



Easy Profile® 256 No-Clean Solderpaste

Product Description

Easy Profile® 256 is a no-clean, air or nitrogen reflowable, solder paste specifically designed for maximum robustness in reflow profiling and stencil printing. EP256 has the widest possible reflow processing window. EP256 is also capable of stencil printing downtimes of up to 90 minutes with an effective first print down to 20 mils. EP256 is a solderpaste formula that maintains its activity and printing characteristics for up to 8 hours without any shear thinning.

- Stable wetting behavior over a wide range of profiles
- Capable of 90 minute break times in printing
- High print speeds to 200+ mm/sec (8+ in/sec)
- Compatible with enclosed print head systems
- Excellent printing characteristics to 0.4mm (16 mil) pitch with Type 3 powder
- High activity on all substrates, including OSPs
- Capable of off-pad printing with no solderballs after reflow
- Stencil life: 8+ hours (process dependent)
- Scrap is reduced due to less paste dry out
- Stable tack over 8+ hours
- Classified as ROL0 per J-STD-004
- Compliant to Bellcore GR-78

Standard Applications

- 90% Metal - Stencil Printing
- 90% Metal - Enclosed Head Printing

Physical Properties

(Data given for Sn63Pb37 90% metal, -325+500 mesh)

Viscosity (typical): 1400 poise

Malcom Viscometer @ 10rpm and 25°C

Initial Tackiness (typical): 40 grams

Tested to Kester Method 1W-QC-3-04

Slump Test: Pass

Tested to J-STD-005, IPC-TM-650, Method 2.4.35

Solder Ball Test: Pass

Tested to J-STD-005, IPC-TM-650, Method 2.4.43

Wetting Test: Pass

Tested to J-STD-005, IPC-TM-650, Method 2.4.45

Reliability Properties

Copper Mirror Corrosion: Low

Tested to J-STD-004, IPC-TM-650, Method 2.3.3

Corrosion Test: Low

Tested to J-STD-004, IPC-TM-650, Method 2.6.15

Silver Chromate: Pass

Tested to J-STD-004, IPC-TM-650, Method 2.3.33

Chloride and Bromides: None Detected

Tested to J-STD-004, IPC-TM-650, Method 2.3.35

Fluorides by Spot Test: Pass

Tested to J-STD-004, IPC-TM-650, Method 2.3.35.1

SIR, IPC (typical): Pass

Tested to J-STD-004, IPC-TM-650, Method 2.6.3.3

	Blank	EP256
Day 1	$1.0 \times 10^{10} \Omega$	$9.8 \times 10^8 \Omega$
Day 4	$1.3 \times 10^{10} \Omega$	$1.6 \times 10^9 \Omega$
Day 7	$1.3 \times 10^{10} \Omega$	$1.1 \times 10^9 \Omega$

Application Notes

Availability:

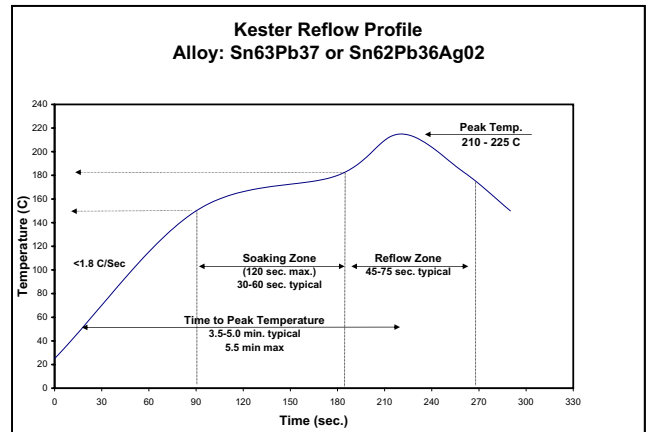
Easy Profile® 256 is commonly available in the Sn63Pb37 and Sn62Pb36Ag02 alloys. Type 3 powder mesh is recommended, but different powder particle size distributions are available for standard and fine pitch applications. For specific packaging information, see Kester's Solder Paste Chart for available sizes. The appropriate combination depends on process variables and the specific application.

Printing Parameters:

Squeegee Blade	80 to 90 durometer polyurethane or stainless steel
Squeegee Speed	Capable to a maximum speed of 200 mm/sec (8 in/sec)
Stencil Material	Stainless Steel, Molybdenum, Nickel Plated, Brass
Temperature/Humidity	Optimal ranges are 21-25°C (70-77°F) and 35-65% R.H.

