the product:

ALPHA® Telecore XL-825

Cored Solder Wire

product guide

SM# 1032

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Product Guide

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- **ALPHA® Telecore XL-825** is specifically designed to meet JIS Class AA requirements, with halide content <1,000ppm (ROL1), for no-clean Lead-Free applications. It offers the balance of high SIR reliability combined with excellent spread characteristics naturally positioning itself among the best performing products in the ALPHA® Cored Wire Product portfolio.

- ALPHA® Telecore XL-825's fast wetting and low spattering characteristics make it excellent for manual assembly and drag soldering applications. It is safe to use and operator friendly. Inspection is also made easier by its clear residue.

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Wider Process Window

- Best-in-class soldering performance for tip temperatures ranging from 320ºC to 420ºC applications.
- Excellent performance for various soldering applications:
  - Point soldering
  - Through-hole soldering
  - Drag soldering
  - Automated robotic soldering

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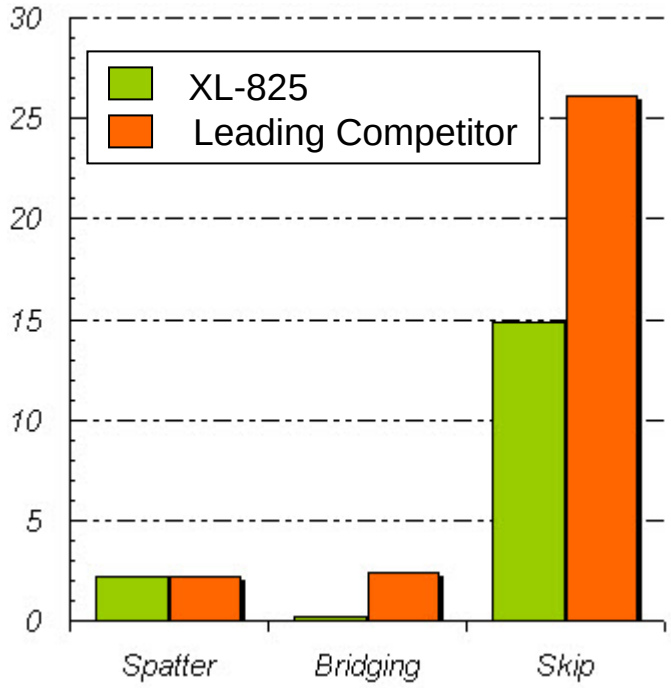
General Performance

