STAY-BRITE Solder SO 615 17-1

# MATERIAL SAFETY DATA SHEET
## SOLDERS

## SECTION 1 - MATERIAL IDENTIFICATION

Emergency Telephone No.
1-800-424-9300

Signature of Preparer: Keith Flumberg Date Prepared 2/92 SUPERSEDES 4/90

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.

Wire Composition Wt%

VIQUR #SO615

| TRADE NAME | Sn | Pb | Sb | Ag | Cd | Zn |
|---|---|---|---|---|---|---|
| Stay Brite | 96 | | | 4 | | |
| Stay Brite #8 | 95 | | | 5 | | |
| Alsolder 500 | | | | | 83 | 17 |
| 95/5 | 95 | | 5 | | | |
| 50/50 | 50 | 50 | | | | |
| 60/40 | 60 | 40 | | | | |
| 40/60 | 40 | 60 | | | | |
| 63/37 | 63 | 37 | | | | |
| 30/70 | 30 | 70 | | | | |
| 85/15 | 85 | | | | | 15 |
| 90/10 | 90 | 10 | | | | |
| 70/30 | 70 | 30 | | | | |

CORE COMPOSITION FOR FLUX CORED SOLDERS

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

## SECTION 2 - HAZARDOUS INGREDIENTS

| INGREDIENT | CAS NUMBER | PEL mg/m$_3$ | TLV mg/m$_3$ |
|---|---|---|---|
| Tin (oxide) | 7440-31-5 | 2.0 | 2.0 |
| Lead (as dust or fume) | 7439-92-1 | .05 | .15 |
| Silver (metal) | 7440-22-4 | .01 | .1 |
| Silver(soluble compounds) | 7440-22-4 | .01 | .01 |
| Antimony | 7440-36-0 | .5 | .5 |
| Cadmium | 1306-19-0 | .1 | .05 |
| Zinc (oxide) | 1314-13-2 | 5.0 | 5.0(fume) |
| FLUX CORE | | | |
| Zinc Chloride (Acid Core) | 7646-85-7 | 1.0 | 1.0 |
| Activated Rosin (Rosin Core) | Not listed | Not listed | Not listed |

Remaining ingredients are classified and claimed as trade secret status. 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.

## SECTION 2 -HAZARDOUS INGREDIENTS-continued

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, Zinc, and Cadmium. 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 | Flammability | 0 |
| Stability | 0 | Special | 0 |

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 workers' 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.

## SECTION 5 - HEALTH HAZARD DATA - 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.

## SECTION 5 -HEALTH HAZARD DATA-continued

## SOLDERS

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. Short term exposure to cadmium fume causes irritation of the nose and throat. Chest pain, cough, fever or shortness of breath may develop after several hours. Severe over exposure can cause pulmonary edema. Prolonged inhalation exposure may cause lung or kidney damage. Cadmium compounds should be considered suspected carcinogens based on some animal tests and recent epidemiological studies. Tin and antimony 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.

SOLDERING PRODUCTS WITHOUT CADMIUM

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

SOLDERING PRODUCTS WITH CADMIUM

| CARCINOGENICITY | NTP? | YES | IARC MONOGRAPHS? | YES | OSHA REGULATED? | YES |
|---|---|---|---|---|---|---|

## SECTION 6 - REACTIVITY DATA

## HAZARDOUS DECOMPOSITION PRODUCTS

Soldering fumes cannot be classified simply. The composition and quantity are dependent 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 $H_2S$ 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 TLV's in the worker's breathing zone and the general area. Train the employee to keep his head out of the fumes. See ANSI/ASC Z49.1 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 Z49.1-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 Z49.1. 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.