

# the product:



## ALPHA<sup>®</sup> Telecore HF-850

Cored Solder Wire  
product guide

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# ALPHA® Telecore HF-850

## Product Guide



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# ALPHA<sup>®</sup> Telecore HF-850

- **ALPHA<sup>®</sup> Telecore HF-850** is the fastest wetting and lowest spattering, Halogen Free and Halide Free cored wire offering from **ALPHA<sup>®</sup>**. It performs admirably when benchmarked against Halogen and Halide containing competitive products available in the market and is a viable option to meet environmental requirements.
- **ALPHA<sup>®</sup> Telecore HF-850's** rapid wetting meets drag soldering and all other common soldering needs. Its clear residue allows easy inspection of solder joints and the very low spatter rate ensures board cosmetics and user comfort is maintained. All this translates to a safe and environmentally compliant product that is operator friendly and a delight to use.

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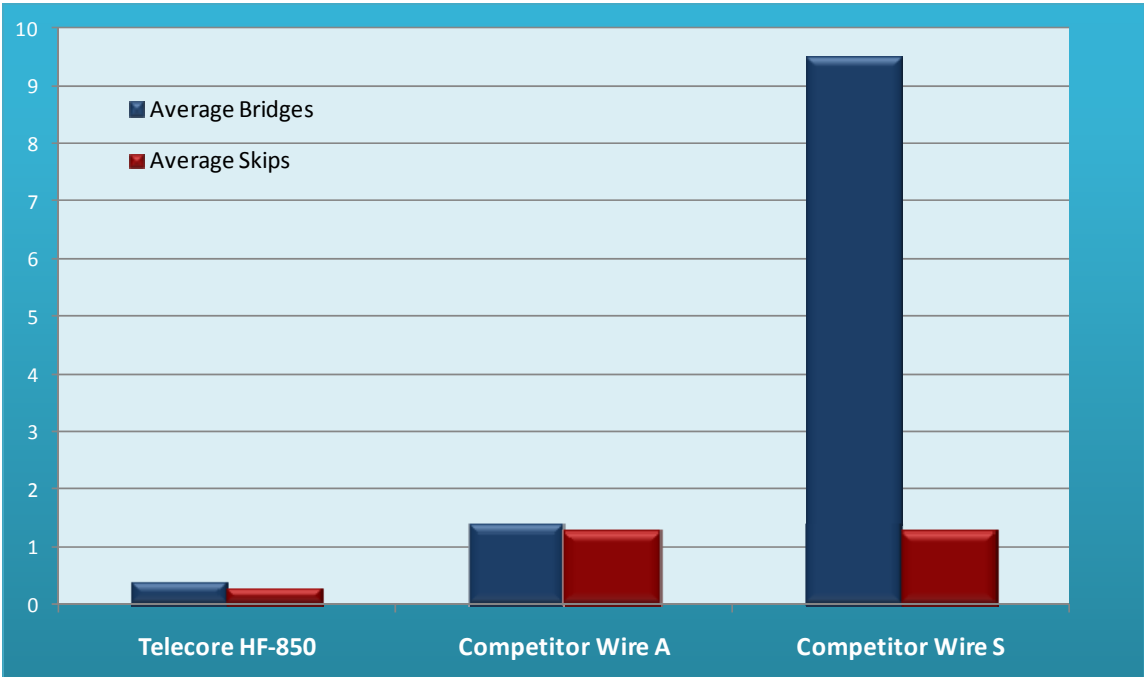
## Wider Process Window

- Best-in-class soldering performance for tip temperatures ranging from 320°C to 420°C applications.
- Excellent performance for various soldering applications:
  - Point soldering
  - Drag soldering
  - Pad leveling in rework
  - Automated robotic soldering