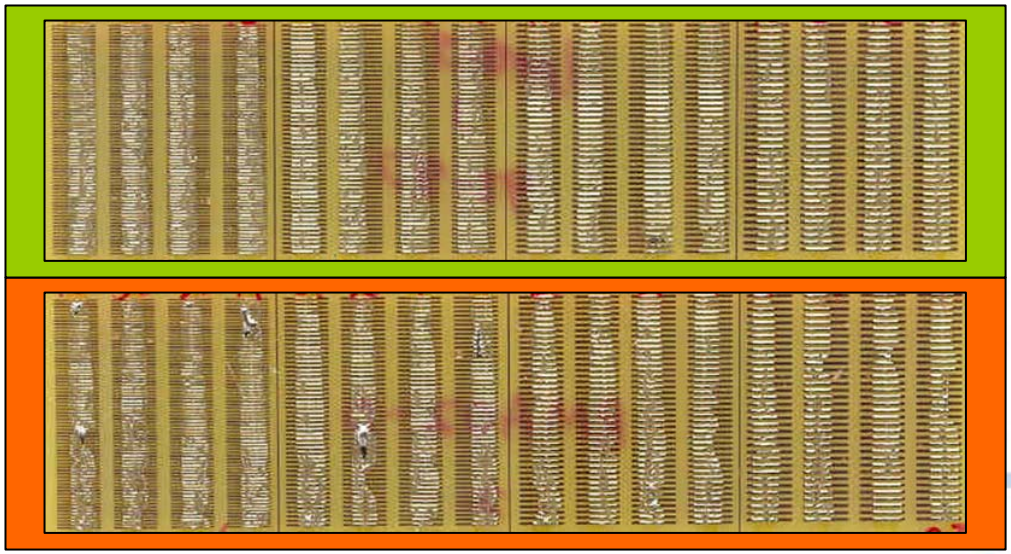
Soldering Performance

- Spatter, Bridging & Skips



Drag Soldering

Tip = 0.125”
Temp = 370ºC
Speed = 1.0cm/sec



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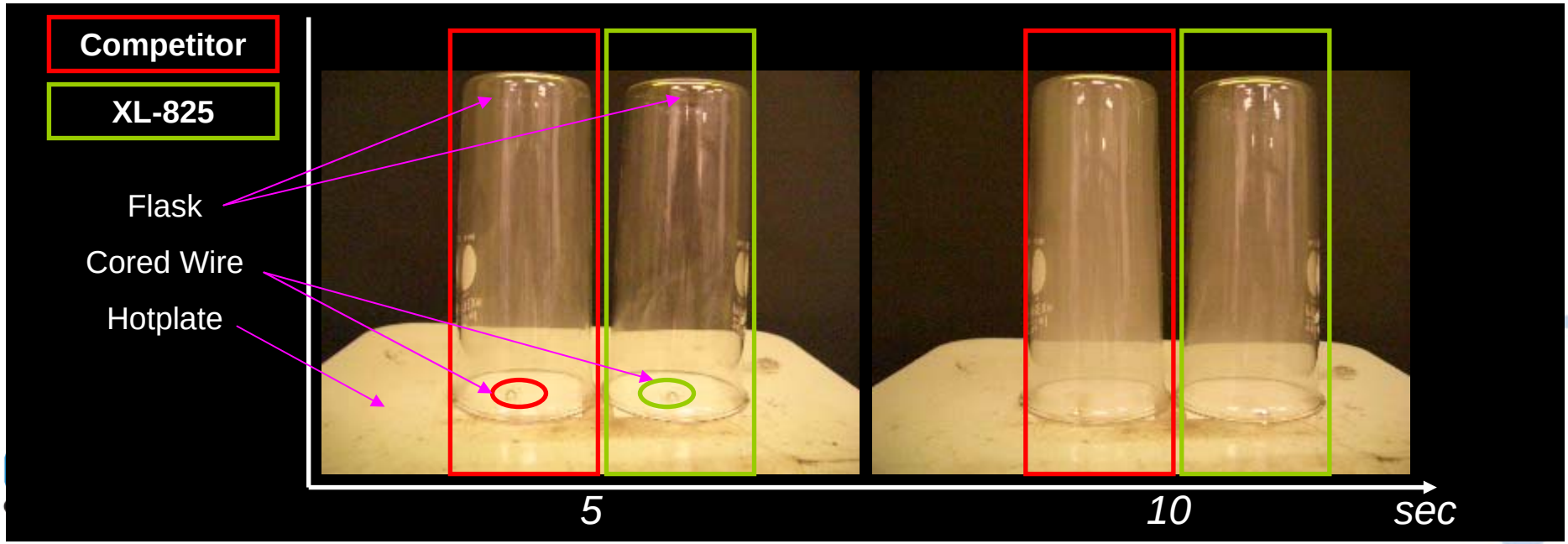
General Performance

Fume Performance

- 3 inches of SAC305 0.80mm P3 cored wire was placed on a hotplate at 320ºC for 5 & 10sec.
- visual inspection was done on smoke (white) amount captured in a flask
- result shows that XL-825 is comparable to the leading competitor.

