

PRODUCT DATA SHEET

CW-219

No-Clean Flux-Cored Wire



Introduction

Indium Corporation has developed a range of no-clean flux-cored wire solutions to meet the needs of virtually every assembly and rework operation. Cored wire formulas have evolved over time, but Indium Corporation's new line of flux-cored wire goes back to the basics by adapting simple and traditional cored wire fluxes to address today's assembly needs. Additionally, this new line of flux-cored wire has reduced spattering when compared to other formulas.

CW-219 Highly-Activated Rosin Flux is designed for soldering to very oxidized copper, nickel, brass, bronze, zinc coatings, tin-plated steel, and similar surfaces. Customers prefer **CW-219** for non-sensitive applications where they would like to increase the speed of wetting to achieve higher throughput. **CW-219** has been confirmed to meet the requirements of J-STD-004 and J-STD-004B type ROM1.

Features

- Very fast wetting
- Clear residue
- Compatible with Pb-free and SnPb alloys
- Compatible with HASL, Immersion Silver, ENIG, and OSP surface finishes

Process Recommendations

- Match the tip size to the part to be soldered
- Apply the solder wire to the joint, not to the soldering iron tip
- Use the lowest temperature possible
- 610–700°F (320–370°C) for SnPb and Pb-free
- Surface mount (SMT) soldering should be completed in 1–2 seconds
- Plated through-hole (PTH) soldering should be completed in 0.5–7.0 seconds
- The robotic soldering process set-up is highly customizable and depends on the assembly being soldered
- A smooth solder joint appearance requires the correct amount of temperature and time; fine-tuning the process parameters may be required to achieve the best possible outcome
- During robotic soldering, flux build-up and charring may occur; to avoid build-up, increase the iron tip cleaning frequency or reduce the iron tip temperature

Physical Properties

IPC J-STD-004B Classification	ROM1
Acid Value (mgKOH/gram of flux)	220
Rosin-Containing	Yes
Halide Content %	0.58
Smoke	Minimal
Odor	Mild, rosin
Color	Clear
IPC J-STD-006 Compliance	Indium Corporation impurity levels conform to or exceed IPC J-STD-006
Compatible Alloys	All common and specialty alloys [†]
Copper Mirror IPC J-STD-004B	See Copper Mirror section
Copper Corrosion IPC J-STD-004B	See Copper Corrosion section
SIR J-STD-004B*	Pass
Electromigration J-STD-004B*	Pass

[†] Common Alloys: SAC305; SACm[®]0510; Sn995; SAC105; SAC0307; SAC387; 96.5Sn/3.5Ag; 95Sn/5Sb; Indalloy[®]227; Indalloy[®]254; 63Sn/37Pb; 60Sn/40Pb; 93.5Pb/5Sb/1.5Ag; 43Sn/43Pb/14B, and all similar alloys.

* Data available upon request.

Board Thickness	0.062"/1.58mm	0.093"/2.36mm
Wire Used	SAC305, 0.020"/0.5mm	SAC305, 0.020"/0.5mm
Formula and Flux %	CW-219, 3%	CW-219, 3%
Robot Speed	400–700mm/sec	400–700mm/sec
Iron Wattage	130 watt	130 watt
Tip Temperature	400–425°C	425°C
Tip Size	1.6 x 0.6mm	2.4mm diameter
Process Parameters:		
Solder Feed + Iron Tip Down	5.0–5.4mm @ 25–30mm/sec	5.0–5.6mm @ 25–30mm/sec
Preheat		0.2–2.5 seconds
Solder Feed		1.2–2.6mm @ 18–22mm/sec
Preheat	0–0.7 seconds	0–0.2 seconds
Solder Feed	1.6–2.3mm @ 18mm/sec	1.2–2.4mm @ 18mm/sec
Solder Retract	3.0mm @ 30mm/sec	3.0mm @ 30mm/sec
Post Heat/Dwell Time	0 seconds	0 seconds
IRON TIP UP		
Amt. of Solder Used (mm/joint)	3.6–6.5	3.2–7.0
Solder Time (seconds/joint)	0.6–1.2	1.0–4.1
Tip Cleaning Frequency 400–425°C	Each 10 meters of wire/ or as needed	Each 10 meters of wire/ or as needed

Removing Flux Residue

CW-219 flux residue is non-corrosive; however, some applications require the removal of flux residues for cosmetic, reliability, or secondary operations. The residue can be removed with most solvents and saponifiers. Please contact Indium Corporation for specific recommendations with your chosen residue remover.



