

Flux and Solder Compatibility

APPLICATION NOTE

Base Metal	Recommended Flux		Recommended Solder Alloy / Indalloy #	Incompatible Solder Alloys
	Liquid	Tacky		
Gold (over .5µm thick) *(See Note 1)	R or RMA	TACFlux012 (In alloys) TACFlux007 (high-Pb & Au/Sn)	#4 (100In) #2 (80In/15Pb/5Ag) In/Pb alloys *(See Note 5) #182 (80Au/20Sn) High-Pb alloys	Sn, Sn/Pb, In/Sn Sn/Pb/In, Sn/Pb/Bi
ENIG	R or RMA	TACFlux 020B (Sn/Pb and SAC) TACFlux 012 (In alloys) TACFlux 007 (high-Pb & Au/Sn) TACFlux 055 (Sn/Bi alloys)	#106 (63Sn/37Pb) #104 (62Sn/36Pb/2Ag) SAC alloys #121 (96.5Sn/3.5Ag) In alloys #182 (80Au/20Sn) High Pb alloys Sn/Bi alloys	Compatible with most solder alloys
Silver *(See Note 2)	R or RMA	TACFlux 020B (Sn/Pb and SAC) TACFlux 007 (high-Pb)	#104 (62Sn/36Pb/2Ag) #121 (96.5Sn/3.5Ag) SAC alloys High-Pb alloys	Compatible with most solder alloys
Palladium (Pd) Platinum (Pt)	R or RMA		Compatible with most solder alloys	Compatible with most solder alloys
Clean Cu	R or RMA	TACFlux 020B (Sn/Pb & SAC) TACFlux 055 (Sn/Bi alloys)	#106 (63Sn 37Pb) #104 (62Sn 36Pb 2Ag) SAC Alloys #121 (96.5Sn 3.5Ag) #133 (95Sn 5Sb) Sn/Bi Alloys	In, In/Pb, In/Sn In/Pb/Ag *(See Note 4)
HASL Finish (Sn & Sn/Pb)	RA or RMA	TACFlux 020B (Sn/Pb) TACFlux 055 (Sn/Bi alloys)	#106 (63Sn 37Pb) #104 (62Sn 36Pb 2Ag) SAC Alloys Sn/Bi Alloys	In-containing solders *(See Note 3)
Oxidized Cu & Cu Alloys (Brass, Bronze)	Flux #40A or an RA Flux		#106 (63Sn/37Pb) #104 (62Sn/36Pb/2Ag) SAC alloys	In-containing solders *(See Note 4)
Nickel (Ni) & Kovar	Flux #40A or an RA Flux		#106 (63Sn/37Pb) #104 (62Sn/36Pb/2Ag) In/Pb alloys *(See note 5) SAC alloys	Compatible with most solder alloys
Aluminum (Al)	Flux #3		#201 (91Sn/9Zn) #176 (95Zn/5Al)	Sn/Pb due to poor corrosion resistance
Stainless Steel	Flux #2 or #3 *(See note 6)		#1E (52In/48Sn) #106 (63Sn/37Pb) #104 (62Sn/36Pb/2Ag) #121 (96.5Sn/3.5Ag) SAC alloys	Avoid Pb and Cd for food applications
Steel	Flux #1		#106 (63Sn/37Pb) #104 (62Sn/36Pb/2Ag) SAC alloys	Compatible with most solder alloys

See reverse for notes.

OVER →

Form No. 97751 R5

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Notes

Note 1: Indium-containing solder is good for operational temperatures less than 125°C. For applications above 125°C, choose Indalloy #182 (80Au/20Sn).

Note 2: When soldering to silver (Ag) it is recommended that the solder also contain some Ag, such as Indalloy #121 (96.5Sn/3.5Ag), 62Sn/36Pb/2Ag, or Indalloy #151 (92.5Pb/5Sn/2.5Ag)

Note 3: Avoid solders that contain indium (In) when soldering to Sn or Sn/Pb. It is possible for localized pockets of the In/Sn eutectic to form, which melts at 118°C.

Note 4: Avoid solders that contain In when soldering to Cu. In and Cu diffuse into one another and form a brittle intermetallic.

Note 5: In/Pb alloys have a wide temperature range from 175°C to 313°C (Indalloy #7, #10, #11, #150, #204, #205, and #206). For specific melting temperatures, refer to the Table of Specialty Alloys & Solders at www.indium.com.

Note 6: Use Liquid Flux #2 for applications which do not require prolonged heating, and Liquid Flux #3 for applications which do require prolonged heating to reflow the solder.

This Application Note 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.

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