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## Soldering Performance

- Bridging & Skips

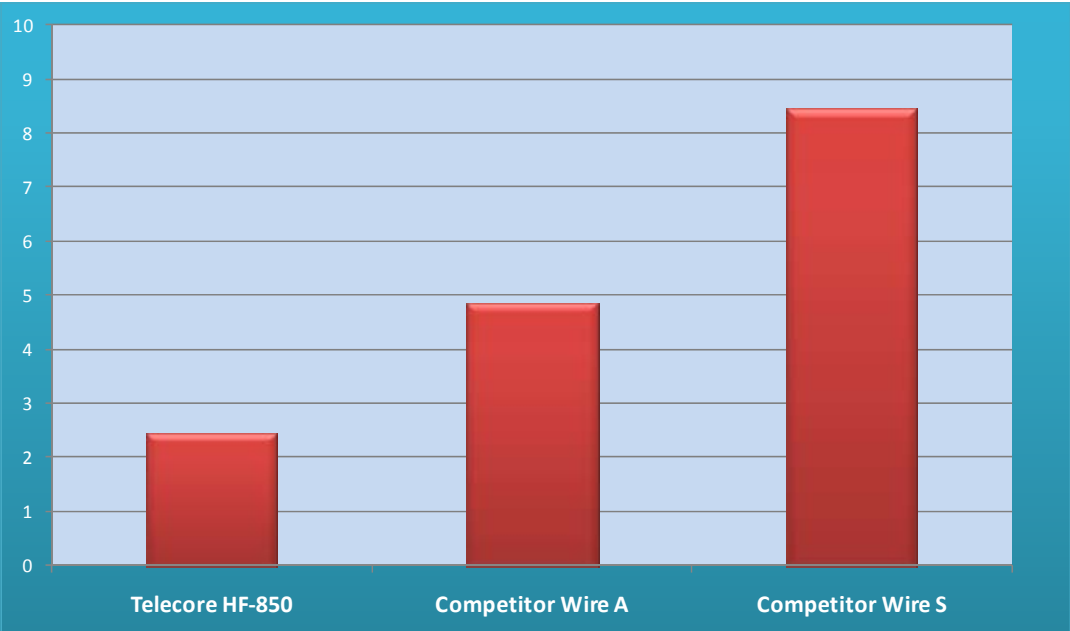
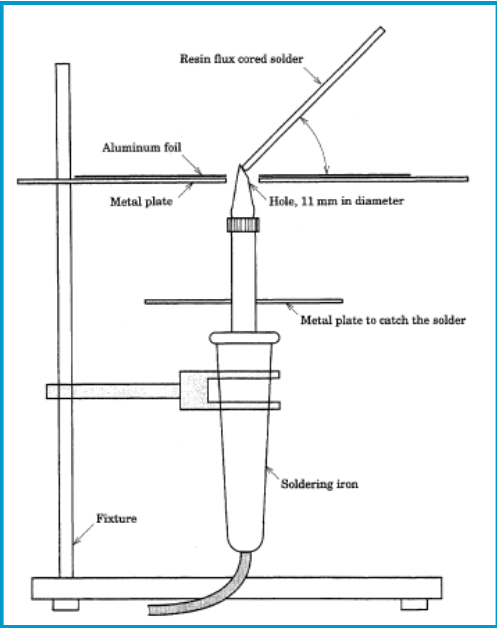


- In Drag Soldering, Telecore HF-850 shows lowest amount of skips and bridges

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## Soldering Performance

- Spatter Testing (Per JIS Z 3197 Testing Methods)

