

Choosing the right soldering materials for your selective soldering process can be challenging!

Alpha just made the job much easier for you.



Selective Soldering Applications Are Increasing Industry-wide.

There has been a rapid increase in the use of selective soldering equipment for PCB assembly over the past several years. This is primarily due to the decrease in the number of through hole devices designed into boards along with the reduced equipment investment required. Because the selective soldering process is so much different than wave soldering, Alpha performed a comprehensive study designed to help our customers identify which of our leading liquid fluxes perform best under different selective soldering conditions. We also identified the specific condition where each flux performed at its best. Simply follow Steps 1 an 2 below to determine which ALPHA® flux best meets your process requirements.

Step 1

Using the following tables (below and top right), identify the conditions that most closely represent your selective soldering process and find the ALPHA® flux(es) that would fit your needs.

Note: Table 1 is for 1.6 mm (0.062") boards, and Table 2 is for 2.4mm (0.93") boards.

Settings required to achieve >75% fill on 100% of holes

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	Table 1 – 1.6mm Board						
		FLUX	PROCESS GUIDELINES	FLUX	PROCESS GUIDELINES	FLUX	PROCESS GUIDELINES
		EF2210	FS 310 , PH 70	EF5601	FS 190 -250, PH70- 130	EF2210	FS 190 , PH 70 -130
		EF6000	FS 190 -310, PH70- 130	EF6000	FS 190 -310, PH70- 130	EF5601	FS 190 -310, PH 70 -130
		EF6100	FS 310 , PH 70	EF6100	FS 190 -310, PH70- 130	EF6000	FS 190 -310, PH70- 130
5		EF6103	FS 190 -310, PH70- 130	EF6103	FS 190 -310, PH70- 130	EF6100	FS 190 -310, PH70- 130
э		EF8000	FS 310 , PH 70 -130	EF6850HF	FS 310 , PH 70	EF6103	FS 190 -310, PH70- 130
w				EF8000	FS 310 , PH 70 -130	EF6850HF	FS 190 -310, PH 70 -130
				EF9301	FS 190 , PH 130 , or;	EF8000	FS 190 -310, PH 70 -130
				EF9301	FS 310 , PH 70	EF9301	FS 190 -310, PH70- 130
		EF2210	FS 310 , PH 70	EF2210	FS 310 , PH 70	EF2210	FS 190 , PH 130
		EF6000	FS 310 , PH70- 130	EF6000	FS 190 -310, PH70- 130	EF5601	FS 190 -250, PH110- 130
3.5		EF6103	FS 310 , PH70- 130	EF6100	FS 310 , PH 70 -130	EF6000	FS 190 -310, PH70- 130
3.5		EF8000	FS 310 , PH 70	EF6103	FS 190 -310, PH70- 130	EF6100	FS 190 -310, PH70- 130
3.5				EF8000	FS 310 , PH 70 -130	EF6103	FS 190 -250, PH100- 130
<u> </u>						EF6850HF	FS 190 -310, PH 70 -130
						EF8000	FS 190 -310, PH70- 130
						EF9301	FS 310 , PH70-100
		EF2210	FS 310 , PH 70	EF2210	FS 310 , PH 70	EF6000	FS 190 -310, PH70- 130
		EF6000	FS 310 , PH70- 130	EF6000	FS 310 , PH70- 130	EF6100	FS 190 , PH 130 , or;
2		EF6103	FS 310 , PH70- 130	EF6103	FS 310 , PH70- 130	EF0 100	FS310, PH70
2						EF6103	FS 190 , PH 130
						EF6850HF	FS 190 , PH 70 -130
						EF8000	FS 310 , PH 70
			280	295		310	

LEGEND

FS = Flux Solids, µg/cm²

PH = Pre-Heat, °C

Green Numbers = Optimum Settings

Solder Pot Temperature, °C

These are general guidelines which have proven to yield excellent results; however, depending upon your equipment, components, and circuit boards, your optimal settings may be different.

