings, 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)

Welding of powder coated metal requires good general area ventilation, and ventilated mask as local heat causes minor coating decomposition releasing highly discomforting fume which may be harmful if exposure is regular.
Welding or flame cutting of metals with chromate pigmented primers or coatings may result in inhalation of highly toxic chromate fumes. Exposures may be significant in enclosed or poorly ventilated areas.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Silver to grey solid; insoluble in water.

Physical state	Solid	**Relative density (Water = 1)**	Not Available
Odour	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	Not Applicable
pH (as supplied)	Not Applicable	**Decomposition temperature**	Not Available
Melting point / freezing point (°C)	Not Available	**Viscosity (cSt)**	Not Applicable
Initial boiling point and boiling range (°C)	Not Applicable	**Molecular weight (g/mol)**	Not Applicable
Flash point (°C)	Not Applicable	**Taste**	Not Available
Evaporation rate	Not Applicable	**Explosive properties**	Not Available
Flammability	Not Applicable	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	Not Applicable	**Surface Tension (dyn/cm or mN/m)**	Not Applicable
Lower Explosive Limit (%)	Not Applicable	**Volatile Component (%vol)**	Not Available

Vapour pressure (kPa)	Not Applicable	**Gas group**	Not Available
Solubility in water	Immiscible	**pH as a solution (1%)**	Not Applicable
Vapour density (Air = 1)	Not Applicable	**VOC g/L**	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	▸ Unstable in the presence of incompatible materials. ▸ Product is considered stable. ▸ Hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled	Inhalation of dusts, generated by the material, during the course of normal handling, may be harmful. There is strong evidence to suggest that this material can cause, if inhaled once, very serious, irreversible damage of organs. There is some evidence to suggest that the material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Fumes evolved during welding operations may be irritating to the upper-respiratory tract and may be harmful if inhaled. 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. Carbon monoxide poisoning results in breathing problems, diarrhoea and shock. It combines with haemoglobin, the carrier of oxygen in the blood, much more easily than oxygen; the complex formed can disturb muscle function, especially the heart. Inhalation of antimony can cause breathing difficulties and gastrointestinal upset including sore throat, shallow breathing, dizziness, weight loss, gum bleeds and anaemia. Lung swelling and congestion can occur.
Ingestion	Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual. There is strong evidence to suggest that this material can cause, if swallowed once, very serious, irreversible damage of organs. 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. Antimony poisoning causes similar symptoms to arsenic poisoning although vomiting is more prominent. There may be changes in the rhythm of the heart beat.
Skin Contact	Skin contact with the material may be harmful; systemic effects may result following absorption. There is strong evidence to suggest that this material, on a single contact with skin, can cause very serious, irreversible damage of organs. There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons. Ultraviolet (UV) radiation is generated by the electric arc in the welding process. Skin exposure to UV can result in severe burns, often without prior burning. Exposure to infrared (IR) irritation, produced by the electric arc and other flame cutting equipment, may heat the skin surface and the tissues immediately below the surface. Except for this effect, which can progress to thermal burns in some situations, infrared radiation is not dangerous to welders. Most welders are protected by a welder's helmet (or glasses) and protective clothing. Skin contact with antimony compounds may result in redness and severe irritation, with the formation of itchy papules, pustules, skin lesions and small infected blisters (antimony spots) within a few hours. Skin contact may also cause inflammation of the cavity of the nose. Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
Eye	This material can cause eye irritation and damage in some persons. Ultraviolet (UV) radiation can damage the lens of the eye. Many arc welders experience the condition known as "arc-eye", which is a sensation of sand in the eyes. The condition is caused by excessive eye exposure to UV. Exposure to ultraviolet rays may also increase the skin effects of some industrial chemicals (coal tar and cresol compounds, for example). Eye exposure to intense visible light is prevented, for the most part, by the welder's helmet. The arc should never be observed without eye protection.
Chronic	There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment. Repeated or long-term occupational exposure is likely to produce cumulative health effects involving organs or biochemical systems. Ample evidence exists that developmental disorders are directly caused by human exposure to the material. There is some evidence that inhaling this product is more likely to cause a sensitisation reaction in some persons compared to the general population. Principal route of exposure is inhalation of welding fumes from electrodes and workpiece. Reaction products arising from electrode core and flux appear as welding fume depending on welding conditions, relative volatilities of metal oxides and any coatings on the workpiece. Studies of lung cancer among welders indicate that they may experience a 30-40% increased risk compared to the general population. Since smoking and exposure to other cancer-causing agents, such as asbestos fibre, may influence these results, it is not clear whether welding, in fact, represents a significant lung cancer risk. Whilst mild steel welding represents little risk, the stainless steel welder, exposed to chromium and nickel fume, may be at risk and it is this factor which may account for the overall increase in lung cancer incidence among welders. Cold isolated electrodes are relatively harmless. Long-term exposure to low levels of carbon monoxide may cause low body oxygen, heart disease and brain damage, low baby birth weight and increased foetal death and birth defects. Repeated or prolonged exposure to antimony and its compounds may produce inflammation of the mouth cavity, dry throat, metallic taste, gum infection, perforation of the nasal septum and throat, laryngitis, headache, difficulty breathing, indigestion, nausea, vomiting, diarrhoea, loss of appetite, anaemia, weight loss, tightness and pain in the chest, sleeplessness, muscular pain and weakness, dizziness, pharyngitis, bronchitis and pneumonia. Degenerative changes of the liver and kidney may occur. Metal oxides generated by industrial processes such as welding may cause a number of potential health problems. Particles smaller than 5 microns in diameter (which may be breathed in) may cause reduction in lung function. Particles of less than 1.5 microns can be trapped in the lungs, and, depending on the nature of the particle, may cause further serious health consequences.

