

SDS – SAFETY DATA SHEET

SECTION I: IDENTIFICATION

Product name: MASTERS® TINNING FLUX

Product use: Flux for soldering.

Supplier name and address:

G.F. THOMPSON CO. LTD.
620 Steven Court, Unit 11
Newmarket, Ontario
L3Y 6Z2

Manufacturer name and address:

Refer to supplier.

Emergency Tel:

Mon – Fri, 7:30 am to 5:00 pm EST

905-898-2557

800-499-3673 (toll free)

24 hr Emergency Tel:

905-252-6219 or 647-448-2050

SECTION II: HAZARDS IDENTIFICATION

Classification of the chemical

Grey to greenish paste. Slight petroleum odour.

Most important hazards:

May cause severe irritation or burns to the eyes, skin, gastrointestinal tract, and respiratory system. Occupational exposure to the substance or mixture may cause adverse effects. For further information, please refer to section 11 of the SDS.

Very toxic to aquatic life with long lasting effects. Avoid release to the environment. See Section 12 for more environmental information.

This material is classified as hazardous under Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015).

Classification:

Skin corrosion/irritation - Category 1C

Eye damage/irritation - Category 1

Hazards Not Otherwise Classified (HNOC) / Health Hazards Not Otherwise Classified (Respiratory Tract)

Label elements

Hazard pictogram(s)



Signal Word

DANGER!

Hazard statement(s)

Causes severe skin burns and eye damage.
Corrosive to the respiratory tract.

Precautionary statement(s)

Do not breathe fumes, mists or vapours.
Wash exposed skin thoroughly after handling.
Wear protective gloves/clothing and eye/face protection.

Immediately call a POISON CENTER or doctor/physician.
If swallowed: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Store locked up.

Dispose of contents/container in accordance with local regulation.

Other hazards

Other hazards which do not result in classification:

Toxic fumes may be released during a fire. May be mildly corrosive to some metals. May cause irritation and burns to mouth and throat. Inhalation of fumes may result in metal fume fever, a flu-like illness.

Environmental precautions:

Very toxic to aquatic life with long lasting effects. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Avoid release to the environment. See ECOLOGICAL INFORMATION, Section 12.

SECTION III: COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

<u>Chemical name</u>	<u>Common name and synonyms</u>	<u>CAS #</u>	<u>Concentration (% by weight)</u>
Zinc chloride	Zinc chloride, anhydrous	7646-85-7	17.99
Tin	Tin metal Stannum	7440-31-5	4.95
Ammonium chloride	Ammonium muriate	12125-02-9	1.7

SECTION IV: FIRST-AID MEASURES

Description of first aid measures

- Ingestion* : If swallowed: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician. Never give anything by mouth to an unconscious person.
- Inhalation* : IF INHALED: Remove person to fresh air and keep comfortable for breathing. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen by qualified medical personnel only. Immediately call a POISON CENTER or doctor/physician.
- Skin contact* : IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Flush affected skin with gently flowing lukewarm water for at least 20 minutes. Immediately call a POISON CENTER or doctor/physician. Wash contaminated clothing before reuse.
- Eye contact* : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Flush eyes with water for at least 20 minutes. Protect unharmed eye. Do not rub area of contact. Immediately call a POISON CENTER or doctor/physician.

Most important symptoms and effects, both acute and delayed

- : Causes skin burns. Symptoms may include blistering, ulcerations and scarring. Causes serious eye damage. Symptoms may include stinging, tearing, redness and swelling. May cause irreversible eye damage.
- Corrosive to the respiratory tract. May produce irritation, burning, or destruction of tissues in the respiratory tract, characterized by coughing, choking, pain, or shortness of breath. May cause severe irritation and corrosive damage in the mouth, throat and stomach. Symptoms may include severe abdominal pain, vomiting, burns and bleeding.
- Inhalation of fumes may result in metal fume fever, a flu-like illness. Symptoms of metal fume fever may include fever, fatigue, vomiting, muscle aches and shortness of breath.

Indication of any immediate medical attention and special treatment needed

- : Provide general supportive measures and treat symptomatically.

SECTION V: FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media

- : Use media suitable to the surrounding fire such as water fog or fine spray, alcohol foams, carbon dioxide and dry chemical.

Unsuitable extinguishing media

- : Do not use water jet, as this may spread burning material.

Special hazards arising from the substance or mixture / Conditions of flammability

- : Not considered flammable. However, may burn if exposed to extreme heat and flame. Material will float on water and can be re-ignited at the water's surface. Closed containers may rupture if exposed to excess heat or flame due to a build-up of internal pressure.

Hazardous combustion products

- : Carbon oxides; Metal oxides; Hydrogen chloride gas; Zinc oxide; Ammonia; Nitrogen oxides (NOx); Other irritating fumes and smoke.

