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Safety Data Sheet

WARNING: PRODUCT COMPONENTS PRESENT HEALTH AND SAFETY HAZARDS. READ AND UNDERSTAND THIS MATERIAL SAFETY DATA SHEET (M.S.DS.). ALSO, FOLLOW YOUR EMPLOYER'S SAFETY PRACTICES.
The information contained herein relates only to the specific product. If the product is combined with other materials, all component properties must be considered. **BE SURE TO CONSULT THE LATEST VERSION OF THE MSDS. MATERIAL SAFETY DATA SHEETS ARE AVAILABLE FROM HARRIS PRODUCTS GROUP** Harris Products Group, HGE PTY LTD, Brisbane | Melbourne | Perth | New Zealand, 14 Queensland Rd, Darra, QLD 4076, Phone: (07) 3375 3670 | Fax: (07) 3375 3620, Email: sales@hgea.com.au, www.harrisproductsgroup.com.au,
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1 IDENTIFICATION

Product identifier

Trade name: Bridgit® Soldering Flux
Product size: Variable

Other means of identification Inorganic Chloride/Mineral Oil Mixture
SDS Number: No other identifiers

Recommended use and restriction on use
Recommended use: Metal Soldering Operations
Restrictions on use: No further relevant information available.

Manufacturer/Importer/Supplier/Distributor information
Importer:
Harris Products Group
14 Queensland Rd
Darra, QLD, Australia 4076
(07) 33753670
Safety Data Sheet Questions: sales@hgea.com.au
Arc Welding Safety Information: www.lincolnelectric.com/safety

24-Hour Emergency Response Telephone Numbers:
000 - Australia
111 - New Zealand
3E Company Access Code: 333895

2 HAZARD(S) IDENTIFICATION

GHS classification of the substance/mixture.
Classified according to the Globally Harmonised System of Classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia.

EMERGENCY OVERVIEW: This product consists of an off-white paste with a slight alcohol odor. This mixture can be irritating, and may damage contaminated tissues (especially after prolonged over-exposures). This product must be substantially preheated before ignition can occur. If involved in a fire, this product may

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decompose to produce irritating vapors and toxic gases, including hydrogen chloride. This product is not reactive under normal circumstances. Emergency responders must wear the proper personal protective equipment suitable for the situation to which they are responding.

SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE:
The most significant routes of over-exposure for this product are by skin or eye contact and inhalation of dusts of fumes of this product.

INHALATION: If vapors of this product are inhaled, irritation of the nose and respiratory system can occur. This paste contains a central nervous system depressant (Isopropyl Alcohol). Depending on the duration of inhalation over-exposure, symptoms such as coughing, sneezing, headache, difficulty breathing, and dizziness may develop. Though not anticipated to occur during use of this paste when the proper precautions are taken, extreme inhalation over-exposure to the Zinc Chloride component of this product can have adverse effects on the lungs (i.e. causing pulmonary edema and pneumonitis, life threatening lung conditions). Inhalation of Zinc Chloride fumes can cause metal fume fever. Symptoms of such over-exposures include headache, fever, rapid breathing, sweating and pains in legs and chest. Extreme over-exposures to the fumes of this product cause liver and kidney disorders, and may be fatal.

CONTACT WITH SKIN or EYES: Contact with the eyes will cause irritation, pain, and reddening. Prolonged exposure of the eyes may result in permanent eye damage. Skin contact can cause reddening and irritation. Prolonged over-exposures can result in ulceration of the contaminated tissues, which could leave scars. There are some reports that the Ethylene Glycol component of this product may cause allergic skin reaction in susceptible individuals. Symptoms may include dryness, redness, itching, rash or welts.

SKIN ABSORPTION: The Isopropyl Alcohol and Ethylene Glycol components of this product can be absorbed via intact skin. Although toxicity via this route of exposure is expected to be low, other compounds may be carried into the system that could have adverse effect.

INGESTION: Ingestion is not anticipated to be a route of occupational exposure for this product. If this flux is ingested, nausea, vomiting, and diarrhea may occur (depending on the amount of the product swallowed). Severe ingestion exposures may result in damage to the tissues of the gastrointestinal system, kidney failure and death.

