PRODUCT DATA SHEET

No-Clean Flux-Cored Wire

for Circuit Board Assembly and Rework

Introduction

Indium Corporation has developed a range of flux-cored wire solutions to meet the needs of virtually every electronic assembly and rework operation. Flux-cored wire solutions are created when the desired alloy, cored-wire flux, and flux percentage are combined into a void-free, perfectly layer-wound package which can be easily used for both hand soldering and automated wire feed solder. Indium Corporation prides itself on providing the industry's widest range of flux-cored wire solders for both standard electronic assembly as well as highly specialized needs. No application is too large or too small.

No-Clean Cored Wire Flux Formulations

- **CW-807 Standard Halogen-Free No-Clean:** This formula provides a balance of properties needed for high-reliability no-clean soldering and rework—high-reliability, considered halogen-free, low smoke, non-offensive odor, clear residue, and fast wetting to clean copper and solder-coated surfaces. CW-807 meets the requirements of J-STD-004 and J-STD-004B as a ROL0.
- **CW-807M Higher Activity No-Clean:** CW-807M has the same characteristics as CW-807, but with a small addition of halogen activator for more difficult-to-solder assemblies. This formula is considered ROL0 by J-STD-004, and ROL1 by the updated J-STD-004B.
- **CW-807H No-Clean for High-Temp Alloys:** CW-807H has very similar characteristics to CW-807, except that a high-temperature modified rosin has been substituted for the lower melting point rosin used in CW-807. This change makes the CW-807H slower wetting with standard solder alloys, but provides heat stability when soldering with high-lead content, high-temperature alloys for applications such as "down-hole" electronics, while still maintaining the same reliability characteristics.
- **CW-802 Low Activity No Halogen Added No-Clean:** While very small amounts of halogen (<500ppm) are perfectly fine and considered halogen-free for virtually all electronic assemblies, some electronic assemblers want a formula that eliminates as much halogen as possible. CW-802 was created with this in mind. However, it is recommended only for applications where no halogen is a must, the surfaces to be soldered are in pristine condition, and the process is well-controlled.

Formula	CW-807	CW-807M	CW-807H	CW-802
IPC J-STD-004B	ROL0	ROM1	ROL0	ROL0
Acid Value (mgKOH/gram of flux)	270	270	250	270
Rosin Containing	Yes	Yes	Yes	Yes
Halide Content %	<0.05	0.23	<0.05	<0.05
Smoke	Minimal	Minimal	Minimal	Minimal
Odor	Mild, sweet	Mild, sweet	Mild, sweet	Mild, sweet
Color	Clear, light	Clear	Amber	Clear
IPC J-STD-006 Compliance	Indium Corporation impurity levels conform to or exceed IPC J-STD-006	Indium Corporation impurity levels conform to or exceed IPC J-STD-006	Indium Corporation impurity levels conform to or exceed IPC J-STD-006	Indium Corporation impurity levels conform to or exceed IPC J-STD-006
Compatible Alloys	All common and specialty alloys†	All common and specialty alloys†	High-Temp Alloys††	All common and specialty alloys†
Copper Mirror IPC J-STD-004B	See Copper Mirror section	Pass	Pass	Pass
Copper Corrosion IPC J-STD-004B	See Copper Corrosion section	Pass	Pass	Pass
SIR J-STD-004B*	Pass	Pass	Pass	Pass
Electromigration J-STD-004B*	Pass	Pass	Pass	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.*

†† *High-Temp Alloys: 5Sn/95Pb, 5Sn/93.5Pb/1.5Ag, 5Sn/92.5Pb/2.5Ag, 10SN/88Pb/2Ag, and similar alloys.*

* *Data available upon request.*

From One Engineer To Another®

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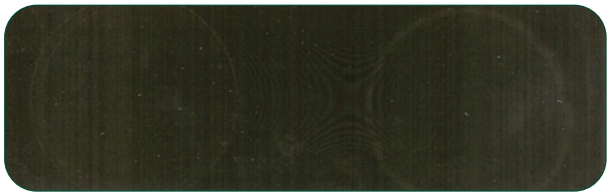
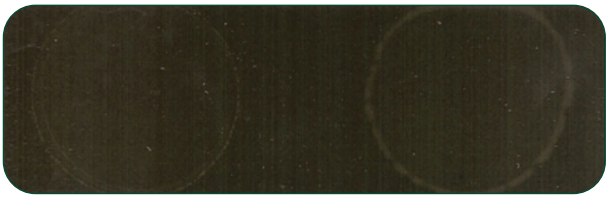
Copper Mirror

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-807, CW-807H, and CW-802 show no complete removal of the copper mirror and, therefore, are classified as an ROL0. CW-807M shows minor removal of the mirror surface, therefore, can be classified as an "M" type flux.