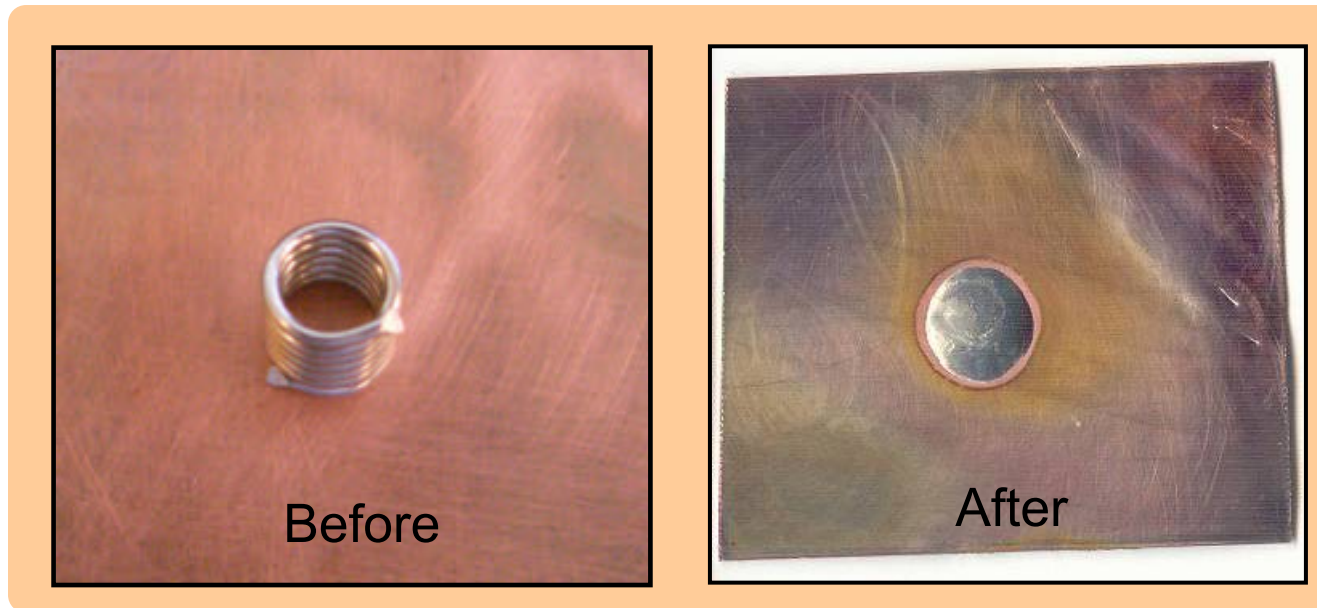


**- Telecore HF-850 shows ultra-low spattering performance**

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## Spread Performance

- Spread Performance (Per JIS Z 3197:1999)



- Spread Ratio: 84.1%
- Passes Spread Test (Per JIS Z 3197:1999)

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## Flux Residue



**Telecore HF-850**

- Clear and non-tacky residue
- Facilitates easier inspection

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## Flux Residue Tackiness



- Talc powder can be removed easily

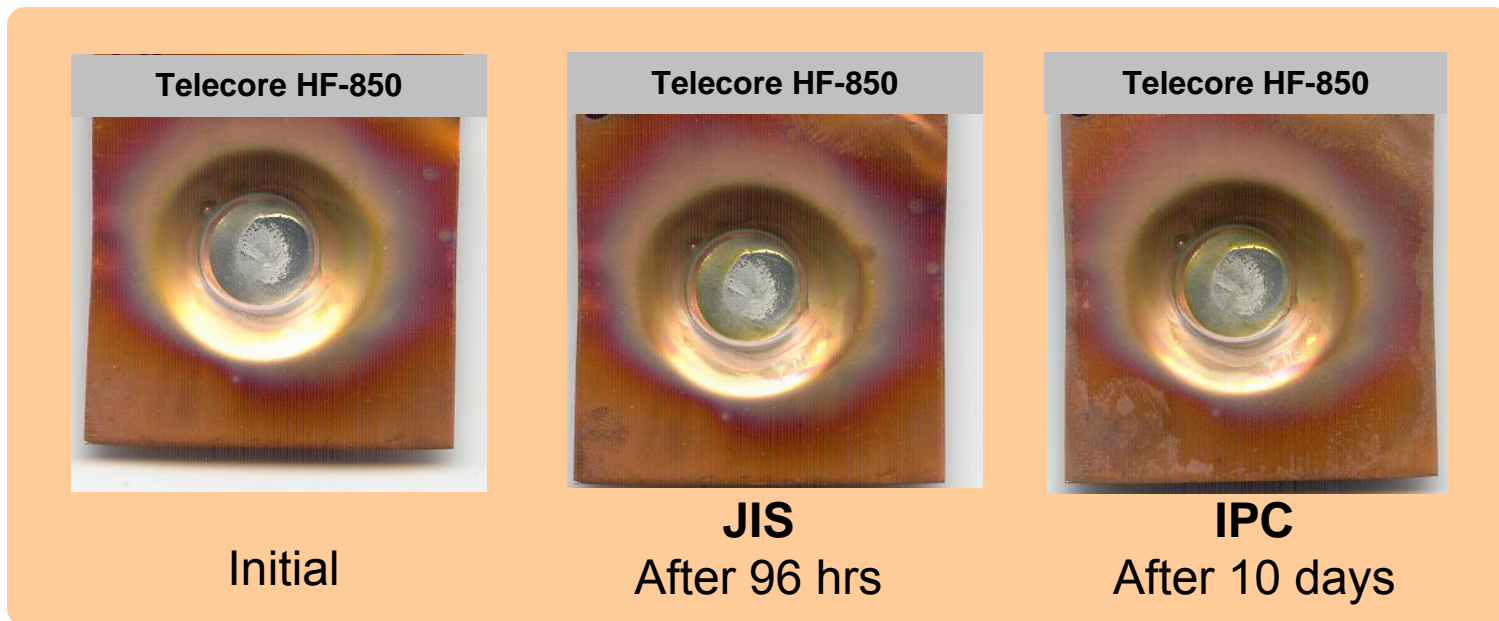
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## Electrical Reliability Data

