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WARNING: THIS PRODUCT CONTAINS LEAD.
Federal law prohibits use of this solder in making joints on things in any private or public potable water supply system. Ingestion may cause lead poisoning. Do not breathe dust or fumes. Use only with adequate ventilation. Wear appropriate protective clothing. For maximum safety, be certified for and wear a respirator. Wash hands before eating, drinking or smoking. Keep out of reach of children. Do not re-use spool or container. Refer to the Material Safety Data Sheet (MSDS) for detailed hazard information about this product.

- Use enough ventilation, exhaust at the fume, or both, to keep fumes and gases from your breathing zone and the general area.
- For maximum safety, be certified for and wear a respirator at all times when welding or brazing.
- Wear correct eye, ear, and body protection.
- Do not touch live electrical parts.
- See American National Standard Z49.1, Safety in Welding and Cutting, published by the American Welding Society, 550 N.W. LeJeune Rd., P.O. Box 351040, Miami, Florida 33135; OSHA Safety and Health Standards, 29 CFR 1910, available from U.S. Government Printing Office, Washington, D.C. 20402.
- The Material Safety Data Sheet for this product follows. The MSDS contains detailed safety and health information about possible hazards associated with use of this product. Additional MSDS are available from your employer or by contacting the J.W. Harris Co., Inc., Cincinnati, Ohio 45242.

WARNING: Protect yourself and others. Read and understand this information.
Soldering alloys and fluxes may produce FUMES AND GASES hazardous to your health.
• Before use, read and understand the manufacturer's instructions, Material Safety Data Sheet (MSDS) and your employer's safety practices.
• Keep your head out of the fumes.

MATERIAL SAFETY DATA SHEET - LEAD SOLDERS

SECTION 1 - MATERIAL IDENTIFICATION

Manufacturer's Name J. W. Harris Co., Inc.	Emergency Telephone No. 1-800-424-8300
Address 10930 Deerfield Rd. Cincinnati, OH 45242	Telephone No. for information 1-513-891-2000
Date Prepared 4/85 (SUPERSEDES 2/82)	

The following table lists the trade name and composition of products covered by this Material Safety Data Sheet. See Section 2 and especially Section 5 for important health hazard data.

TRADE NAME	Wire Composition Wt%		TRADE NAME	Wire Composition Wt%	
	Sn	Pb		Sn	Pb
50/50	50	50	30/70	30	70
60/40	60	40	90/10	90	10
40/60	40	60	70/30	70	30
63/37	63	37			

CORE COMPOSITION FOR FLUX-CORED SOLDERS

ACID CORE	Element	Wt. (% of core wt.)	Wt. (% of total solder wt.)
ROSIN CORE	Zinc Chloride	70	1-3
	Activated Rosin	100	1-3

SECTION 2 - HAZARDOUS INGREDIENTS

INGREDIENT	CAS NUMBER	PEL mg/m3	TLV mg/m3
Tin (oxide)	7440-31-5	2.0	2.0
Lead (as dust or fume)	7439-82-1	.05	.15
FLUX CORE			
Zinc Chloride (Acid Core)	7846-85-7	1.0	1.0
Activated Rosin (Rosin Core)	Not listed	Not listed	Not listed

IMPORTANT: This section covers the materials from which the product is manufactured. The fumes and gases produced during soldering with normal use of this product are covered in Section 6.

SARA SECTION 313 SUPPLIER NOTIFICATION: Individual filler metals covered by this MSDS may contain the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40CFR 372: Lead. Refer to Section 1 of this MSDS for the filler metal name and the percent by weight, and Section 2 for the CAS Number for each chemical.

NFPA HAZARD SIGNAL

Health	1	Stability	0	Flammability	0	Special	0
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One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample in the worker's breathing zone. See ANSI/AWS F1.1 available from the American Welding Society, P.O. Box 351040, Miami, FL 33135.

SECTION 3 - PHYSICAL AND CHEMICAL DATA

Wire, gray to silver in color. Solder may be solid or contain an inner core of flux.

SECTION 4 - FIRE AND EXPLOSION DATA

(Nonflammable) Open flame and sparks can ignite combustibles. See ANSI/ASC Z49.1-1983 Section 6.

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SECTION 5 - HEALTH HAZARD DATA - LEAD SOLDERS

EXPOSURE - Section 1 lists nominal composition of solders. Section 2 lists exposure limits for hazardous decomposition products which might be present in fume generated during soldering. Actual exposure should be determined by monitoring fume in the operator's breathing zone.