	Exposure to fume containing high concentrations of water-soluble chromium (VI) during the welding of stainless steels in confined spaces has been reported to result in chronic chrome intoxication, dermatitis and asthma. Certain insoluble chromium (VI) compounds have been named as carcinogens (by the ACGIH) in other work environments. Chromium may also appear in welding fumes as Cr2O3 or double oxides with iron. These chromium (III) compounds are generally biologically inert. Welding fume with high levels of ferrous materials may lead to particle deposition in the lungs (siderosis) after long exposure. This clears up when exposure stops. Chronic exposure to iron dusts may lead to eye disorders. Silica and silicates in welding fumes are non-crystalline and believed to be non-harmful. Other welding process exposures can arise from radiant energy UV flash burns, thermal burns or electric shock The welding arc emits ultraviolet radiation at wavelengths that have the potential to produce skin tumours in animals and in over-exposed individuals, however, no confirmatory studies of this effect in welders have been reported. Lead, in large amounts, can affect the blood, nervous system, heart, glands, immune system and digestive system. Anaemia may occur. 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.

	TOXICITY	IRRITATION
Consolidated Alloys Tin/Lead Solders ? Medium Grade	Not Available	Not Available
lead	TOXICITY	IRRITATION
	dermal (rat) LD50: >2000 mg/kg[1]	Not Available
	Inhalation (rat) LC50: >5.05 mg/l4 h[1]	
	Oral (rat) LD50: >2000 mg/kg[1]	
tin	TOXICITY	IRRITATION
	dermal (rat) LD50: >2000 mg/kg[1]	Eye: no adverse effect observed (not irritating)[1]
	Oral (rat) LD50: >2000 mg/kg[1]	Skin: no adverse effect observed (not irritating)[1]
antimony	TOXICITY	IRRITATION
	Oral (rat) LD50: 100 mg/kg[2]	Eye: no adverse effect observed (not irritating)[1]
		Skin: no adverse effect observed (not irritating)[1]
welding fumes	TOXICITY	IRRITATION
	Not Available	Not Available
tin fume	TOXICITY	IRRITATION
	dermal (rat) LD50: >2000 mg/kg[1]	Eye: no adverse effect observed (not irritating)[1]
	Oral (rat) LD50: >2000 mg/kg[1]	Skin: no adverse effect observed (not irritating)[1]
lead fumes	TOXICITY	IRRITATION
	dermal (rat) LD50: >2000 mg/kg[1]	Not Available
	Inhalation (rat) LC50: >5.05 mg/l4 h[1]	
	Oral (rat) LD50: >2000 mg/kg[1]	

Legend:	*1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances*

LEAD	WARNING: Lead is a cumulative poison and has the potential to cause abortion and intellectual impairment to unborn children of pregnant workers.
WELDING FUMES	Most welding is performed using electric arc processes. There has been considerable evidence linking welding activities and cancer risk. Several case-control studies reported excess risk of melanoma of the eye in welders. This association may be due to the presence in some welding environments of fumes of thorium-232, which is used in tungsten welding rods. There is consensus that some welding environments, notably in stainless steel welding, carry risks of lung cancer. This may be due to exposure to nickel and chromium (VI) compounds. There is generally an excess risk of lung cancer among welders of around 20-40%. **WARNING:** This substance has been classified by the IARC as Group 1: **CARCINOGENIC TO HUMANS**. Not available. Refer to individual constituents.
LEAD FUMES	**WARNING:** This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.
TIN & TIN FUME	No significant acute toxicological data identified in literature search.