Recommended Reflow Profile:

The recommended reflow profile for EP256 made with either the Sn63Pb37 or Sn62Pb36Ag02 is shown here. This profile is simply a guideline. Since EP256 is a highly active solder paste, it can solder effectively over a wide range of profiles. Your optimal profile may be different from the one shown based on your oven, board and mix of defects. Please contact Kester if you need additional profiling advice.



Cleaning:

EP256 is a no-clean formula. The residues don't need to be removed for typical applications. Although EP256 is designed for no-clean applications, its residues can be easily removed using automated cleaning equipment (in-line or batch) with a variety of readily available cleaning agents. Call Kester Technical Support for details.

Storage, Handling, and Shelf Life:

Refrigeration is the recommended optimum storage condition for solderpaste to maintain consistent viscosity, reflow characteristics and overall performance. EP256 should be stabilized at room temperature prior to printing. EP256 should be kept at standard refrigeration conditions, 0-10°C (32-50°F). Please contact Kester if you require additional advice with regard storage and handling of this material. Shelf life is 6 months from date of manufacture when handled properly when held at 0-10°C (32-50°F).

Health & Safety:

This product, during handling or use, may be hazardous to health or the environment. Read the Material Safety Data Sheet and warning label before using this product.

World Headquarters: 800 West Thorndale Avenue, Itasca, Illinois, 60143-1341 USA
Phone: (+1) 630-616-4000 • **Email:** customerservice@kester.com • **Website:** www.kester.com

Asia Pacific Headquarters
 500 Chai Chee Lane
 Singapore 469024
 (+65) 6449-1133
 customerservice@kester.com.sg

European Headquarters
 Ganghoferstrasse 45
 D-82216 Gernlinden
 Germany
 (+49) 8142-47850
 customerservice@kester-eu.com

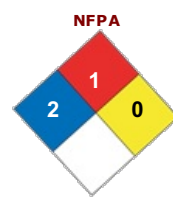
Japanese Headquarters
 20-11 Yokokawa 2-Chome
 Sumida-Ku
 Tokyo 130-0003 Japan
 (+81) 3-3624-5351
 jpsales@kester.com.sg

The data recommendations presented are based on tests, which we consider reliable. Because Kester has no control over the conditions of use, we disclaim any responsibility connected with the use of any of our products or the information presented. We advise that all chemical products be used only by or under the direction of technically qualified personnel who are aware of the potential hazards involved and the necessity for reasonable care in their handling. The technical information contained herein is consistent with the properties of this material but should not be used in the preparation of specifications as it is intended for reference only. For assistance in preparing specifications, please contact your local Kester office for details.

Personal Protective Equipment		WHMIS Pictograms
		
Protective Gloves	Chemical Splash Goggles	D2A Toxic

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

Product Name: EP256 Sn63Pb37
Product Code: EP256
MSDS Manufacturer Number: EP256
Manufacturer Name: Kester
Address: 800 W. Thorndale Avenue
Itasca, IL 60143
General Phone Number: (630)-616-4000
Customer Service Phone Number: (800)-2KESTER (253-7837)
CHEMTREC: For emergencies in the US, call CHEMTREC: 800-424-9300 Outside of the U.S. and Canada: (703) 527-3887
Website: msds@kester.com
MSDS Creation Date: June 12, 2009
MSDS Revision Date: September 30, 2012



HMIS	
Health Hazard	2*
Fire Hazard	1
Reactivity	0
Personal Protection	

* Chronic Health Effects

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Ingredient Percent	EC Num.
Proprietary	Proprietary	1 - 5 by weight	
Lead	7439-92-1	30 - 60 by weight	
Polymerized rosin	65997-05-9	1 - 5 by weight	
Tin	7440-31-5	30 - 60 by weight	
Tripropylene glycol monobutyl ether	55934-93-5	1 - 5 by weight	

SECTION 3 - HAZARDS IDENTIFICATION

Emergency Overview: WARNING! Irritant. Potential Sensitizer Exposures to soldering fumes and vapors may be irritating to eyes, respiratory system, and skin. Carcinogenic Category 2

Route of Exposure: Eyes. Skin. Inhalation. Ingestion.

Potential Health Effects:

Eye: Smoke during soldering can cause eye irritation.

Skin: May cause skin irritation.
May cause an allergic skin reaction
May be absorbed through the skin in harmful amounts.