Reliability Test		Requirements	Results
✓ JIS	SIR (JIS-Z-3197)	$\geq 1.0 \times 10^{11} \Omega$	Pass
✓ Bellcore	SIR (GR-78-CORE)	$\geq 1.0 \times 10^{11} \Omega$	
✓ IPC	SIR (J-STD-004A)	$\geq 1.0 \times 10^8 \Omega$	
	SIR (J-STD-004B)	$\geq 1.0 \times 10^8 \Omega$	
	EM (J-STD-004B)	$SIR_{\text{initial}} / SIR_{\text{final}} < 10$	

# High Reliability

## Copper Corrosion Test (JIS & IPC)



- No greening/pitting visible on the coupons after exposure to 40°C & 93%RH
- Passes JIS Z 3197(8.4.1) & IPC-TM-650 (2.6.15)

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## Copper Mirror Corrosion Test

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



Telecore HF-850 IPC



Telecore HF-850 JIS

- No breakthrough in the Cu layer
- Passes Copper Mirror Corrosion Test

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## Silver Chromate Test (JIS & IPC)



- Visual inspection was carried out to determine the presence of chlorides & bromides. No presence of white patch.
- Passes Silver Chromate Test

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# ALPHA® Telecore HF-850

## Technical Bulletin

TECHNICAL BULLETIN

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### ALPHA® TELECORE HF-850

Halogen-Free, Halide-Free, No-Clean, Lead Free Cored Solder Wire



#### DESCRIPTION

ALPHA® Telecore HF-850 is the fastest wetting and lowest spattering, Halogen Free and Halide Free cored wire offering from ALPHA®. It performs admirably when benchmarked against Halogen and Halide containing competitive products available in the market and is a viable option to meet environmental requirements.

ALPHA® Telecore HF-850's rapid wetting meets drag soldering and all other common soldering needs. Its clear residue allows easy inspection of solder joints and the very low spatter rate ensures board cosmetics and user comfort is maintained. All this translates to a safe and environmentally compliant product that is operator friendly and a delight to use.

#### FEATURES & BENEFITS

- Very fast wetting → Excellent for component touch-up operations and manual assembly
- 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
- Halogen and Halide Free → Environmental compliance

ALPHA® Telecore HF-850 is suitable for use in any commercial no-clean soldering application that specifies compliance to the IPC ROL0 standard.

It is suited to such areas of industry (subject to the above criteria) as Consumer Electronics, Automotive, Computer and peripherals, Mobile 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.

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.



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TECHNICAL BULLETIN

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#### TECHNICAL SPECIFICATION

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

\*TELECORE HF-850 is also available in other or special alloys on request.

ALPHA® TELECORE HF-850 is a Halogen Free product and passes the standards listed in the Table below:

Halogen Standards			
Standard	Requirement	Test Method	Status
IEC 612249-2-21	Post Soldering Residues contain < 900 ppm each or total of < 1500 ppm Br or Cl from flame retardant source	TM EN 14582	Pass
JEDEC A Guideline for Defining "Low Halogen" Electronics	Post soldering residues contain < 1000 ppm Br or Cl from flame retardant source		Pass

Physical Properties	Typical Values
Rosin Softening Point:	70°C – 80°C
Acid Value:	180 - 200 mg KOH/g flux
Halide Content:	< 500ppm per IPC J-STD-004
Classification:	IPC - ROL0
Shelf Life / Storage Temperature	36 months / 10°C - 43°C