Acute Toxicity	✔	**Carcinogenicity**	✘
Skin Irritation/Corrosion	✘	**Reproductivity**	✔
Serious Eye Damage/Irritation	✘	**STOT - Single Exposure**	✘
Respiratory or Skin sensitisation	✘	**STOT - Repeated Exposure**	✔
Mutagenicity	✘	**Aspiration Hazard**	✘

Legend: ✘ *– Data either not available or does not fill the criteria for classification*
✔ *– Data available to make classification*

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

Consolidated Alloys Tin/Lead Solders ? Medium Grade

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
Not Available	Not Available	Not Available	Not Available	Not Available

lead

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.001-0.06756mg/L	2
EC50	48	Crustacea	0.029mg/L	2
EC50	72	Algae or other aquatic plants	0.0205mg/L	2
BCFD	8	Fish	4.324mg/L	4
NOEC	672	Fish	0.00003mg/L	4

tin

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	>0.0124mg/L	2
EC50	48	Crustacea	0.00018mg/L	5
EC50	72	Algae or other aquatic plants	0.009-0.846mg/L	2
NOEC	72	Algae or other aquatic plants	0.001-mg/L	2

antimony

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.93mg/L	2
EC50	48	Crustacea	>1-mg/L	2
EC50	96	Algae or other aquatic plants	0.61mg/L	2
NOEC	720	Fish	>0.0075mg/L	2

welding fumes

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
Not Available	Not Available	Not Available	Not Available	Not Available

tin fume

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	>0.0124mg/L	2
EC50	48	Crustacea	0.00018mg/L	5
EC50	72	Algae or other aquatic plants	0.009-0.846mg/L	2
NOEC	72	Algae or other aquatic plants	0.001-mg/L	2

lead fumes

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.001-0.06756mg/L	2
EC50	48	Crustacea	0.029mg/L	2
EC50	72	Algae or other aquatic plants	0.0205mg/L	2
BCFD	8	Fish	4.324mg/L	4
NOEC	672	Fish	0.00003mg/L	4

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*

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.
Wastes resulting from use of the product must be disposed of on site or at approved waste sites.
For Metal:
Atmospheric Fate - Metal-containing inorganic substances generally have negligible vapour pressure and are not expected to partition to air.
Environmental Fate: Environmental processes, such as oxidation, the presence of acids or bases and microbiological processes, may transform insoluble metals to more soluble ionic forms. Environmental processes may enhance bioavailability and may also be important in changing solubilities.
Aquatic/Terrestrial Fate: When released to dry soil, most metals will exhibit limited mobility and remain in the upper layer; some will leach locally into ground water and/ or surface water ecosystems when soaked by rain or melt ice. A metal ion is considered infinitely persistent because it cannot degrade further. Once released to surface waters and moist soils their fate depends on solubility and dissociation in water. A significant proportion of dissolved/ sorbed metals will end up in sediments through the settling of suspended particles. The remaining metal ions can then be taken up by aquatic organisms.
For Lead:
Environmental Fate: Lead is assessed as low hazard if it remains in its solid, massive, metallic form. Lead, in the form of alkyls, has been introduced to the environment primarily from leaded gasoline/petrol. These are converted to water-soluble lead compounds of high toxicity and availability to plants.
Atmospheric Fate: Lead is primarily an atmospheric pollutant that enters soil and water as fallout, a process determined by the physical form involved and particle size. Lead, in the form of alkyls, has been introduced to the environment primarily from leaded gasoline/petrol. Lead is absorbed by mammals/humans via vapors, contaminated dust, and fumes.
Terrestrial Fate: Soil - Lead alkyls easily leach from soil to contaminate water sources close to highways.
Tin may exist as either divalent (TinII) or tetravalent (TinIV) cations under environmental conditions. TinII prevails in oxygen-poor water and will readily precipitate as a sulfide or as a hydroxide in alkaline water. Tin(IV) readily breaks down in water through hydrolysis, and can precipitate as a hydroxide. In general, tin(IV) would be expected to be the only stable ionic species in the weathering cycle. Tin is generally considered to be relatively immobile in the environment. In water tin may partition to soils and sediments, where it may adhere to soil particles thus reducing its mobility. Some transportation may occur if it adheres to suspended sediments.
For Antimony (Sb):

Environmental Fate: Antimony occurs naturally in the Earth's crust and in seawater. The substance is found mainly as sulfides and oxides - sometimes as native metal. About 114 minerals containing antimony are known. Industrial dust and exhaust gases of cars and oil fuels are the main sources of antimony in urban air. Changes in mobility occur when the metal transforms to a more or less soluble form.
Atmospheric Fate: Antimony trioxide is emitted to air principally in the form of fine particulate matter and strongly absorbs ultraviolet radiation, which causes darkening of the substance. When light is removed, the substance will return to a white color.
DO NOT discharge into sewer or waterways.

