D

SOLDER ALLOYS

DPM 1164-1

MATERIAL SAFETY DATA SHEET

08-03-82

CHEMICAL NAME AND SYNONYMS: SOLDER

CHEMICAL FAMILY: METAL ALLOY | TRADE NAME:

FORMULA: | D.O.T. SHIPPING CLASS: Non-hazardous

I. PHYSICAL DATA

BOILING POINT (°F):	see below	SPECIFIC GRAVITY (WATER=1)	>7
VAPOR PRESSURE ( )	N/A	PERCENT VOLATILE (BY VOLUME)	0
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (=1)	N/A
SOLUBILITY IN WATER (% by wt.)	0		
APPEARANCE AND ODOR	Gray metallic bar, wire, ribbon, etc. with no odor		

II. HAZARDOUS INGREDIENTS

MATERIAL	MP (°C)	BP (°C)	%	TLV (mg/m³)	C.A.S. REGISTRY #
TIN	232	2270		N/A	7440-31-5
LEAD	327	1725		0.050	7439-92-1
ANTIMONY	631	1380		0.500	7440-36-0
BISMUTH	271	1560		N/A	7440-69-9
CADMIUM	321	765		0.100	7440-43-9
SILVER	961	2210		0.010	7440-22-4

The boiling point of most solder alloys exceeds 1300°C (2370°F) unless the alloy contains a substantial amount of cadmium. No lead fumes are given off at soldering temperatures below 538°C (1000°F).

III. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT ( )	NONE	FLAMMABILITY LIMITS IN AIR (% by volume)	LOWER: N/A	UPPER: N/A
EXTINGUISHING MEDIA:	WATER	CARBON DIOXIDE	ALCOHOL FOAM	DRY CHEMICAL
SPECIAL FIRE FIGHTING PROCEDURES	Solder alloys containing a substantial amount of cadmium may emit toxic fumes in a fire.			
UNUSUAL FIRE AND EXPLOSION HAZARDS	Flux in cored solder wire or paste solder may burn i soldering is done with a flame.			

NFPA RATING: 0 / 0 0

The information contained herein is based on data considered accurate and given in good faith but no warranty, expressed or implied, is made.

EMERGENCY PHONE NUMBER (312) 235-1600

Litton KESTER SOLDER
4201 WRIGHTWOOD AVENUE
CHICAGO, ILLINOIS 60639

IV. HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: 0.050 mg/m³ for lead ; also see Section II

EFFECTS OF OVER-EXPOSURE: Symptoms from ingestion and inhalation include nausea, headache, abdominal discomfort, metallic taste, joint and muscle pains. These may be accompanied by pallor, pyorrhea, lead line on gums and weight loss

EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: N/A

SKIN CONTACT: N/A

INHALATION: see ingestion

INGESTION: If thought to have been overexposed, individual should be taken to a doctor for evaluation of blood lead level and any gastrointestinal or neurological symptoms. Renal function should also be evaluated.

V. REACTIVITY DATA

STABILITY:	UNSTABLE		CONDITIONS TO AVOID:
	STABLE	XX	

INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: None

HAZARDOUS POLYMERIZATION:	MAY OCCUR		CONDITIONS TO AVOID:
	WILL NOT OCCUR	XX	

VI. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: N/A

WASTE DISPOSAL METHOD: Dispose according to all federal, state and local regulations. Most practical approach is to sell excess solder material to a metals reclaimer.

VII. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE): Metal fume & dust type when applicable

VENTILATION	LOCAL EXHAUST: preferable; especially for flux fumes	SPECIAL:
	MECHANICAL (GENERAL): satisfactory	OTHER:

PROTECTIVE GLOVES: not required | EYE PROTECTION: recommended as a part of ~~standard work practice~~

OTHER PROTECTIVE EQUIPMENT: None

VIII. SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Wash hands thoroughly with soap and water before eating, drinking or smoking after handling solder to remove oxides of lead. Also refer to "Safety in Soldering" by Lead Industries Assoc. 292 Madison Ave. New York, NY 10017

OTHER PRECAUTIONS: Use of strong acid fluxes may result in the emission of toxic lead chloride fumes during soldering. Alloys containing cadmium may emit cadmium fumes during soldering.

BOE-C6-0208412

MATERIAL SAFETY DATA SHEET

8-10-81

CHEMICAL NAME AND SYNONYMS:

CHEMICAL FAMILY: | TRADE NAME: 844 RESIN CORE SOLDER

FORMULA: | D.O.T. SHIPPING CLASS: NON-HAZARDOUS

I. PHYSICAL DATA

BOILING POINT (°F)	N/A	SPECIFIC GRAVITY (WATER=1)	1.08
VAPOR PRESSURE ( )	N/A	PERCENT VOLATILE (BY VOLUME)	4.5
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (=1)	N/A
SOLUBILITY IN WATER (% by wt.)	Insoluble	Softening point (drop method)	149°F
APPEARANCE AND ODOR	SOLID AMBER CORE INSIDE SOLDER WIRE		

II. HAZARDOUS INGREDIENTS

MATERIAL	%	TLV ( )	C.A.S. REGISTRY #
ROSIN*	95	N/A	8050-09-7

*ROSIN MAY DECOMPOSE DURING HEATING TO LIBERATE ABOUT 5% TURPENTINE (TLV=100ppm). SOME ROSIN IS CARRIED UP IN SMOKE. NO LEAD FUMES ARE LIBERATED AT SOLDERING TEMPERATURES BELOW 1000°F.

III. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (C.O.C.)	420°F	FLAMMABILITY LIMITS IN AIR (% by volume)	LOWER: N/A	UPPER: N/A

EXTINGUISHING MEDIA:	WATER		CARBON DIOXIDE	x	ALCOHOL FOAM	x	DRY CHEMICAL x

SPECIAL FIRE FIGHTING PROCEDURES: NONE

UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE

NFPA RATING: 1 / 1 / 0

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EMERGENCY PHONE NUMBER (312) 235-1600

Litton KESTER SOLDER
4201 WRIGHTWOOD AVENUE
CHICAGO, ILLINOIS 60639

560.2/81

IV. HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: Not established

EFFECTS OF OVER-EXPOSURE: Smoke during soldering can irritate eyes and respiratory tract. Rosin is an allergen - may cause rash, headache or throat irritation in a sensitive person.

EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: Flush thoroughly with water and get medical attention.

SKIN CONTACT: Wash with soap and water.

INHALATION: Remove to fresh air.

INGESTION: N/A

V. REACTIVITY DATA

STABILITY:	UNSTABLE		CONDITIONS TO AVOID:
	STABLE	x	

INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Small amount of turpentine. May emit hydrogen chloride fumes (< 0.5% of flux) during soldering.

HAZARDOUS POLYMERIZATION:	MAY OCCUR		CONDITIONS TO AVOID:
	WILL NOT OCCUR	x	

VI. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: N/A

WASTE DISPOSAL METHOD: N/A

VII. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE): Usually not required

VENTILATION	LOCAL EXHAUST: Remove smoke from breathing area	SPECIAL:
	MECHANICAL (GENERAL):	OTHER:

PROTECTIVE GLOVES: No | EYE PROTECTION: Safety glasses

OTHER PROTECTIVE EQUIPMENT: None

VIII. SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Avoid eye contact with hot flux. Avoid breathing smoke during soldering. Wash hands before eating or smoki after handling solder wire.

OTHER PRECAUTIONS: Do not place flux cored solder wire into a hot solder P The flux may ignite.

BOE-C6-0208413

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