Inhalation: Inhalation of vapors, fumes or mists of the product may be irritating to the respiratory system.
May cause allergy or asthma symptoms or breathing difficulties if inhaled
Harmful if inhaled

Ingestion: Ingestion of the product may produce gastrointestinal irritation and disturbances.
Fatal if swallowed

Chronic Health Effects: Suspected of damaging fertility or the unborn child
Repeated and prolonged exposure to lead and lead compounds may cause abdominal pain, diarrhea, loss of appetite, metallic taste, nausea, vomiting, lassitude, insomnia, muscle weakness, joint and muscle pain, irritability, headache and dizziness.
Red blood cells may be damaged resulting in anemia. Gastritis and

	injury to the kidneys, liver, male gonads, and central nervous system may also occur.
Target Organs:	Eyes. Skin. Respiratory system. Digestive system. Central nervous system. Liver. Kidney.
Aggravation of Pre-Existing Conditions:	May aggravate pre-existing respiratory disorders, allergy, eczema, or skin conditions.

Lead

Carcinogenicity: IARC: Group 2B: Possibly carcinogenic to humans.

SECTION 4 - FIRST AID MEASURES

Eye Contact:	Immediately flush eyes with plenty of water for 15 to 20 minutes. Get medical attention, if irritation or symptoms of overexposure persists.
Skin Contact:	Immediately wash skin with soap and plenty of water. Get medical attention if irritation develops or persists.
Inhalation:	If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.
Ingestion:	If swallowed, do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

SECTION 5 - FIRE FIGHTING MEASURES

Flash Point:	> 93°C (> 199°F)
Extinguishing Media:	Use alcohol resistant foam, carbon dioxide, dry chemical, or water fog or spray when fighting fires involving this material.
Protective Equipment:	As in any fire, wear Self-Contained Breathing Apparatus (SCBA), MSHA/NIOSH (approved or equivalent) and full protective gear.
Hazardous Combustion Byproducts:	Oxides of carbon, oxides of nitrogen, aliphatic aldehydes, and other organic substances may be formed during combustion..

NFPA Ratings:

NFPA Health:	2
NFPA Flammability:	1
NFPA Reactivity:	0

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personnel Precautions:	Avoid contact with eyes and skin. Use proper personal protective equipment as listed in section 8.
Environmental Precautions:	Avoid runoff into storm sewers, ditches, and waterways.
Methods for containment:	Contain spills with an inert absorbent material such as soil, sand or oil dry. Prevent from spreading by covering, diking or other means.
Methods for cleanup:	Pick or scoop up material and put into a suitable container for proper disposal.

SECTION 7 - HANDLING and STORAGE

Handling:	Use with adequate ventilation. Avoid breathing vapor and fumes. Use only in accordance with directions.
Storage:	Store in a cool, dry, well ventilated area away from sources of heat and incompatible materials. Keep container tightly closed when not in use. Recommended storage temperature is between 0°C and 10°C (32°F and 50°F).
Hygiene Practices:	Wash thoroughly after handling. Avoid inhaling vapors, mists, or fumes.

SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION - EXPOSURE GUIDELINES

Engineering Controls:	Use appropriate engineering control such as process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Where such systems are not effective wear suitable personal protective equipment, which performs satisfactorily and meets OSHA or other recognized standards. Consult with local procedures for selection, training, inspection and maintenance of the personal protective equipment.
------------------------------	--

Eye/Face Protection: Tightly fitting safety goggles.

Skin Protection Description: Wear appropriate protective gloves. Consult glove manufacturer's data for permeability data. Nitrile rubber or natural rubber gloves are recommended.

Respiratory Protection: The need for respiratory protection will vary according to the airborne concentration of the decomposition products released and accumulated in the area. In case of insufficient ventilation, wear suitable respiratory equipment. Wear the appropriate respiratory protection according to the conditions and exposure levels in the area.

PPE Pictograms:



EXPOSURE GUIDELINES

Lead:

Guideline ACGIH: TLV-TWA: 0.05 mg/m³
Guideline OSHA: PEL-TWA: 0.05 mg/m³

Tin:

Guideline ACGIH: TLV-TWA: 2 mg/m³
Guideline OSHA: PEL-TWA: 2 mg/m³

SECTION 9 - PHYSICAL and CHEMICAL PROPERTIES

Physical State Appearance: Paste.

Color: Silver Gray

Boiling Point: Not determined.

Melting Point: Not determined.

Density: > 4.5 g/cm³ at 20°C (68°F)

Solubility: Insoluble

Flash Point: > 93°C (> 199°F)

Explosive Properties: Product does not present an explosion hazard.

SECTION 10 - STABILITY and REACTIVITY

Chemical Stability: Stable under normal temperatures and pressures.

Hazardous Polymerization: Not reported.

Conditions to Avoid: No thermal decomposition if used according to specifications.

Incompatible Materials: Oxidizing agents. Strong acids and alkalis.

