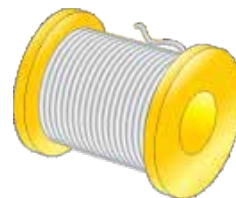




MATERIAL SAFETY DATA SHEET

LEADED SOLDER WIRE



Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Commission Regulation (EU) 2015/830 - United Kingdom (UK)

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

1.1 Product identifier

Product name : Powerflow 3mm 1/2Kg
Product code : 59952
Product type : Massive metal.

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

| Identified uses |
|--------------------------|
| Industrial applications. |
| Material uses |
| soldering |
| Uses advised against |
| Not applicable. |

1.3 Details of the supplier of the safety data sheet

e-mail address of person responsible for this SDS : Europeanregulatory@macdermid.com

Supplier : Fernox
2 Genesis Business Park
Albert Drive
Sheerwater
Woking GU21 5RW

Information contact : Tel. No.: +44 (0) 330 100 7750
+44 (0) 330 100 7751
E-Mail: europeanregulatory@macdermid.com

1.4 Emergency telephone number

National advisory body/Poison Centre

Telephone number :

Supplier

Telephone number : +44 (0) 330 100 7750
Hours of operation : 24/7



SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS] *

Repr. 1A

Lact.

STOT RE 1

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

(*) See full text of phrases in section 16

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H360FD - May damage fertility. May damage the unborn child.
H362 - May cause harm to breast-fed children.
H372 - Causes damage to organs through prolonged or repeated exposure. (blood system, central nervous system (CNS), kidneys)

Precautionary statements

Prevention : P201 - Obtain special instructions before use.
P280 - Wear eye or face protection: Recommended: face shield . Wear protective clothing: Recommended: overall.
P260 - Do not breathe dust.
P263 - Avoid contact during pregnancy or while nursing.

Response : P314 - Get medical attention if you feel unwell.
P308 + P313 - IF exposed or concerned: Get medical attention.

Storage : P405 - Store locked up.

Disposal : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous ingredients : lead

Supplemental label elements : Not applicable.

2.3 Other hazards

Other hazards which do not result in classification : None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

| Product/ingredient name | Identifiers | % | Regulation (EC) No. 1272/2008 [CLP] * | Type |
|-------------------------|---|-----------|---|---------|
| lead | REACH #: 01-2119513221-59 EC: 231-100-4 CAS: 7439-92-1 | ≥50 - ≤75 | Repr. 1A, H360FD (Fertility and Unborn child) Lact., H362 STOT RE 1, H372 (blood system, central nervous system (CNS), kidneys) | [1] [2] |
| tin | REACH #: 01-2119486474-28 EC: 231-141-8 | ≥25 - ≤50 | Not classified. | [2] |



SECTION 3: Composition/information on ingredients

| | | | | |
|----------|---|----|---|-----|
| antimony | CAS: 7440-31-5 REACH #: 01-2119475609-24 EC: 231-146-5 CAS: 7440-36-0 | ≤3 | Not classified. (*) See full text of phrases in section 16 | [2] |
|----------|---|----|---|-----|

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII

[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

[5] Substance of equivalent concern

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures**4.1 Description of first aid measures**

Eye contact : Get medical attention.

Inhalation : Not applicable.

Skin contact : Flush contaminated skin with plenty of water. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Cuts should be treated promptly and covered.

Ingestion : Not applicable.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayedPotential acute health effects

Eye contact : Not applicable.

Inhalation : Not applicable.

Skin contact : No known significant effects or critical hazards.

Ingestion : Not applicable.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : Adverse symptoms may include the following:
reduced foetal weight
increase in foetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
reduced foetal weight
increase in foetal deaths
skeletal malformations

Ingestion : Adverse symptoms may include the following:
reduced foetal weight
increase in foetal deaths
skeletal malformations

SECTION 4: First aid measures

4.3 Indication of any immediate medical attention and special treatment needed

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : No specific fire or explosion hazard.
- Hazardous combustion products** : Decomposition products may include the following materials: metal oxide/oxides

5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : No special protection is required.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

- 6.2 Environmental precautions** : No specific hazard.

6.3 Methods and material for containment and cleaning up

- Small spill** : Restack safely. Take care with items that are sharp or heavy.
- Large spill** : Restack safely. Take care with items that are sharp or heavy.

- 6.4 Reference to other sections** : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

SECTION 7: Handling and storage

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid contact during pregnancy or while nursing. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Take care with items that are sharp or heavy.
- Advice on general occupational hygiene** : Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store locked up.

7.3 Specific end use(s)

Industrial applications.

soldering

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker exposure or environmental releases.