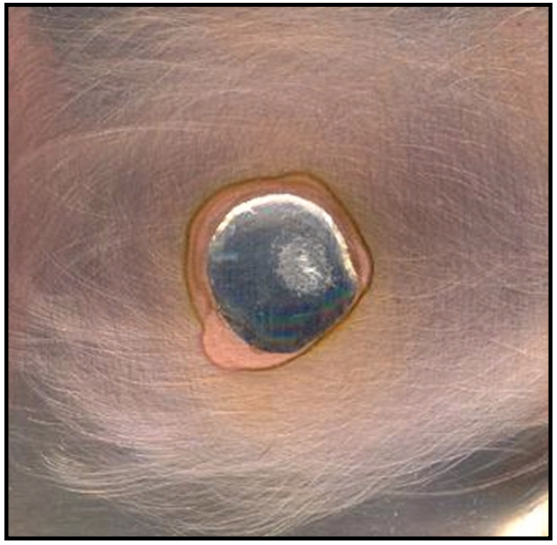


General Performance

Spread Performance

- PASS JIS Z 3197:1999
- Spread Ratio Test ~85%

Before



After

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Wetting Performance

- Fast wetting
- XL-825 wets better than XL-806 and almost 15% better than the leading competitor.

Sample	Point Soldering (Joints/hr)	Drag Soldering (sec/board)
XL-825	775	19
XL-806	706	NA
Leading Competitor	658	23

- Faster point & drag soldering results in higher throughputs.
- Better wetting speed reduces cost of ownership by using less wire (through lower frequency of solder tip flipping).

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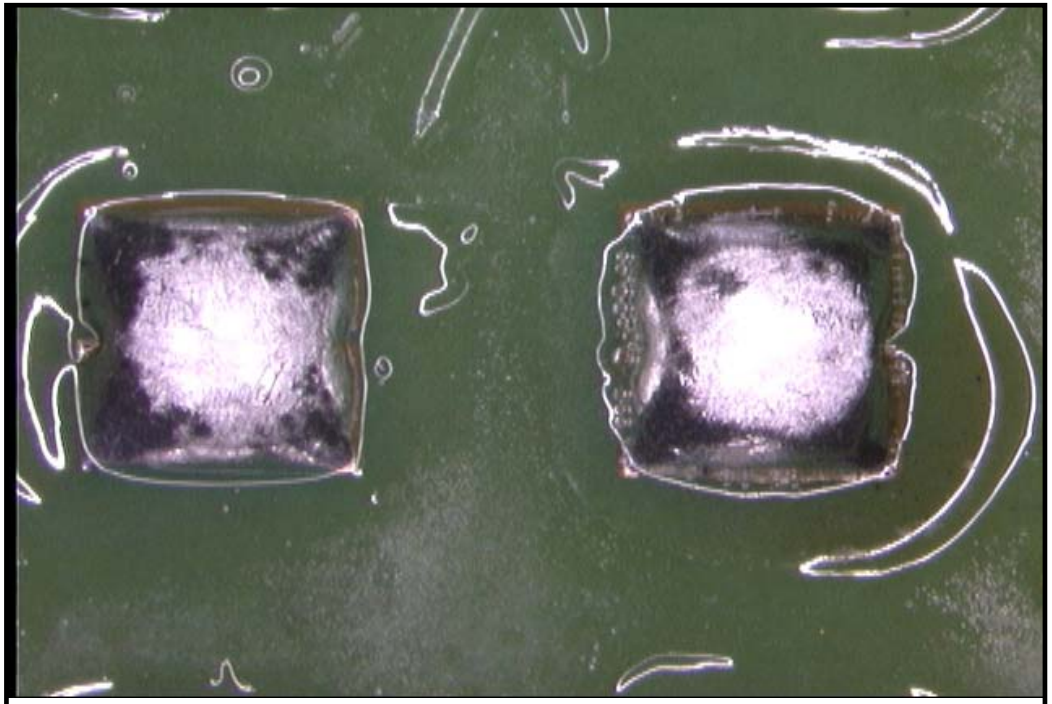
Cosmetics