Electrical Reliability Test	Requirements	Results
JIS SIR Test (JIS-Z-3197)	1.0 × 10 <sup>11</sup> Ω minimum	PASS
IPC SIR Testing (J-STD-004A)	1.0 × 10 <sup>9</sup> Ω minimum	PASS
IPC SIR Testing (J-STD-004B)	1.0 × 10 <sup>9</sup> Ω minimum	PASS
Bellore SIR Test (GR-78-CORE)	1.0 × 10 <sup>11</sup> Ω minimum	PASS
Bellore 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 850 TM 2.3.32)	No complete removal of copper	PASS
Copper Corrosion Test (JIS)	No evidence of corrosion	PASS
Copper Corrosion Test (IPC-TM 850 TM 2.8.15)	No evidence of corrosion	PASS

#### HEALTH & SAFETY

Observe standard precautions for handling and use. Use in well ventilated areas. DO NOT SMOKE.

ALPHA® Telecore HF-850 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.

TB, MSDS & 3rd Party Halogen Test Reports

# ALPHA® Telecore HF-850

## MSDS



### Material Safety Data Sheet

**Emergency phone:** Alpha Chemtrec #5591  
 US & Canada: 800 424-9300  
 Mexico: 01 800 022 1400, (55) 5559 1588  
 Brasil: 55 11 4353 2700



Health	2
Flammability	0
Physical hazards	0
Personal protection	

#### 1. Product and company identification

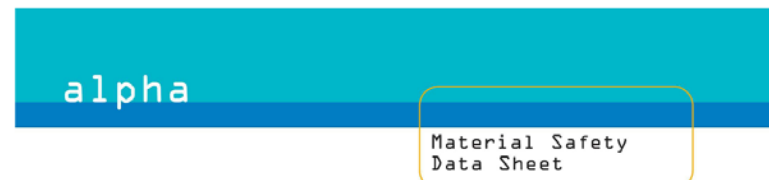
**Product name** : SOLDER WIRE CORED SACX Plus™ 0307 Plus, Telecore HF-850 Flux  
**Product code** : M246HF850  
**Material uses** : Specialty assembly materials for the electronics industries  
**Manufacturer** :  
 Cookson Electronics : Cookson Electronics Mexico, S.A. de C.V. : Cookson Electronics Brasil Ltda  
 109 Corporate Blvd. : Avenida Nafta No. 800, : Av.: José Odorizzi, No. 650  
 South Plainfield, NJ 07080 : Parque Industrial Stiva Aeropuerto : São Bernardo do Campo  
 Toll Free: (800) 367-5460 : Apodaca, Nuevo León, C.P. 66600 : São Paulo, CEP098100 000  
 Main Phone: (908) 791-3000 : Mexico : Phone: 55 11 4353 2500  
 Fax: (908) 791-3090 : www.cooksonelectronics.com : Fax: 55 11 4353 2521  
 www.alphametals.com : Customer Service: (814) 946-1611 : www.cooksonelectronics.com

**Validation date** : 7/25/2012. **Supersedes Date** : No previous validation.

**Prepared by** : T. Valverde (203)-799-4940

#### 2. Hazards identification

**Physical state** : Solid.  
**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).  
**Emergency overview** : WARNING!  
 Irritating to eyes, respiratory system and skin. 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** : Ingestion may cause gastrointestinal irritation and diarrhea.  
**Skin** : Irritating to skin. Skin inflammation is characterized by itching, scaling, reddening or, occasionally, blistering.



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Health	2
Flammability	0
Physical hazards	0
Personal protection	

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**Product code** : M771HF850  
**Material uses** : Specialty assembly materials for the electronics industries  
**Manufacturer** :  
 Cookson Electronics : Cookson Electronics Mexico, S.A. de C.V. : Cookson Electronics Brasil Ltda  
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## 3<sup>rd</sup> Party Halogen Test Report



### Test Report

No: 10263105(3a) R1

Date: 19-Jul-12

Alpha Metals Singapore  
14 Tuas Avenue 10 Singapore 639138

THIS REPORT IS TO SUPERSEDE TEST REPORT NO.: 102631051(3a) |

The following sample(s) was/were submitted and identified by/on behalf of the client as:

Sample Description : ALPHA ® TELECORE HF-850 SOLDER WIRE

Test Item(s):	Unit	Method	Results	MDL
<b>Halogen</b>				
Halogen - Bromine (Br)	mg/kg	With reference to BS EN 14582. Analysis was performed by IC	n.d.	50
Halogen - Chlorine (Cl)	mg/kg	With reference to BS EN 14582. Analysis was performed by IC	n.d.	50

