

Molten Solder Surfactant  
United States Patent#7,861,915  
"Foreign Patents also Issued and Pending"

#### 1. Product and Company Identification

Commerical Description – MS2<sup>®</sup> Molten Solder Surfactant for use with standard Sn60 and Sn63 Tin-Lead solder processes. Not recommended for use with lead-free solder processes this product contains lead this product conforms to ANSI Z400. 1-1993 and ISO 11014

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#### 2. Composition / Information on Ingredients

Description	CAS Number	Content
Carboxy Alkanes	67254-79-9	>91%
Polyalpha Olefins	68649-12-7	>5%
Lead	7439-92-1	<1%
Tin	7440-31-5	<1%
Colorant	Proprietary	<1%
Aromatic Esters	None	<1%

**Hazards Identification Not Considered as Hazardous**  
NFPA (National Fire Protection Association)

Health	1 – Insignificant
Flammability	1 – Slight
Reactivity	0 – Insignificant
Special Hazards	None

#### 3. Hazards Identification

Human Helath Hazards	
Inhalation	Not Applicable at ambient temperature
Skin	Unlikely to be irritant
Eye Contact	Can cause irritation
Ingestion	Unlikely to be harmful unless excessive amount swallowed

#### 4. First Aid Measures

Inhalation	Remove to fresh air
Skin Contact	Wash off with water and soap
Eye Contact	Wash off with water. Get medical attention if any sensation persists
Ingestion	Remove material from mouth. Drink plenty of water. If large amount swallowed or symptoms develop get medical attention

## 5. Fire Fighting Measures

Extinguishing Media	Dry chemical, water spray, foam, carbon dioxide
Unsuitable Extinguishing Media	Media none
Specific Hazards	Thermal decomposition will evolve irritant vapors
Protection of Fire Fighters	Self-contained breathing apparatus, full protective clothing

## 6. Accidental Release Measures

Personal Precautions	Avoid contact with eyes. Do not breathe vapor
Environmental Precautions	Minimize contamination of drains, surface, and ground water
Methods for Cleaning Up	Transfer product to suitably labeled containers for disposal at an approved site absorb liquid spillage on inert material (e.g. sand). Residues and small spillage may be washed away with water and detergent.
Other information	Spillages or uncontrolled discharge into watercourses must be alerted to the appropriate regulatory body

## 7. Handling and Storage

Handling	No specific protective measures are required
Storage	Store in the original closed containers
Other information	For quality reasons: avoid elevated temperatures
Shelf	3 years from date of manufacture

## 8. Exposure Control / Personal Protection

Engineering Measures	Ensure ventilation or local exhaust if formation of vapor occurs
Hygiene Measures	Good industrial hygiene should be followed
Occupational Exposure	No occupational exposure limits have been established
Personal Protective Equipment	Normal precautions should be observed as for handling all chemicals.

## 9. Physical and Chemical Properties

Physical State	Liquid	(20°C)
Color	Pink	
Odor	None	
PH	Not applicable	
Boiling Point/Boiling Range	>300°C	
Flash Point	315° (COC)	
Flammability	Not applicable	
Auto-ignition Temperature	400° C	
Explosion Properties	Not to be expected	
Oxidation Properties	Not to be expected	
Density	955 kg/m <sup>3</sup>	(25°C)
Solubility in Water	Insoluble	
Solubility in Other Ingredients	Soluble in most organic solvents	
Viscosity	7500 mPa.s	(25°C)
Volatile Organic Compound VOC	Not volatile ambient	

## 10. Stability and Reactivity

Stability	Stable under normal conditions
Conditions to Avoid	Not Known
Materials to Avoid	Oxidizing agents
Hazardous Reactions	None
Hazardous Decompositions Products	None

### 11. Toxicological Information

Acute Toxicity	
Oral – LD 50	>2 g/kg (rat)
Skin Irritation	Not irritating (rabbit)
Eye Irritation	Not irritating (rabbit)
Mutagenicity	Negative (in-vitro short-term genotoxicity tests)

Persistence & Degradation	(OECD 301B (28 Days) <10%, Not readily biodegradable)
LC 50	>100mg/l (fish – 48 hours)
EC50	>100mg/l (Pseudomonas putida – 16 hours)
NOEC	>85mg/l (fish – 28 days)
Not toxic at concentration well above the water solubility	

### 13. Disposal Consideration

Methods of Disposal	Return to manufacturer for recycle. Contact P.Kay Metal, Inc.
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### 14. Transportation Information

D.O.T. Classification	Not Restricted/Non Hazardous
IATA	Not Restricted/Non Hazardous

### 15. Regulatory Information

OSHA HCS	Not hazardous 1920.1200)
SATA Title III Section 313	Not listed

Inventory Status	
USA	TSCA-CSI
EU	NLP List
CANADA	DSL
Japan	ENCS (8-3050)
Australia	AICS
Korea	ECL (16486)
Philippines	PICCS
China	SEPA/First import
Switzerland	Gifkklasse/frei: BAG-T Nr. 618400

### 16. History

Date of Previous Issue	09/2009
Revised	10/2012
Prepared by	J. Hardin

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