INJECTION: Though not a likely route of occupational exposure for this product, injection of this product (via punctures or lacerations in the skin) may cause local reddening, tissue swelling, and discomfort. Symptoms such as those described for “Ingestion” may occur.

HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms. Symptoms associated with over-exposure to this product are as follows:

ACUTE: This product is irritating to contaminated eyes, skin, and mucous membranes, and any other exposed tissue. Prolonged over-exposures may result in burns. If vapors or fumes from this product are inhaled, irritation of the respiratory system may occur, with coughing, and breathing difficulty. Inhalation of higher levels may cause significant irritation and adverse effects of the central nervous system. Ingestion of small amounts will result in nausea, vomiting, abdominal pain and adverse effects on the central nervous system. Ingestion of large amounts may be fatal or cause kidney failure. CHRONIC: Chronic skin exposure to this product may result in dermatitis or cause allergic reaction in susceptible individuals. Chronic ingestion may cause damage to the kidneys. Based on animal data, exposure to products containing Ethylene Glycol may cause adverse reproductive effects. Refer to Section 11 (Toxicology Information) for additional data

TARGET ORGANS: ACUTE: Skin, eyes, respiratory system, kidneys, central nervous system. CHRONIC: Skin, kidneys.

Additional information:
Other hazards which do not result in GHS classification:

(Contd. on page 3)

Heat rays (infrared radiation) from flame or hot metal can injure eyes. Overexposure to brazing fumes and gases can be hazardous. Read and understand the manufacturer's instructions, Safety Data Sheets and the precautionary labels before using this product.

3 Composition/information on ingredients

Chemical characterization: Mixtures

Description: Mixture of the substances listed below with nonhazardous additions

Dangerous components:		
CAS	Name	Proportion
12125-02-9	Ammonium Chloride	5%
107-21-1	Ethylene Glycol	10%
67-63-0	Isopropyl Alcohol	10%
7646-85-7	Zinc Chloride	20%
8012-95-1	Mineral Oil	>30%

Additional information:

For the listed ingredient(s), the identity and exact percentage(s) are being withheld as a trade secret.

Composition comments:

The term "Hazardous Ingredients" should be interpreted as a term defined in Hazard Communication standards and does not necessarily imply the existence of a hazard. The product may contain additional nonhazardous ingredients or may form additional compounds under the condition of use. Refer to Sections 2 and 8 for more information.

4 First-aid measures

Description of first aid measures

General information: Victims of chemical exposure must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to health professional with victim.

SKIN EXPOSURE: If these products contaminate the skin, begin decontamination with running water. Minimum flushing is for 15 minutes. Victim must seek medical attention if any adverse reaction occurs.

EYE EXPOSURE: If this product enters the eyes, open victim's eyes while under gently running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Victim must seek immediate medical attention.

INHALATION: If vapors or fumes of this product are inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Seek medical attention if adverse effect occurs.

INGESTION: If swallowed call physician immediately! Do not induce vomiting unless directed by medical personnel. Rinse mouth with water if person is conscious. Never give fluids or induce vomiting if person is unconscious, having convulsions, or not breathing.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Skin, respiratory and liver or kidney disorders may be aggravated by prolonged over-exposures to this product.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and eliminate overexposure. Provide oxygen, if necessary. Pulmonary function tests, chest X-rays, and nervous system evaluations may prove useful. Consultation with an ophthalmologist is recommended if eye exposure leads to tissue damage. Prompt diagnosis and initiation of treatment, including ethanol therapy and hemodialysis is necessary to ameliorate the effects of Ethylene Glycol ingestion.

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5 Fire-fighting measures

FLASH POINT: Not determined**.**
AUTOIGNITION TEMPERATURE: Not determined.
FLAMMABLE LIMITS (in air by volume, %):
Lower (LEL): Not applicable.
Upper (UEL): Not applicable.