Special protective equipment and precautions for firefighters

Protective equipment for fire-fighters

- : Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode. Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Normal protective clothing (bunker gear) may not be adequate. A full-body encapsulating chemical protective suit may be necessary.

Special fire-fighting procedures

- : Move containers from fire area if safe to do so. Water spray may be useful in cooling equipment exposed to heat and flame. Do not allow run-off from fire fighting to enter drains or water courses. Dike for water control.

SECTION VI: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

- : All persons dealing with the clean-up should wear the appropriate chemically protective equipment. Keep all other personnel upwind and away from the spill/release. Restrict access to area until completion of clean-up. Refer to protective measures listed in sections 7 and 8.

Environmental precautions

- : Ensure spilled product does not enter drains, sewers, waterways, or confined spaces. If necessary, dike well ahead of the spill to prevent runoff into drains, sewers, or any natural waterway or drinking supply. Avoid release to the environment.

Methods and material for containment and cleaning up

- : Ventilate the area. Prevent further leakage or spillage if safe to do so. Eliminate all ignition sources. Paste: Use inert, non-combustible absorbents to assist the pick up of material. Scrape up product and place it into a container for disposal. dusts: Collect dust using a vacuum cleaner equipped with HEPA filter. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Keep in properly labelled containers. Contaminated absorbent material may pose the same hazards as the spilled product. Refer to Section 13 for disposal of contaminated material. Contact the proper local authorities.

SECTION VII: HANDLING AND STORAGE

Precautions for safe handling

- : Use with adequate ventilation. Wear protective equipment during handling. Wear protective gloves/clothing and eye/face protection. Do not breathe fumes, mists or vapours. Avoid contact with skin, eyes and clothing. Keep away from extreme heat and direct flame. Keep away from incompatibles. Keep melting temperatures as low as possible to minimize generation of fumes. NOTE: Inadvertent contaminants to product, such as moisture, ice, snow, grease or oil, can cause an explosion when charged to a molten metal bath or melting furnace (preheating metal will remove moisture from product). Keep container tightly closed when not in use. Wash thoroughly after handling. Empty containers retain residue and can be dangerous.

Conditions for safe storage

- : Store in a cool, dry, well-ventilated area. Store away from incompatibles and out of direct sunlight. Store locked up. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. May be mildly corrosive to some metals.

Incompatible materials

- : Strong bases; Alkali metals (e.g. Sodium; Potassium); Strong acids; Turpentine; Cyanides; Sulfides; Halogenated compounds; Lead and silver salts; Metals

SECTION VIII: EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits:

<u>Chemical Name</u>	<u>ACGIH TLV</u>		<u>OSHA PEL</u>	
	<u>TWA</u>	<u>STEL</u>	<u>PEL</u>	<u>STEL</u>
Zinc chloride	1 mg/m ³ (fume)	2 mg/m ³ (fume)	1 mg/m ³ (fume)	N/Av
Tin	2 mg/m ³	N/Av	2 mg/m ³	N/Av
Ammonium chloride	10 mg/m ³ (fume)	20 mg/m ³ (fume)	N/Av	N/Av

Exposure controls

Ventilation and engineering measures

- : Provide adequate ventilation. Local ventilation is recommended if the product is misted or used in a confined space, or if the TLV is exceeded.

Respiratory protection

- : If airborne concentrations are above the permissible exposure limit or are not known, use NIOSH-approved respirators. Respirators should be selected based on the form and concentration of contaminants in air, and in accordance with CSA Z94.4-02.

Skin protection

- : Wear protective gloves/clothing. Where extensive exposure to product is possible, use resistant coveralls, apron and boots to prevent contact. The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye / face protection

- : Wear eye/face protection. Wear as appropriate: Safety glasses with side shields; Tightly fitting safety goggles. A full face shield may also be necessary.

Other protective equipment

- : An eyewash station and safety shower should be made available in the immediate working area. Other equipment may be required depending on workplace standards.

General hygiene considerations

- : Do not breathe fumes, mists or vapours. Avoid contact with skin, eyes and clothing. Upon completion of work, wash hands before eating, drinking, smoking or use of toilet facilities. Remove soiled clothing and wash it thoroughly before reuse. Handle in accordance with good industrial hygiene and safety practice.

SECTION IX: PHYSICAL AND CHEMICAL PROPERTIES

Appearance

- : Grey to greenish paste.

Odour

- : Slight petroleum odour.