Flux Residue

- Clear and non-tacky
- Inspection is easier
- Contact time 3sec at 400ºC



XL-825	Leading Competitor

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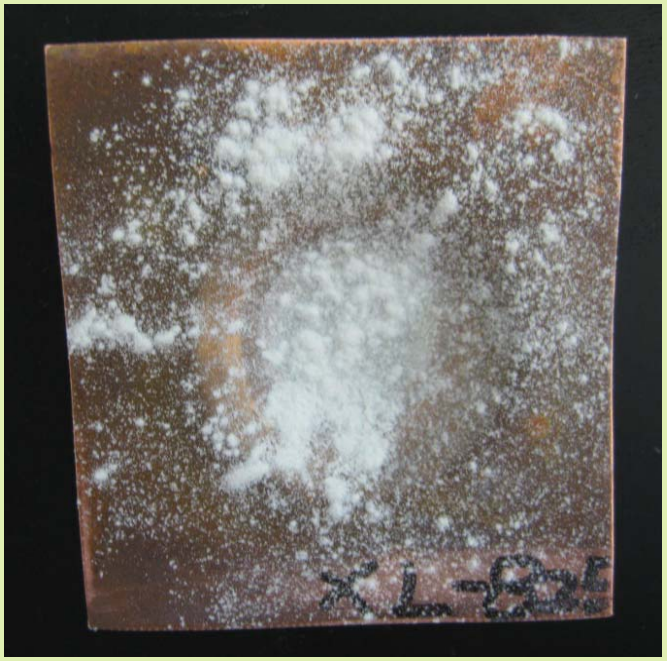
Cosmetics

Flux Residue Tackiness

- Talc powder can be removed easily



BEFORE

AFTER

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Electrical Reliability Data

Reliability Test		Requirement	Result
JIS	SIR (JIS-Z-3197)	$\geqslant 1.0 \times 10^{11}\ \Omega$	PASS
	WER Test (JIS Z 3283:2006)	WER Class AA >1000 ohm-m	
Bellcore	SIR (GR-78-CORE)	$\geqslant 1.0 \times 10^{8}\ \Omega$	
	EM (GR-78-CORE)	$SIR_{initial}/SIR_{final} < 10$	
IPC	SIR (J-STD-004A)	$\geqslant 1.0 \times 10^{8}\ \Omega$	

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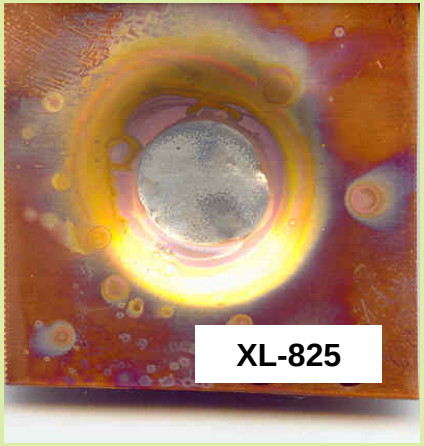
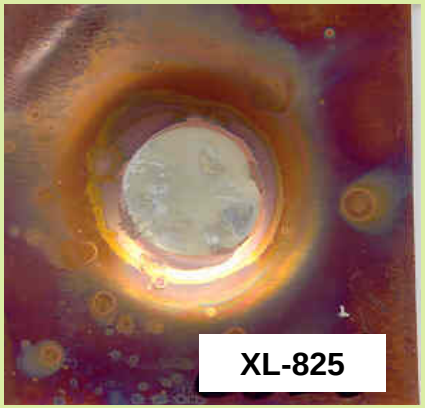
Reliability

Copper Corrosion Test (JIS & IPC)

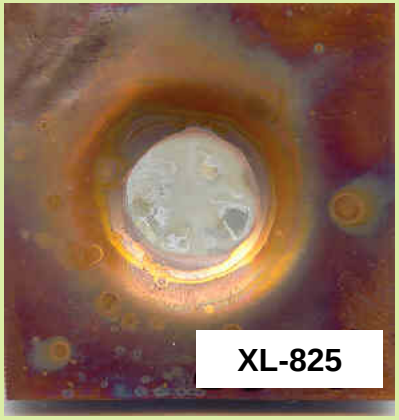
- PASS JIS Z 3197(8.4.1) & IPC-TM-650 (2.6.15)
- No greening/pitting was visible on the coupons after exposure to 40ºC and 93%RH.