8.1 Control parameters

Occupational exposure limits

| Product/ingredient name | Exposure limit values |
|-------------------------|--|
| lead | EH40-OES (United Kingdom (UK), 2002). TWA: 0.15 mg/m ³ 8 hours. |
| tin | EH40/2005 WELs (United Kingdom (UK), 12/2011). TWA: 0.15 mg/m ³ 8 hours. |
| antimony | EH40-OES (United Kingdom (UK), 2002). TWA: 2 mg/m ³ 8 hours. STEL: 4 mg/m ³ 15 minutes. |
| | EH40/2005 WELs (United Kingdom (UK), 12/2011). Notes: as Sb TWA: 0.5 mg/m ³ , (as Sb) 8 hours. |

Recommended monitoring procedures : Not applicable.

DNELs/DMELs

No DNELs/DMELs available.

PNECs

No PNECs available

8.2 Exposure controls

- Appropriate engineering controls** : No special ventilation requirements. If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Individual protection measures

- Hygiene measures** : Wash thoroughly after handling.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. Recommended: face shield

Skin protection



SECTION 8: Exposure controls/personal protection

| | |
|--|---|
| Hand protection | : Use strong, cut-resistant gloves suitable for handling metals. < 1 hour (breakthrough time): disposable vinyl |
| Body protection | : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: overall |
| Other skin protection | : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. |
| Respiratory protection | : Not applicable. Recommended: Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. |
| Environmental exposure controls | : Not applicable. |

SECTION 9: Physical and chemical properties**9.1 Information on basic physical and chemical properties****Appearance**

| | |
|---|---|
| Physical state | : Solid. |
| Colour | : Silvery. |
| Odour | : None. |
| Odour threshold | : Not available. |
| pH | : Not available. |
| Melting point/freezing point | : 305°C |
| Initial boiling point and boiling range | : Not available. |
| Flash point | : Not available. |
| Evaporation rate | : Not available. |
| Flammability (solid, gas) | : Not available. |
| Upper/lower flammability or explosive limits | : Not available. |
| Vapour pressure | : Not available. |
| Vapour density | : Not available. |
| Relative density | : 9.87 g/cm ³ [20°C] |
| Solubility(ies) | : Insoluble in the following materials: cold water and hot water. |
| Partition coefficient: n-octanol/ water | : Not available. |
| Auto-ignition temperature | : Not available. |
| Decomposition temperature | : Not available. |
| Viscosity | : Not available. |
| Explosive properties | : Not available. |
| Oxidising properties | : Not available. |

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

- 10.1 Reactivity** : No specific data.
- 10.2 Chemical stability** : The product is stable.
- 10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- 10.4 Conditions to avoid** : No specific data.
- 10.5 Incompatible materials** : See Section 10.1.
- 10.6 Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Conclusion/Summary : Not available.

Acute toxicity estimates

Not available.

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitisation

Conclusion/Summary : Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

| Product/ingredient name | Category | Route of exposure | Target organs |
|-------------------------|------------|-------------------|--|
| lead | Category 1 | Not determined | blood system, central nervous system (CNS) and kidneys |

Aspiration hazard

Not available.

Information on likely routes of exposure : Not available.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.



SECTION 11: Toxicological information

- Inhalation** : Adverse symptoms may include the following:
reduced foetal weight
increase in foetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
reduced foetal weight
increase in foetal deaths
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
reduced foetal weight
increase in foetal deaths
skeletal malformations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Potential chronic health effects

Not available.

- Conclusion/Summary** : Not available.
- General** : Causes damage to organs through prolonged or repeated exposure.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : May damage the unborn child.
- Developmental effects** : May cause harm to breast-fed children.
- Fertility effects** : May damage fertility.

- Other information** : Not available.

SECTION 12: Ecological information

12.1 Toxicity

| Product/ingredient name | Result | Species | Exposure |
|-------------------------|-------------------------------------|--|----------|
| lead | Acute EC50 105 ppb Marine water | Algae - Chaetoceros sp. - Exponential growth phase | 72 hours |
| | Acute EC50 0.489 mg/l Marine water | Algae - Ulva pertusa | 96 hours |
| | Acute EC50 8000 µg/l Fresh water | Aquatic plants - Lemna minor | 4 days |
| | Acute LC50 530 µg/l Fresh water | Crustaceans - Ceriodaphnia reticulata | 48 hours |
| | Acute LC50 5100 µg/l Fresh water | Daphnia - Daphnia pulex | 48 hours |
| | Acute LC50 0.44 ppm Fresh water | Fish - Cyprinus carpio - Juvenile (Fledgling, Hatchling, Weanling) | 96 hours |
| | Chronic NOEC 0.25 mg/l Marine water | Algae - Ulva pertusa | 96 hours |
| | Chronic NOEC 0.03 µg/l Fresh water | Fish - Cyprinus carpio | 4 weeks |

- Conclusion/Summary** : Not available.

12.2 Persistence and degradability

- Conclusion/Summary** : Not available.