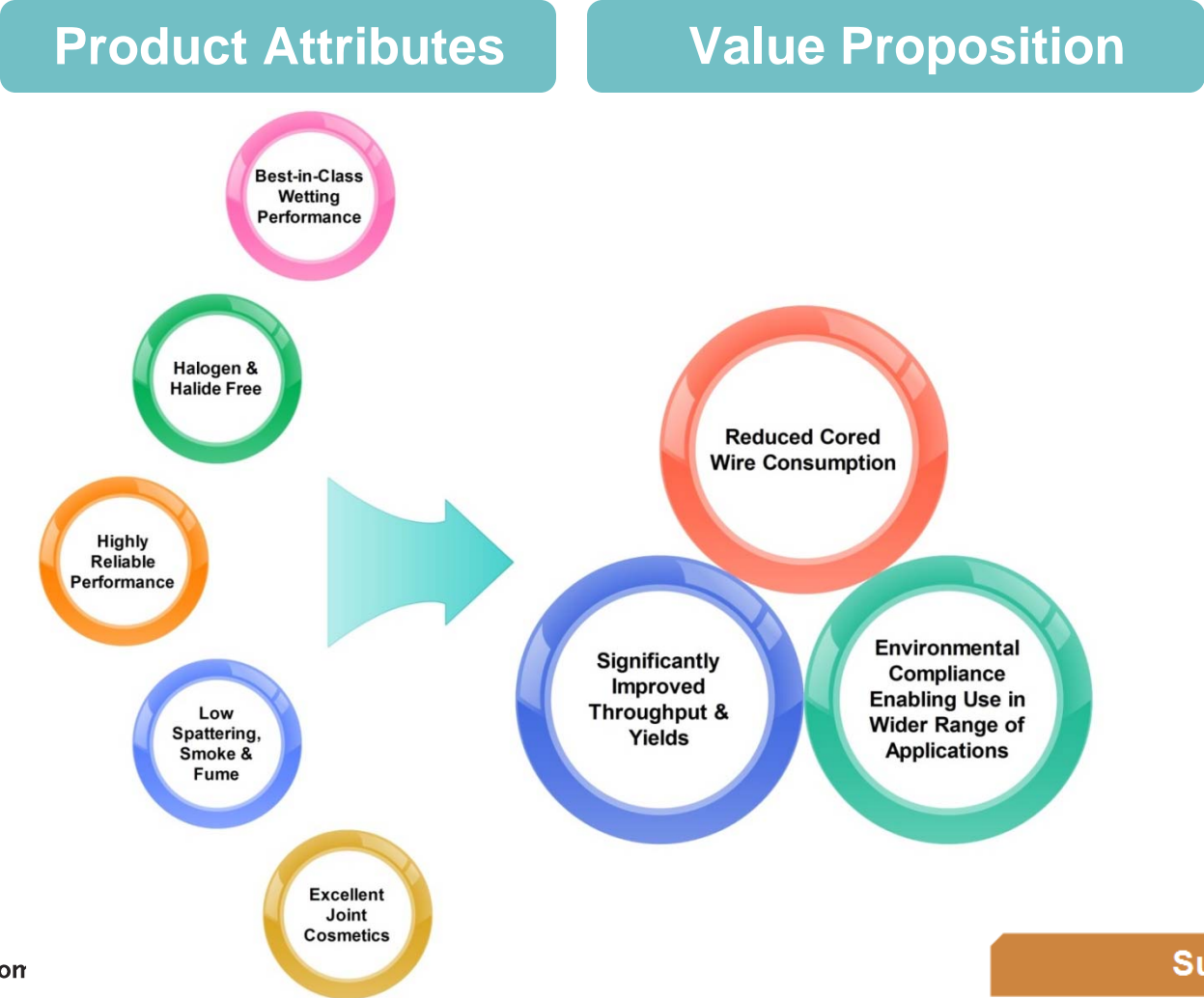
Note: (1) mg/kg = ppm ; 0.1wt% = 1000ppm  
(2) n.d.= Not Detected  
(3) MDL = Method Detection Limit

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# ALPHA<sup>®</sup> Telecore HF-850

## Summary



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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

# Global Footprint

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## Sales Support in Every Major Electronics Market



# Global Footprint