Initial



JIS
After 72 hrs



IPC
After 10 days

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Reliability

Copper Mirror Corrosion Test

- IPC J-STD-004 / IPC-TM-650 (2.3.32)
- JIS Z 3197-1999 (8.4.2)

No breakthrough in the Cu layer

- Pass Copper Mirror Corrosion Test

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Reliability

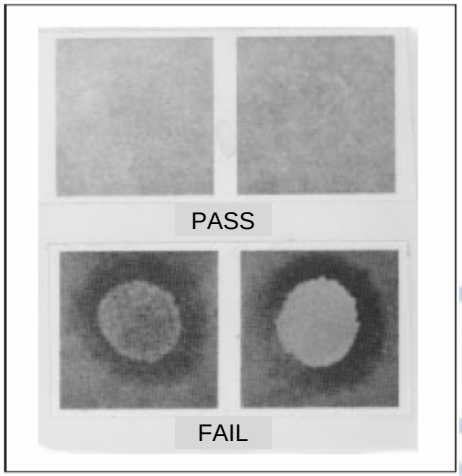
Silver Chromate Test (JIS & IPC)

– visual inspection was carried out to determine the presence of chlorides & bromides

– no presence of white patch, PASS Silver Chromate Test

XL-825 JIS

XL-825 IPC



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TB & MSDS

Technical Bulletin

ALPHA

TECHNICAL BULLETIN

ALPHA® Telecore XL-825
No-Clean Cored Solder Wire

DESCRIPTION

ALPHA® Telecore XL-825 is a newly developed cored wire that is specifically designed to meet JIS Class AA requirements, with halide content <1,000ppm, for no-clean lead-free applications. It offers the balance of high SIR reliability and excellent spread characteristics. It is among the best performing products in the ALPHA® Cored Wire Product portfolio. The paid off is not only an excellent soldering performance Alpha Telecore XL-825, but also a reliable material that is able to comply to IPC flux ROL1 classification.

ALPHA® Telecore XL-825's fast wetting and low spattering characteristics make it excellent for manual assembly and drag soldering applications. It is safe to use and operator friendly. Inspection is also made easier by its clear residue.

FEATURES & BENEFITS

- *Very fast wetting* → *Excellent for Manual Assembly and "Drag Solder" Technique*
- *Very low flux spatter* → *Safe to use, Operator Friendly, Less Residues on Boards*
- *Good spread characteristics* → *Excellent First Pass Solder Joints. Spread Ability per JIS is ≥ 80%.*
- *Very low levels of fumes* → *Cleaner Working Environment, Less Extraction Maintenance*
- *Clear non-tacky residue* → *No-Clean Residues, Useful for all Applications*
- *Provides good joint appearance* → *Makes Inspection easy*

ALPHA® Telecore XL-825 is suitable for use in any commercial no-clean hand soldering application that specifies compliance to JIS Class AA standard.

It is suited to such areas of industry (subject to the above criteria) as TV, Audio equipment, Video/DVD, Games box, Automotive, Computer and peripherals, mobile and hand held devices and all types of household appliances.

HINTS & TIPS ON SOLDERING IN GENERAL

Always remember that a soldered joint is formed by heating the parts to be soldered to a temperature in excess of the melting point of the alloy to be used – in hand soldering this is how a soldering iron is used. By feeding the cored wire onto the parts, the flux is able to flow and remove oxide films, while the solder creates a thin inter-metallic bond which becomes the solder joint.

Note the following tips:

- Use a soldering iron bit size and form to suit the operation: small bits for soldering large components may prevent the formation of a joint or slow the process down.
- Always select wire diameters to suit both soldering iron bit and the parts/components to be soldered.
- Soldering iron systems should provide sufficient heat to satisfy the requirements of the points above.
- Cored solder wires can be provided in different grades of alloy so always ensures that you have selected the right grade for the application.
- Do not overheat as this causes an increase in the depth of the inter-metallic layer, which in turn weakens the joint.

Rev.1002

Cookson Electronics ASSEMBLY MATERIALS 109 Corporate Boulevard, South Plainfield, NJ 07080, 800-367-5460, www.alpha.cooksonelectronics.com

Cookson Electronics ASSEMBLY MATERIALS

All materials from Cookson Electronics Assembly Materials are manufactured to meet the most stringent of standards and to ensure the best possible finish to every soldering application.