FIRE EXTINGUISHING MATERIALS:
Water Spray: YES (for cooling)
Halon: YES
Dry Chemical: YES
Carbon Dioxide: YES
Foam: YES
Other: Any "B" Class.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
substantially preheated before ignition can occur. During a fire, this material may decompose and produce irritating fumes and toxic gases (including hydrogen chloride, zinc oxides, carbon monoxide, carbon dioxide, and nitrogen oxides).
Explosion Sensitivity to Mechanical Impact: Not sensitive.
Explosion Sensitivity to Static Discharge: Not sensitive.

SPECIAL FIRE-FIGHTING PROCEDURES: Incipient fire responders should wear eye protection. Structural fire fighters must wear Self-Contained Breathing Apparatus and full protective equipment. If possible, prevent run-off water from entering storm drains, bodies of water, or other environmentally sensitive areas.

Additional information
Read and understand the Work Safe Australia Code of Practice on Welding Processes and “Standard for Fire Prevention During Welding, Cutting and Other Hot Work” before using this product. Section 274 of the Work Health and Safety Act (the WHS Act.)

6 Accidental release measures

SPILL AND LEAK RESPONSE: Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a spill, clear the affected area, protect people, and respond with trained personnel. Incidental releases of this product can be cleaned-up by personnel wearing gloves and goggles (or safety glasses). In the event of a non-incidental release, minimum Personal Protective Equipment should be **Level B: triple-gloves (rubber gloves and nitrile gloves, over latex gloves), chemically resistant suit and boots, hard-hat, and Self-Contained Breathing Apparatus.** Pick-up paste with polypad or other absorbent agent. Rinse area with a soap and water solution. Decontaminate the area thoroughly. Place all spilled residues in a suitable container and seal. Dispose of in accordance with applicable Australian local procedures or appropriate standards of Australia (see Section 13, Disposal Considerations).

Reference to other sections
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

WORK PRACTICES AND HYGIENE PRACTICES: As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash hands after handling this product. Do not eat or drink while handling this material. Remove contaminated clothing immediately.

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STORAGE AND HANDLING PRACTICES: All employees who handle this material should be trained to handle it safely. Avoid breathing fumes generated by this product. Use in a well-ventilated location. Open containers slowly, on a stable surface. Containers of this product must be properly labeled. Store this product in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Store away from incompatible materials (see Section 10, Stability and Reactivity). Inspect all incoming containers before storage to ensure they are properly labeled and not damaged. Wash thoroughly after using this material. Storage areas should be made of fire-resistant materials. Empty containers may contain residual material; therefore, empty containers should be handled with care.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Always use this product in areas where adequate ventilation is provided. Decontaminate equipment using soapy water before maintenance begins. Read and understand the manufacturer's instruction and the precautionary label on the product. Refer to Lincoln Safety Publications at www.lincolnelectric.com/safety. See the Australian Standard - AS 1674.1 – 1997 – Reconfirmed 2016. Safety in Welding and Allied Processes Australia.

8 Exposure controls/personal protection

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation to ensure exposure levels are maintained below the limits provided in Section 8 (Composition and Information on Ingredients). Prudent practice is to ensure eyewash/safety shower stations are available near areas where this product is used.

Control parameters
Exposure Guidelines:
Refer to the Safe Environments risk management document – Welding Fume - http://www.safeenvironments.com.au/welding-fume/ The exposure standard refers to the publication by Work Safe Australia "Workplace Exposure Standard for Airborne Contaminants" with the Date of Effect being 22 December 2011. Work Safe Australia note that "exposure standards do not represent a fine dividing line between a healthy and unhealthy work environment. Natural biological variation and the range of individual susceptibilities mean that a small number of people might experience adverse health effects below the exposure standard.
The American Governmental Congress of Industrial Hygienists (ACGIH) however recommends a Threshold Limit Value (TLV) Time Weighted Average (TWA) of 5 mg/m^3 for welding fume, on the assumption that there are no highly toxic constituents. However, in Australia, there is no specific exposure standard for welding fume This is due to the fume being a combination of the metals and filler material being molten together along with cleaning and fluxing agents present. Each metal or material within the process of welding will generally have its own exposure standard.