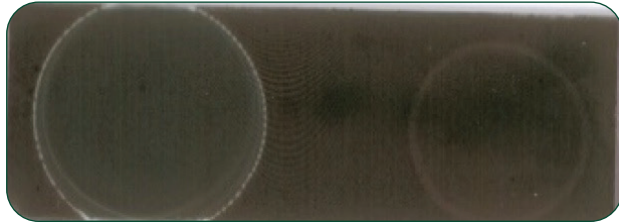
From One Engineer To Another[®]

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Copper Mirror

The J-STD-004B copper mirror test is performed per IPC-TM-650 method 2.3.32. To be classified as an “L” type flux, there should be no complete removal of the mirror surface. **CW-219** shows minor removal of the mirror surface, therefore, can be classified as an “M” type flux.

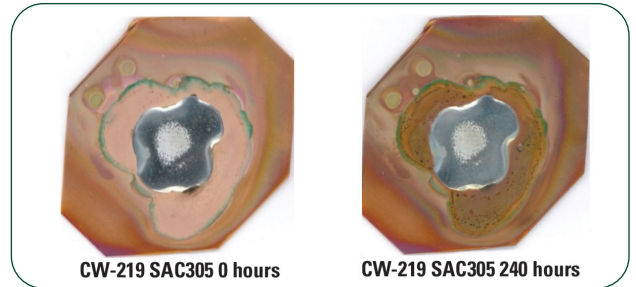


10% Solution in IPA

Control

Copper Corrosion

Copper corrosion is tested per IPC-TM-650 method 2.6.15. This test gives an indication of any visible reactions that take place between the flux residue after soldering and copper surface finishes. With **CW-219**, some of the residue darkens over time, but no corrosion is observed. With **CW-219**, there is a minor amount of color change, acceptable for an “M” type flux.



CW-219 SAC305 0 hours

CW-219 SAC305 240 hours

Standard Flux Core Sizes, Alloys, and Shelf Life

Alloys	High Flux (%)	Medium Flux (%)	Low Flux (%)	Very Low Flux (%)	Shelf Life (<26°C and <60% RH)
SnPb <80% Pb	2.7–3.2	1.7–2.2	0.8–1.2	—	10 years from DOM
Pb-Free Alloys	3.3–3.7	2.7–3.2	1.7–2.2	0.8–1.2	10 years from DOM
High Lead >85%	1.7–2.2	1.3–1.7	0.8–1.2	—	2 years from DOM

Indium Corporation can produce many of the alloys on its alloys list as cored wire. Alloys containing greater than 20% bismuth, greater than 8% antimony, gold, or greater than 5% silver cannot be produced as cored wire at this time.

Standard Diameters and Packaging

Inches	mm Equivalent	Tolerance	Packaging	Cartons
0.010	0.25	± 0.002"/0.05mm	1/4lb	(10) 1/4lb spools
0.015	0.38	± 0.002"/0.05mm	1/4lb	(10) 1lb spools
0.020	0.51	± 0.002"/0.05mm	1lb	(10) 5lb spools
0.025	0.64	± 0.002"/0.05mm	1lb	per box
0.032	0.81	± 0.002"/0.05mm	1lb	—
0.040	1.02	± 0.002"/0.05mm	1lb, 5lb	—
0.062	1.57	± 0.002"/0.05mm	1lb, 5lb, 20lb	(2) 20lb spools
0.120	3.05	± 0.002"/0.05mm	1lb, 5lb, 20lb	per box

Technical Support

Indium Corporation sets the industry standard in providing rapid response, onsite technical support for our customers worldwide. Indium Corporation's team of Technical Support Engineers can provide expertise in all aspects of Materials Science.

Safety Data Sheets

Please refer to the SDS document within the product shipment, or contact our local team to receive a copy.

This product data sheet is provided for general information only. It is not intended, and shall not be construed, to warrant or guarantee the performance of the products described which are sold subject exclusively to written warranties and limitations thereon included in product packaging and invoices. All Indium Corporation's products and solutions are designed to be commercially available unless specifically stated otherwise.

All of Indium Corporation's solder paste and preform manufacturing facilities are IATF 16949:2016 certified. Indium Corporation is an ISO 9001:2015 registered company.

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