SECTION 11 - TOXICOLOGICAL INFORMATION

Lead:

Ingestion: Oral - Rat TDLo: 0.2 mg/kg [Reproductive - Paternal Effects - Spermatogenesis (including genetic material, sperm morphology, motility, and count)]
Oral - Rat TDLo: 1050 ug/kg/30W (Intermittent) [Brain and Coverings - Other degenerative changes Behavioral - Alteration of classical conditioning Nutritional and Gross Metabolic - changes in metals, not otherwise specified]
Oral - Rat TDLo: 93.6 mg/kg/30D (Continuous) [Kidney/Ureter/Bladder - Other changes Blood - Other changes Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - Other enzymes]
Oral - Rat TDLo: 43.75 mg/kg/1W (Continuous) [Blood - Other changes Kidney/Ureter/Bladder - Other changes in urine composition Biochemical - Metabolism (intermediary) - Porphyrin including bile pigments]
Oral - Rat TDLo: 790 mg/kg [Reproductive - Effects on Embryo or Fetus - fetotoxicity (except death, e.g., stunted fetus) Reproductive - Effects on Embryo or Fetus - Fetal death]
Oral - Rat TDLo: 1140 mg/kg [Reproductive - Effects on Newborn - Behavioral]
Oral - Rat TDLo: 520 mg/kg [Reproductive - Effects on Newborn - Biochemical and metabolic]
Oral - Rat TDLo: 1100 mg/kg [Reproductive - Specific Developmental Abnormalities - Blood and lymphatic systems (including spleen and marrow) Reproductive - Effects on Newborn - growth statistics (e.g.,%, reduced weight gain)]
Oral - Rat TDLo: 1545 gm/kg [Reproductive - Effects on Newborn - Biochemical and metabolic Reproductive - Effects on Newborn - Behavioral] (RTECS)

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity: No ecotoxicity data was found for the product.

Environmental Fate: No environmental information found for this product.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal: Consult with the US EPA Guidelines listed in 40 CFR Part 261.3 for the classifications of hazardous waste prior to disposal. Furthermore, consult with your state and local waste requirements or guidelines, if applicable, to ensure compliance. Arrange disposal in accordance to the EPA and/or state and local guidelines.

SECTION 14 - TRANSPORT INFORMATION

DOT Shipping Name: Not Regulated.
DOT UN Number: Not Regulated.
IATA Shipping Name: Not Regulated.
IATA UN Number: Not Regulated.

IMDG UN Number : Not Regulated.
IMDG Shipping Name : Not Regulated.
ADR UN Number: Not Regulated.
ADR Shipping Name : Not Regulated.
RID UN Number : Not Regulated.
RID Shipping Name : Not Regulated.
ICAO UN Number : Not Regulated.
ICAO Shipping Name: Not Regulated.

SECTION 15 - REGULATORY INFORMATION

Canada WHMIS: Controlled - Class: D2A Very Toxic
Risk Phrases: R20/22 Harmful by inhalation and if swallowed.
R33 Danger of cumulative effects.
R42/43 May cause sensitization by inhalation and skin contact.
R62 Possible risk of impaired fertility.
Safety Phrase: S1/2 Keep locked up and out of the reach of children.
S23 Do not breathe gas/fumes/vapour/spray (appropriate wording to be specified by the manufacturer).
S24 Avoid contact with skin.
S29/56 Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point.
S37/39 Wear suitable gloves and eye/face protection.
S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S63 In case of accident by inhalation: remove casualty to fresh air and keep at rest.
S53 Avoid exposure — obtain special instructions before use.

Lead :

TSCA Inventory Status: Listed

Canada DSL: Listed

Polymerized rosin :

TSCA Inventory Status: Listed

Canada DSL: Listed

Tin :

TSCA Inventory Status: Listed

Canada DSL: Listed

Tripropylene glycol monobutyl ether :

TSCA Inventory Status: Listed

Canada DSL: Listed

GHS Pictograms:



SECTION 16 - ADDITIONAL INFORMATION

HMIS Health Hazard: 2*
HMIS Fire Hazard: 1
HMIS Reactivity: 0
MSDS Creation Date: June 12, 2009

MSDS Revision Date: September 30, 2012

Disclaimer: The information contained herein is based on data considered accurate and is offered solely for information, consideration and investigation. Kester extends no warranties, makes no representations and assumes no responsibility as to the accuracy, completeness or suitability of this data for any purchaser's use. The data on this Material Safety Data Sheet relates only to this product and does not relate to use with any other material or in any process. All chemical products should be used only by, or under the direction of, technically qualified personnel who are aware of the hazards involved and the necessity for reasonable care in handling. Hazard communication regulations require that employees must be trained on how to use a Material Safety Data Sheet as a source for hazard information.

Copyright© 1996-2011 Actio Corporation. All Rights Reserved.