12125-02-9	Ammonium Chloride	TWA 10 mg/m^3 STEL 20 mg/m^3	
107-21-1	Ethylene Glycol	TWA 52 mg/m^3 STEL 104mg/m^3	TWA 20 ppm STEL 40 ppm
67-63-0	Isopropyl Alcohol	TWA 983 mg/m^3 STEL 11230mg/m^3	TWA 400 ppm STEL 500 ppm
7646-85-7	Zinc Chloride	TWA 1 mg/m^3 STEL 2mg/m^3	
8012-95-1	Mineral Oil	TWA 480 mg/m^3	

Refer to Worksafe Australia for standards:
http://www.safeworkaustralia.gov.au/sites/SWA/about/Publications/Documents/639/Workplace_Exposure_Standards_for_Airborne_Contaminants.pdf

Exposure controls
Personal protection:
VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation to ensure exposure levels are maintained below the limits provided in Section 2 (Composition and Information on Ingredients). Prudent practice is to ensure eyewash/safety shower stations are available near areas where this product is used.

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Determine the composition and quantity of fumes and gases to which workers are exposed by taking an air sample from inside the welder's helmet if worn or in the worker's breathing zone. Improve ventilation if exposures are not below limits. Personal air monitoring is generally undertaken over a representative period of time undertaken to Australian Standard AS 3640-2009 Workplace atmospheres – Method for sampling and gravimetric determination of inhalable dust using IOM sampling heads with flow rate of 2.0 L/min.
Keep away from foodstuffs, beverages and feed.

Breathing equipment:
Keep your head out of fumes. Use enough ventilation and local exhaust to keep fumes and gases from your breathing zone and the general area. An approved respirator should be used at all times. Any Air-Purifying, Full-Face piece Respirator with a high-efficiency particulate filter, or any appropriate escape-type, SCBA.

Protection of hands:

Thermally-protective gloves.

Suitable gloves can be recommended by the glove supplier.
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Eye protection:

Safety glasses. When this product is used in conjunction with soldering, wear safety glasses, goggles or face-shield with filter lens of appropriate shade number (per ANSI Z49.1-1988, “Safety in Welding and Cutting”).

Body protection: Use body protection appropriate for task. When this product is used in conjunction with soldering, wear clothing that protects from sparks and flame, such as arm protectors, apron, hats, and shoulder protection

9 Physical and chemical properties

Information on basic physical and chemical properties
General Information
Appearance:

Form:	Paste
Colour:	Off-white
Odour:	Slight alcohol odour

RELATIVE VAPOR DENSITY (air = 1): Not applicable.
SPECIFIC GRAVITY (water = 1): Not available.
SOLUBILITY IN WATER: Insoluble.
VAPOR PRESSURE, mm Hg @ 20 °C: Not applicable
EVAPORATION RATE (nBuAc = 1): Not applicable.
FREEZING/MELTING POINT: Not available.
BOILING POINT: Not available.
pH: Not applicable.

ODOR THRESHOLD: Not applicable.
COEFFICIENT OF OIL/WATER DISTRIBUTION (PARTITION COEFFICIENT): Not applicable.
APPEARANCE AND COLOR: This product consists of an off-white paste with a slight alcohol odour.
HOW TO DETECT THIS SUBSTANCE (warning properties): The appearance is a distinctive characteristic of this product.

(Contd. on page 7)

10 Stability and reactivity

STABILITY: Stable.

DECOMPOSITION PRODUCTS: Hydrogen chloride, zinc oxides, nitrogen oxides and ammonia.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: This product is not compatible with strong oxidizing agents.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Avoid uncontrolled exposure to extreme temperatures and incompatible materials.

Hazardous decomposition products:
Brazing fumes and gases cannot be classified simply. The composition and products: quantity of both are dependent upon the metal being joined, the process, procedure and filler metals and flux used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being joined (such as paint, plating, or galvanizing), the number of operators and the volume of the worker area, the quality and amount of ventilation, the position of the operator's head with respect to the fume and fumes from chemical fluxes used in some brazing operations. When the wire or rod is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section 3. Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidation of the materials shown in Section 3, plus those from the base metal and coating, etc., as noted above.