TECHNICAL SPECIFICATION

Standard	Alloy Designation	Melting or Solidus / Liquidus Temp °C	Flux Configuration
J-STD-006B	SAC305	217 - 221	2.2% & 3.3%
	Sn63/Pb37	183	2.2% & 3.3%
Proprietary	SACX Plus 0307	217 - 228	2.2% & 3.3%

** XL-825 is also available in other or special alloys on request.*

Physical Properties	Typical Values
Rosin Softening Point:	70-80°C
Acid Value:	160-180 mg KOH/g flux
Halide Content:	< 1,000ppm per JIS Z 3197
Classification:	JIS - Class AA IPC - ROL1
Shelf Life / Storage Temperature	36 months / 10°C - 43°C

Electrical Reliability Test	Requirements	Results
JIS SIR Test (JIS-Z-3197)	1.0×10^{11} Ω minimum	PASS
JIS WER Test (JIS Z 3283:2006)	WER Class AA >1000 ohm-m	PASS
IPC SIR Testing (J-STD-004A)	1.0×10^{8} Ω minimum	PASS
Bellcore SIR Test (GR-78-CORE)	1.0×10^{11} Ω minimum	PASS
Bellcore EM Test (GR-78-CORE)	SIR(initial)/SIR (Final) < 10	PASS

Chemical Reliability Test	Requirements	Results
Copper Mirror Test JIS	No complete removal of copper	PASS
Copper Mirror Test IPC-TM 650 TM 2.3.32	No complete removal of copper	PASS
Copper Corrosion Test JIS	No evidence of corrosion	PASS
Copper Corrosion Test IPC-TM 650 TM 2.6.15	No evidence of corrosion	PASS

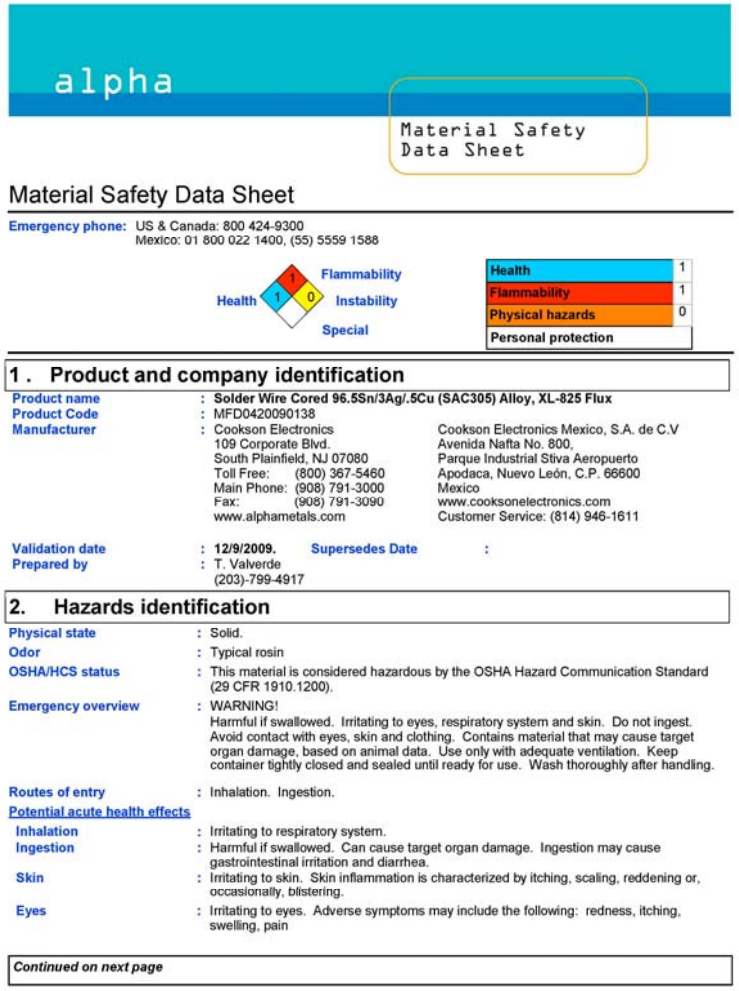
HEALTH & SAFETY

Observe standard precautions for handling and use. Use in well ventilated areas. DO NOT SMOKE.
ALPHA® Telecore XL-825 wire is not considered toxic. However, its use in typical soldering applications will generate a small amount of decomposition and fumes.