Odour threshold

- : N/Av

pH

- : N/Av

Melting/Freezing point

- : 35°C (95°F) (Melting point)

Initial boiling point and boiling range

- : N/Av

Flash point

- : 182 - 221°C (360 - 430°F)



TINNING FLUX

Flashpoint (Method)	: Tag closed cup
Evaporation rate (BuAe = 1)	: N/Av
Flammability (solid, gas)	: Not considered flammable.
Lower flammable limit (% by vol.)	: N/Av
Upper flammable limit (% by vol.)	: N/Av
Oxidizing properties	: None known.
Explosive properties	: Not explosive
Vapour pressure	: N/Av
Vapour density	: N/Av
Relative density / Specific gravity	: 0.87 @ 15.6°C (60°F)
Solubility in water	: Insoluble.
Other solubility(ies)	: N/Av
Partition coefficient: n-octanol/water or Coefficient of water/oil distribution	: N/Av
Auto-ignition temperature	: N/Av
Decomposition temperature	: N/Av
Viscosity	: N/Av
Volatiles (% by weight)	: < 1%
Volatile organic Compounds (VOC's)	: 11.7 g/L
Absolute pressure of container	: N/Av
Flame projection length	: N/Av
Other physical/chemical comments	: No additional information.

SECTION X: STABILITY AND REACTIVITY

Reactivity	: Not normally reactive. May be corrosive to metals such as copper and its alloys (e.g. brass, bronze), aluminum, ferrous metals (e.g. cast iron), carbon steel and some stainless steels (e.g. 303, 310, 321, 400 series). Contact with acids may evolve Hydrogen chloride gas. Contact with strong alkalies may evolve ammonia gas.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: Hazardous polymerization does not occur.
Conditions to avoid	: Ensure adequate ventilation, especially in confined areas. Avoid contact with incompatible materials. Avoid heat and open flame.
Incompatible materials	: Strong bases; Alkali metals (e.g. Sodium; Potassium); Strong acids; Turpentine; Cyanides; Sulfides; Halogenated compounds; Lead and silver salts; Metals
Hazardous decomposition products	: None known, refer to hazardous combustion products in Section 5.

SECTION XI: TOXICOLOGICAL INFORMATION

Information on likely routes of exposure:

Routes of entry inhalation	: YES
Routes of entry skin & eye	: YES
Routes of entry Ingestion	: YES
Routes of exposure skin absorption	: NO

Potential Health Effects:

Signs and symptoms of short-term (acute) exposure

Sign and symptoms Inhalation

- : Corrosive to the respiratory tract. May produce irritation, burning, or destruction of tissues in the respiratory tract, characterized by coughing, choking, pain, or shortness of breath. Inhalation of fumes may result in metal fume fever, a flu-like illness. Symptoms of metal fume fever may include fever, fatigue, vomiting, muscle aches and shortness of breath.

Sign and symptoms ingestion

- : May cause severe irritation and corrosive damage in the mouth, throat and stomach. Symptoms may include severe abdominal pain, vomiting, burns and bleeding.

Sign and symptoms skin

- : Causes skin burns. Symptoms may include blistering, ulcerations and scarring.

Sign and symptoms eyes

- : Causes serious eye damage. Symptoms may include stinging, tearing, redness and swelling. May cause irreversible eye damage.

Potential Chronic Health Effects

- : Chronic skin contact with low concentrations may cause dermatitis.

Mutagenicity

- : No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity

- : No components are listed as carcinogens by ACGIH, IARC, OSHA or NTP.

Reproductive effects & Teratogenicity

- : This product is not expected to cause reproductive or developmental effects.

Sensitization to material

- : Not expected to be a skin or respiratory sensitizer.

Specific target organ effects

- : According to the classification criteria of Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015), this product is not expected to cause specific target organ toxicity (STOT) through single or repeated exposures.

Medical conditions aggravated by overexposure

- : Pre-existing skin, eye and respiratory disorders.

Synergistic materials

- : None known or reported by the manufacturer.

Toxicological data

- : Not classified for acute toxicity based on available data. The calculated ATE values for this mixture are:
ATE oral = 5634 mg/kg

See below for individual ingredient acute toxicity data.

<u>Chemical name</u>	<u>LC₅₀ (4hr)</u> <u>inh, rat</u>	<u>LD₅₀</u>	
		<u>(Oral, rat)</u>	<u>(Rabbit, dermal)</u>
Zinc chloride	N/Av	1100 mg/kg	> 2000 mg/kg (No mortality)
Tin	> 4.75 mg/L (dust) (No mortality)	> 2000 mg/kg (No mortality)	> 2000 mg/kg (No mortality)
Ammonium chloride	N/Av	1220 mg/kg	> 2000 mg/kg (No mortality)

Other important toxicological hazards

- : None known or reported by the manufacturer.



SECTION XII: ECOLOGICAL INFORMATION

Refer to the supplier for Ecological Information

SECTION XIII: DISPOSAL CONSIDERATIONS

Refer to the supplier for Disposal Considerations

SECTION XIII: DISPOSAL CONSIDERATIONS

Refer to the supplier for Transportation Information

SECTION XV: REGULATORY INFORMATION

Refer to the supplier for Regulatory Information

SECTION XVI: OTHER INFORMATION

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