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11 Toxicological information

TOXICITY DATA: The following human toxicological data are available for the components of this product.
ZINC CHLORIDE:
DNA Inhibition System (human, lymphocyte) = 0.360 mmol/L
TCLo (inhalation, man) = 4800 mg/m3/ 30 minutes; pulmonary effects
TCLo (inhalation, human) = 4800 mg/m3/ 3 hours
MINERAL OIL:
TCLo (inhalation, man) = 5 mg/m3/5 yr- intermittent; carcinogenic, teratogenic, and gastrointestinal effects.
ETHYLENE GLYCOL:
DNA Inhibition System (human, lymphocyte) = 320 mmol/L
LDLo (oral, human) = 786 mg/kg
LDLo (oral, human) = 398 mg/kg; central nervous system, gastrointestinal, liver effects
TCLo (inhalation, human) = 10000 mg/m3; eye and pulmonary effects
LDLo (unreported, man) = 1637 mg/kg
ISOPROPYL ALCOHOL:
TDLo (oral, man) = 14432 mg/kg; central nervous system, cardiovascular, pulmonary effects TDLo(oral, human) = 223 mg/kg, central nervous system, cardiovascular effects
LDLo(oral, man) = 7272 mg/kg
LDLo(oral, human) = 3570 mg/kg; central nervous system, pulmonary, gastrointestinal effects
LDLo(unreported, man) = 2770 mg/kg

SUSPECTED CANCER AGENT: Components of this product are listed as follows:
ETHYLENE GLYCOL: ACGIH TLV-A4 (Not Classifiable as a Human Carcinogen)
ISOPROPYL ALCOHOL: IARC-3 (Unclassifiable as to Carcinogenicity in Humans)
ZINC CHLORIDE: EPA-D (Not Classifiable as to Human Carcinogenicity (inadequate human and animal evidence of carcinogenicity or no data available)

IRRITANCY OF PRODUCT: This product can be irritating to contaminated skin and eyes.

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SENSITIZATION TO THE PRODUCT: No component of this product is known to be a skin or respiratory sensitizer.
REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this product and its components on the human reproductive system.
Mutagenicity: This product is not reported to produce mutagenic effects in humans. Animal mutation data is available for the Zinc Chloride and Ammonium Chloride components of this product and was obtained during clinical studies on specific animal tissues exposed to high doses of these compounds. Mutagenic data have been obtained in clinical studies involving bacteria exposed to high doses of the Isopropyl Alcohol component of this product).
Embryotoxicity This product is not reported to produce embryotoxic effects in humans. Animal embryotoxic data is available for the Zinc Chloride component of this product.
Teratogenicity: This product is not reported to cause teratogenic effects in humans. Studies on test animals exposed to relatively high doses of the Isopropyl Alcohol and Zinc Chloride components of this product indicate teratogenic effects.
Reproductive Toxicity: This product is not reported to cause reproductive effects in humans. Studies on test animals exposed to relatively high doses of the Isopropyl Alcohol and Zinc Chloride components of this product indicate adverse reproductive effects.

BIOLOGICAL EXPOSURE INDICES: Currently there are no Biological Exposure Indices (BEIs) associated with any component of this product.

12 Ecological information

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

ENVIRONMENTAL STABILITY: The components of this product will slowly react with water, oxygen, and other substances to form a wide variety of inorganic compounds.

EFFECT OF MATERIAL ON PLANTS or ANIMALS: This product can be harmful or fatal to plant and animals, depending on the quantity and duration of over-exposure.