These fumes should be adequately exhausted / vented for operator safety and comfort.

Rev. 1007

MSDS



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Material Safety Data Sheet

Material Safety Data Sheet

Emergency phone: US & Canada: 800 424-9300
Mexico: 01 800 022 1400, (55) 5559 1588

Health 1 | Flammability 1 | Instability 0 | Special

Health	1
Flammability	1
Physical hazards	0
Personal protection	

1. Product and company identification

Product name : **Solder Wire Cored 96.5Sn/3Ag/.5Cu (SAC305) Alloy, XL-825 Flux**
Product Code : MFD0420090138
Manufacturer :

Cookson Electronics
109 Corporate Blvd.
South Plainfield, NJ 07080
Toll Free: (800) 367-5460
Main Phone: (908) 791-3000
Fax: (908) 791-3090
www.alphametals.com

Cookson Electronics Mexico, S.A. de C.V
Avenida Nafta No. 800,
Parque Industrial Stiva Aeropuerto
Apodaca, Nuevo León, C.P. 66600
Mexico
www.cooksonelectronics.com
Customer Service: (814) 946-1611

Validation date : **12/9/2009.** **Supersedes Date** :
Prepared by : T. Valverde
(203)-799-4917

2. Hazards identification

Physical state : Solid.
Odor : Typical rosin
OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Emergency overview : WARNING!
Harmful if swallowed. Irritating to eyes, respiratory system and skin. Do not ingest. Avoid contact with eyes, skin and clothing. Contains material that may cause target organ damage, based on animal data. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.
Routes of entry : Inhalation. Ingestion.
Potential acute health effects
Inhalation : Irritating to respiratory system.
Ingestion : Harmful if swallowed. Can cause target organ damage. Ingestion may cause gastrointestinal irritation and diarrhea.
Skin : Irritating to skin. Skin inflammation is characterized by itching, scaling, reddening or, occasionally, blistering.
Eyes : Irritating to eyes. Adverse symptoms may include the following: redness, itching, swelling, pain

Continued on next page

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SUMMARY

- **XL-825 Value Propositions Are:**
  - JIS Class AA, with halide content <1000ppm
  - Best-in-class wetting performance
  - Wider process window
  - Highly reliable performance
  - Low spattering and
  - Low fume / smoke

- **Value Created Offerings:**
  - Significantly improved throughput and yields
  - Reduced cored wire consumption compared to competitor wires

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Customer Technical Support in Every Major Electronics Market

AMERICAS

California, USA
New Jersey, USA
Guadalajara, Mexico
Monterrey, Mexico
Buenos Aires, Argentina
Sao Paulo, Brazil
Manaus, Brazil

EUROPE

Woking, England
Turnhout, Belgium
Cholet, France
Langenfeld, Germany

ASIA-PACIFIC

Hong Kong, China
Shenzhen, China
Beijing, China
Shanghai, China
Suzhou, China
Tianjin, China
Bangalore, India
Chennai, India
Hiratsuka, Japan
Sihung City, Korea
Penang, Malaysia
Singapore
Taoyuan, Taiwan

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Sales Support in Every Major Electronics Market

AMERICAS

California, USA
Georgia, USA
Illinois, USA
New Jersey, USA
Pennsylvania, USA
Ontario, Canada
Guadalajara, Mexico
Buenos Aires, Argentina
Sao Paulo, Brazil

EUROPE

Woking, England
Turnhout, Belgium
Cholet, France
Langenfeld, Germany
Hatar, Hungary
Milano, Italy
Naarden, Netherlands

ASIA-PACIFIC

Hong Kong, China
Shenzhen, China
Beijing, China
Chengdu, China
Guangxi, China
Nanjing, China
Shanghai, China
Suzhou, China
Tianjin, China
Xiamen, China
Bangalore, India
Chennai, India
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