PRIMARY ROUTE OF EXPOSURE - Inhalation of fume. Possible lead dust ingestion from smoking or eating after handling lead-bearing solders.

PRE-EXISTING MEDICAL CONDITIONS - Individuals with impaired pulmonary functions or illness may have symptoms exacerbated by fume irritants.

POSSIBLE EFFECTS OF EXPOSURE - Ingestion of lead dust or inhalation of lead oxide fume is one of the main hazards. Overexposure can produce symptoms such as headache, nausea, dizziness, body aches, and anemia. Symptoms are similar to other illnesses and require medical verification. Lead accumulates in the body and small amounts can build up over a period of time to toxic levels. Tin fume may cause metal fume fever, characterized by fever, body ache and chills. Fumes from acid and rosin core can irritate the nose and throat. Zinc chloride in acid core solder may irritate the skin.

EMERGENCY FIRST AID - Remove from dust or fume exposure. If breathing has stopped, perform artificial respiration. Summon medical aid immediately.

OTHER HEALTH CONSIDERATIONS - Solders are frequently used with a zinc chloride type flux. If applicable, flux fume should be considered in evaluation of hazards.

The State of California requires the following information for products containing lead:

WARNING: This product contains a chemical known by the state of California to cause cancer and birth defects or other reproductive harm.

CARCINOGENICITY NTP? NO IARC MONOGRAPHS? NO OSHA REGULATED? NO

SECTION 6 - REACTIVITY DATA HAZARDOUS DECOMPOSITION PRODUCTS

Soldering fumes cannot be classified simply. The composition and quantity are dependant upon the metal being soldered, the process, procedures and filler metals 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 soldered (such as paint, plating or galvanizing), the number of operators and the volume of the work area, the quality and amount of ventilation, the position of the operator's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities).

ACID CORE FLUX

A stable material in closed containers at room temperature under normal storage and handling conditions. This material can be considered a weak acid. It can be mildly corrosive to some metals, especially when hot. Zinc chloride flux in acid core solders is incompatible with cyanides and may release HCN gas when mixed with zinc chloride. If combined with sulfides, the liquid flux may release H₂S gas.

SECTION 7 - SPILL OR LEAK PROCEDURES

NOT APPLICABLE

SECTION 8 AND 9 - SPECIAL PROTECTION INFORMATION AND PRECAUTIONS

Read and understand the manufacturer's instructions and the precautionary label on the product. See American National Standard Z49.1, Safety in Welding and Cutting published by the American Welding Society, P.O. Box 351040, Miami, FL 33135 and OSHA Publication 2206 (29CFR1910), U. S. Government Printing Office, Washington, D.C. 20402 for more detail on many of the following.

VENTILATION

Use enough ventilation and local exhaust at the flame to keep the fumes and gases below TLVs in the worker's breathing zone and the general area. Train the employee to keep his head out of the fumes.

See ANSI/ASC 249.1 Section 5.

RESPIRATORY PROTECTION

Use respirable fume respirator or air supplied respirator when soldering in confined space or where local exhaust or ventilation does not keep exposure below TLV.

EYE PROTECTION

Wear safety glasses, goggles or use face shield with filter lens of appropriate shade number (see ANSI/ASC 249.1-Section 4.2). Provide protection screens and flash goggles, if necessary, to shield others.

PROTECTIVE CLOTHING

Wear head and body protection which help to prevent injury from heat radiation, sparks, and flame. See ANSI 249.1. At a minimum this includes welders' gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing.

OTHER PRECAUTIONS

Wash hands thoroughly before smoking or eating after using lead-bearing solders.

The information and recommendations contained in this publication have been compiled from sources believed to be reliable and to represent the best information on the subject at the time of issue. No warranty, guarantee, or representation is made by J. W. Harris Co., Inc. as to the absolute correctness or sufficiency of any representation contained in this and other publications. J. W. Harris Co., Inc. assumes no responsibility in connection therewith; nor can it be assumed that all acceptable safety measures are contained in this (and other publications), or that other or additional measures may not be required under particular or exceptional conditions or circumstances.

D.O.T. INFORMATION: Nonregulated substance

OUR PRODUCTS HAVE NO OZONE DEPLETING SUBSTANCES, (ODS).