EFFECT OF CHEMICAL ON AQUATIC LIFE: This product may alter the alkalinity of the water, causing adverse effects on aquatic life. Additionally, odourless zinc poisoning causes inflamed gills in fish. Laboratory studies of Atlantic salmon, rainbow trout, carp, and goldfish have shown avoidance reactions by these fish to zinc in water

13 Disposal considerations

Waste treatment methods
Recommendation:
The generation of waste should be avoided or minimized whenever possible. When practical, recycle in an environmentally acceptable, regulatory compliant manner. Dispose of non-recyclable products in accordance with all applicable State, Provincial, and Local requirements. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

14 Transport Information

UN-Number DOT, ADR, ADN, IMDG, IATA	Not Regulated
UN proper shipping name	Not Regulated

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DOT, ADR, ADN, IMDG, IATA	
Transport hazard class(es) DOT, ADR, ADN, IMDG, IATA Class	Not Regulated
Packing group DOT, ADR, IMDG, IATA	Not Regulated
Environmental hazards: Marine pollutant:	No
Special precautions for user	Not applicable.
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
UN "Model Regulation":	Not applicable.

15 Regulatory information

Product Name: Bridgit® Soldering Flux
Refer to the Australian Inventory of Chemical Substances – AICS at https://www.nicnas.gov.au/chemicals-on-AICS#main

Poison schedule: Classified as a Schedule 6 (S6) Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP). https://www.legislation.gov.au/Details/F2016L01638

Classifications: Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.
The classifications and phrases listed below are based on the Approved Criteria for Classifying Hazardous Substances [NOHSC: 1008(2004)].

16 Other information

References
Preparation of Safety Data Sheets for Hazardous Chemicals Codie of Practice

Standard for the Uniform Scheduling of Medicines and Poisons

Australian Code for the Transport of Dangerous Goods by Road & Rail.
Modell Work Health and Safety Regulations, Schedule 10: Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.

Workplace exposure standards for airborne contaminants, Safe work, Australia

American Conference of Industrial Hygienists (ACGIIH)

Globally Harmonised System of classification and labelling of chemicals.

WELDING (1): Due to the diversity of welding techniques, processes, materials used, nature of the surface being welded and the presence of contaminants, the fumes & gases associated with welding will vary in composition and quantity. When assessing a welding process, the toxic fumes generated may not only be associated with the parent metal, filler wire or electrode. The welding/cutting arc may generate nitrogen oxides, carbon monoxide & other gases, whilst UV radiation emitted from some arcs generates ozone. Ozone may irritate mucous membranes and cause pulmonary oedema & haemorrhage. Shielding gases (e.g. carbon

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dioxide and inert gases i.e. argon and helium) in high concentrations, in confined spaces, may reduce oxygen in the atmosphere to dangerous levels, resulting in possible asphyxiation.

WELDING (2): In addition to complying with 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/m^3 (unless otherwise classified) when collected in accordance with Australian Standard AS 3853.1: Fume from welding and allied processes - Guide to methods for the sampling and analysis of particulate matter and AS 3853.2: Fume from welding and allied processes - Guide to methods for the sampling and analysis of gases. Airway irritation and metal fume fever are the most common acute effects from welding fumes. Reported to cause reduced sperm quality in welders.

WELDING (3): Other gases and fumes associated with welding processes include: Inert shielding gases (e.g. argon, carbon dioxide, helium) which may reduce the atmospheric oxygen content in poorly ventilated areas. UV-radiation and Infra-Red radiation may decompose chlorinated degreasing agents to form highly toxic and irritating phosgene gas. This may occur if a metal has been degreased but inadequately dried or when vapours from a nearby degreasing bath enter the welding zone.

WELDING (4): Welding fumes may contain a wide variety of chemical contaminants, including oxides and salts of metals and other compounds which may be generated from electrodes, filler wire, flux materials and from the welded material (e.g. painted surfaces). Welding stainless-steel and its alloys generates nickel and chromium (VI) compounds. Welding fumes are retained in the lungs. Sparingly soluble compounds may be released slowly from the lungs. Welding fume is classified as possibly carcinogenic to humans (IARC Group 2B).

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

Disclaimer:
We urge each end user and recipient of this SDS to study it carefully. If necessary, consult an industrial hygienist or other expert to understand this information and safeguard the environment and protect workers from potential hazards associated with the handling or use of this product.
Harris Products Group cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for use, handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

[End of SDS]