Persistence and degradability

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

Bioaccumulative potential

Ingredient	Bioaccumulation
	No Data available for all ingredients

Mobility in soil

Ingredient	Mobility
	No Data available for all ingredients

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal	▸ Containers may still present a chemical hazard/ danger when empty. ▸ Return to supplier for reuse/ recycling if possible. Otherwise: ▸ If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill. ▸ Where possible retain label warnings and SDS and observe all notices pertaining to the product. ▸ **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. ▸ Recycle wherever possible or consult manufacturer for recycling options. ▸ Consult State Land Waste Management Authority for disposal. ▸ Bury residue in an authorised landfill. ▸ Recycle containers if possible, or dispose of in an authorised landfill.

SECTION 14 TRANSPORT INFORMATION

Labels Required

Marine Pollutant	
HAZCHEM	Not Applicable

Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

SECTION 15 REGULATORY INFORMATION

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

LEAD(7439-92-1) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards
Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australia Inventory of Chemical Substances (AICS)
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix B (Part 3)
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Index
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4
IMO IBC Code Chapter 17: Summary of minimum requirements
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

TIN(7440-31-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards
Australia Inventory of Chemical Substances (AICS)

ANTIMONY(7440-36-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Dangerous Goods Code (ADG Code) - Dangerous Goods List
Australia Dangerous Goods Code (ADG Code) - List of Emergency Action Codes
Australia Exposure Standards
Australia Hazardous chemicals which may require Health Monitoring
Australia Inventory of Chemical Substances (AICS)
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Index
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Part 2, Section Seven - Appendix I
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4
International Air Transport Association (IATA) Dangerous Goods Regulations
International Maritime Dangerous Goods Requirements (IMDG Code)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations

WELDING FUMES(NOT AVAILABLE) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

TIN FUME(7440-31-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards
Australia Inventory of Chemical Substances (AICS)

LEAD FUMES(7439-92-1.) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Dangerous Goods Code (ADG Code) - Dangerous Goods List
Australia Dangerous Goods Code (ADG Code) - List of Emergency Action Codes
Australia Exposure Standards
Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australia Inventory of Chemical Substances (AICS)
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix B (Part 3)
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Index
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4
IMO IBC Code Chapter 17: Summary of minimum requirements
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
International Air Transport Association (IATA) Dangerous Goods Regulations
International Maritime Dangerous Goods Requirements (IMDG Code)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations

National Inventory Status

National Inventory	Status
Australia - AICS	No (welding fumes)
Canada - DSL	No (welding fumes)
Canada - NDSL	No (lead; tin fume; antimony; welding fumes; tin; lead fumes)
China - IECSC	No (welding fumes)
Europe - EINEC / ELINCS / NLP	No (welding fumes)
Japan - ENCS	No (lead; tin fume; antimony; welding fumes; tin; lead fumes)
Korea - KECI	No (welding fumes)
New Zealand - NZIoC	No (welding fumes)
Philippines - PICCS	No (welding fumes)
USA - TSCA	No (welding fumes)
Taiwan - TCSI	No (welding fumes)
Mexico - INSQ	No (welding fumes)
Vietnam - NCI	No (welding fumes)
Russia - ARIPS	No (welding fumes)
Thailand - TECI	No (lead; antimony; welding fumes; lead fumes)
Legend:	*Yes = All CAS declared ingredients are on the inventory* *No = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)*

SECTION 16 OTHER INFORMATION

Revision Date	19/09/2018
Initial Date	18/02/2004

SDS Version Summary

Version	Issue Date	Sections Updated
5.1.1.1	27/06/2017	Classification
6.1.1.1	19/09/2018	Acute Health (eye), Acute Health (inhaled), Acute Health (skin), Acute Health (swallowed), Advice to Doctor, Appearance, Chronic Health, Classification, Disposal, Engineering Control, Environmental, Fire Fighter (extinguishing media), Fire Fighter (fire/explosion hazard), Fire Fighter (fire incompatibility), First Aid (eye), First Aid (inhaled), First Aid (skin), Handling Procedure, Ingredients, Instability Condition, Personal Protection (other), Personal Protection (Respirator), Personal Protection (eye), Personal Protection (hands/feet), Physical Properties, Spills (major), Spills (minor), Storage (storage incompatibility), Storage (storage requirement), Storage (suitable container), Supplier Information, Synonyms, Use, Name

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and 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.

Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average
PC—STEL: Permissible Concentration-Short Term Exposure Limit

IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit。
IDLH: Immediately Dangerous to Life or Health Concentrations
OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index