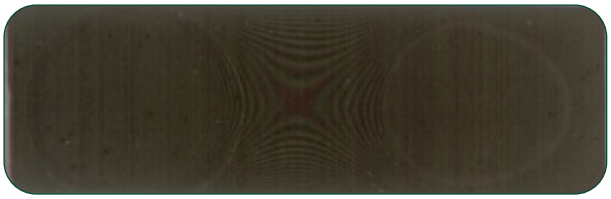


CW-807 5% Solution (IPA) Standard Rosin Front Side



CW-807 5% Solution (IPA) Standard Rosin Back Side

CW-807M 5% Solution (IPA) **Control**



CW-807H 5% Solution (IPA) **Control**

CW-802 10% Solution (IPA) **Control**

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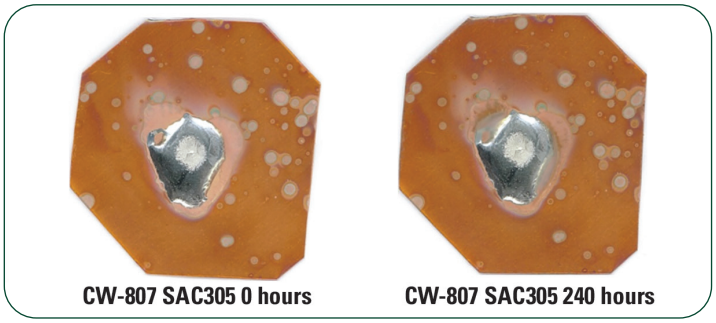
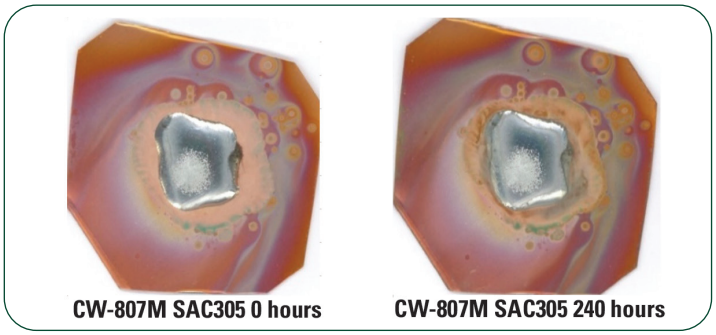
Copper Corrosion

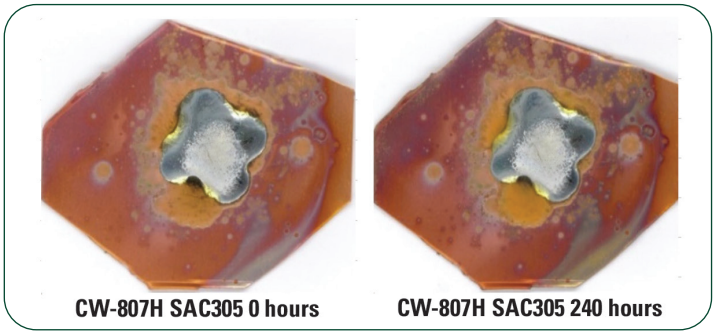
Copper corrosion is tested per IPC-TM-650 method 2.6.15. This test gives an indication of any visible reactions that take place between the flux residue after soldering and copper surface finishes. With CW-807M, there is a minor amount of color change, acceptable for an"M" type flux.



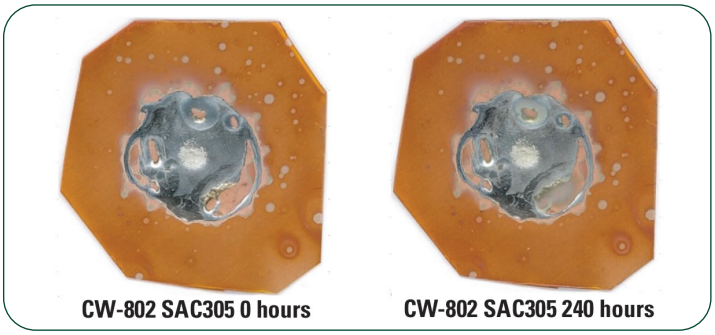
CW-807 SAC305 0 hours | CW-807 SAC305 240 hours



CW-807M SAC305 0 hours | CW-807M SAC305 240 hours



CW-807H SAC305 0 hours | CW-807H SAC305 240 hours



CW-802 SAC305 0 hours | CW-802 SAC305 240 hours

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Standard Flux Core Sizes, Alloys, and Shelf Life

Alloys	High Flux %	Medium Flux %	Low Flux %	Shelf Life
SnPb <80% Pb	2.7–3.2%	1.8–2.5%	0.8–1.2%	3 years
Pb-Free Alloys	2.7–3.2%	1.8–2.5%	0.8–1.2%	3 years
High-Lead >85%	1.8–2.5%	1.3–1.7%	0.8–1.2%	2 years

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

Diameters		Packaging
Inches	mm	
0.010 ± 0.002	0.25 ± 0.05	¼lb (113g)
0.015 ± 0.002	0.38 ± 0.05	¼lb (113g)
0.020 ± 0.002	0.51 ± 0.05	1lb (454g)
0.025 ± 0.002	0.64 ± 0.05	1lb (454g)
0.032 ± 0.002	0.81 ± 0.05	1lb (454g)
0.040 ± 0.002	1.02 ± 0.05	1lb (454g)
0.062 ± 0.002	1.57 ± 0.05	1lb (454g), 5lb (2,268g), 20lb (9,072g)
0.125 ± 0.002	3.18 ± 0.05	1lb (454g), 5lb (2,268g), 20lb (9,072g)

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