SECTION 12: Ecological information

12.3 Bioaccumulative potential

Not available.

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

PBT : Not applicable.

vPvB : Not applicable.

12.6 Other adverse effects : No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : Yes.

European waste catalogue (EWC)

| Waste code | Waste designation |
|------------|--------------------------------------|
| 06 04 05* | wastes containing other heavy metals |

Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues.

SECTION 14: Transport information

| | ADR/RID | IMDG | IATA |
|--|----------------|----------------|----------------|
| 14.1 UN number | Not regulated. | Not regulated. | Not regulated. |
| 14.2 UN proper shipping name | - | - | - |
| 14.3 Transport hazard class(es) | - | - | - |
| 14.4 Packing group | - | - | - |



SECTION 14: Transport information

| | | | |
|-----------------------------------|-----|-------------------------|--|
| 14.5 Environmental hazards | No. | No. Not a pollutant. | No. |
| Additional information | - | - | The environmentally hazardous substance mark may appear if required by other transportation regulations. |

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code : Not available.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
[EU Regulation \(EC\) No. 1907/2006 \(REACH\)](#)

[Annex XIV - List of substances subject to authorisation](#)

[Annex XIV](#)

None of the components are listed.

[Substances of very high concern](#)

| Ingredient name | Intrinsic property | Status | Reference number | Date of revision |
|------------------------|---------------------------|---------------|-------------------------|-------------------------|
| Lead | Toxic to reproduction | Candidate | ED 61/2018 | 27/06/2018 |

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Restricted to professional users.

[Other EU regulations](#)

Europe inventory : All components are listed or exempted.

Industrial emissions : Listed

(integrated pollution prevention and control) - Air

Industrial emissions : Listed

(integrated pollution prevention and control) - Water

[Ozone depleting substances \(1005/2009/EU\)](#)

Not listed.

[Prior Informed Consent \(PIC\) \(649/2012/EU\)](#)

| Ingredient name | Annex | Status |
|------------------------|------------------|---------------|
| Lead compounds | Annex I - Part 1 | Listed |

[Seveso Directive \(2012/18/EU\)](#)

This product is not controlled under the Seveso Directive.

[National regulations](#)



SECTION 15: Regulatory information

| Product/ingredient name | List name | Name on list | Classification | Notes |
|-------------------------|--|--------------|----------------|-------|
| lead | UK Occupational Exposure Limits EH40 - WEL | lead | Carc. | - |

International regulations**Stockholm Convention on Persistent Organic Pollutants (850/2004)**

Not listed.

International lists

Mixture

National inventory

| | |
|--------------------------|--|
| Australia | : All components are listed or exempted. |
| Canada | : All components are listed or exempted. |
| China | : All components are listed or exempted. |
| Japan | : Japan inventory (ENCS) : Not determined. Japan inventory (ISHL) : Not determined. |
| Malaysia | : Not determined. |
| New Zealand | : All components are listed or exempted. |
| Philippines | : All components are listed or exempted. |
| Republic of Korea | : All components are listed or exempted. |
| Taiwan | : All components are listed or exempted. |
| Turkey | : Not determined. |
| United States | : All components are listed or exempted. |

| | |
|--|--|
| 15.2 Chemical safety assessment | : This product contains substances for which Chemical Safety Assessments are still required. |
|--|--|

SECTION 16: Other information

☑ Indicates information that has changed from previously issued version.

Abbreviations and acronyms

| |
|--|
| : ATE = Acute Toxicity Estimate |
| CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008] |
| DMEL = Derived Minimal Effect Level |
| DNEL = Derived No Effect Level |
| EUH statement = CLP-specific Hazard statement |
| PBT = Persistent, Bioaccumulative and Toxic |
| PNEC = Predicted No Effect Concentration |
| RRN = REACH Registration Number |
| vPvB = Very Persistent and Very Bioaccumulative |

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

| Classification | Justification |
|---|--|
| Repr. 1A, H360FD (Fertility and Unborn child) Lact., H362 STOT RE 1, H372 (blood system, central nervous system (CNS), kidneys) | Calculation method Calculation method Calculation method |

Full text of abbreviated H statements

| | |
|------------------------|---|
| H360FD H362 H372 | May damage fertility. May damage the unborn child. May cause harm to breast-fed children. Causes damage to organs through prolonged or repeated exposure. |
|------------------------|---|

Full text of classifications [CLP/GHS]

SECTION 16: Other information

| | |
|--|--|
| Lact., H362 Repr. 1A, H360FD STOT RE 1, H372 | REPRODUCTIVE TOXICITY - Effects on or via lactation REPRODUCTIVE TOXICITY (Fertility and Unborn child) - Category 1A SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 1 |
|--|--|

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Date of previous issue : 06/04/2018

Version : 3.3

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Fernox SDS CLP Europe