	Table 2 – 2.4mm Board								
Solder Contact Time, seconds			FLUX	PROCESS GUIDELINES	FLUX	PROCESS GUIDELINES	FLUX	PROCESS GUIDELINES	
	5		EF6000	FS 190 , PH 130	EF6000	FS 190 -290, PH100- 130	EF2210	FS 190 , PH 70	
			EF6103	FS 310 , PH 130	EF6100	FS 190 , PH 130	EF6000	FS 190 -310, PH70- 130	
			EF8000	FS 310 , PH 70	EF6103	FS 190 -310, PH100- 130	EF6100	FS 190 -310, PH70- 130	
					EF8000	FS250- 310 , PH 70 -100	EF6103	FS 190 -310, PH70- 130	
							EF6850HF	FS 190 -250, PH 70 -130	
							EF8000	FS 190 -310, PH 70 -130	
	3.5				EF6000	FS 190 , PH 130	EF6000	FS 190 -310, PH70- 130	
					EF6103	FS 190 , PH 130	EF6100	FS 190 -310, PH70- 130	
				N/A			EF6103	FS 190 , PH100- 130	
							EF6850HF	FS 190 -310, PH 70 -100	
							EF8000	FS 310 , PH 70	
	2		N/A		N/A		EF6000	FS 190 -250, PH 130	
							EF6100	FS 190 -250, PH 130	
							EF6103	FS 190 , PH 130	
								FS 190 , PH 70	
				280		295	310		
LEGEND Solder Pot Temperature, °C									
	PH		PH = Pre-H	= Flux Solids, μg/cm² I = Pre-Heat, °C een Numbers = Optimum Settings		These are general guidelines which have proven to yield excellent results; however, depending upon your equipment, components, and circuit boards, your optimal settings may be different.			

Step 2

Use the table below to further qualify the right ALPHA® flux for your application based on the flux's electrochemical reliability.

Note: Additional information about each flux can be found at alpha.alent.com.

		Reliability Requirements					
TYPE	DESCRIPTION	IPC SIR (004A)	BELLCORE SIR	IPC SIR (004B)	JIS / CUSTOM		
I	Simple, single sided, FR2 / CEM-1 laminates			<u> </u>	EF-12000		
II	Dual sided FR-4 w/PTHs, 1.6mm thick, up to 4 inner copper layers, metallized pad finishes		EF-2210	EF.	-5 <mark>601</mark>		
III	Complex, up to 12 inner copper layers, OSP pad finishes, all processing in air	EF ACCOL	L. 22.10	EF-6100(P)	EF-6850HF		
IV	>2.4mm thick, >12 inner copper layers, large high heat capacity components		EF-8300(LR)		EF-8000(GL)		

Alcohol Based

Water Based

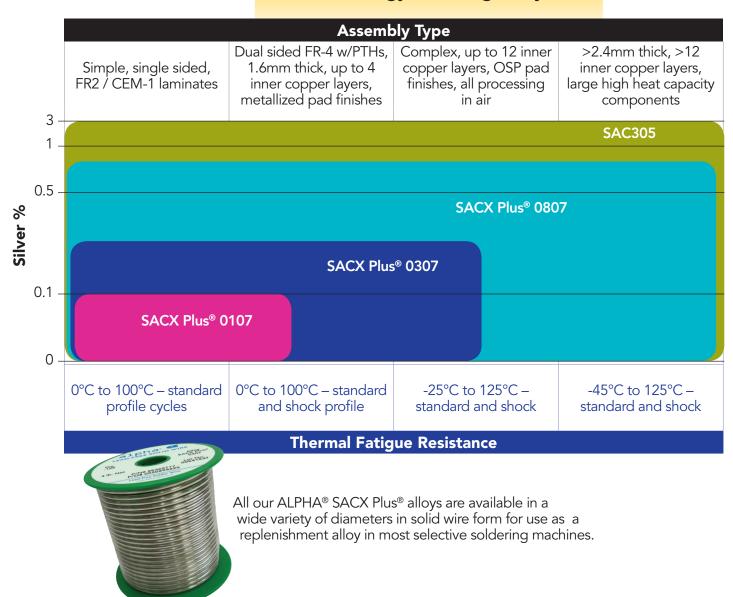
ALPHA® SACX Plus® Alloys

ALPHA® SACX Plus® alloys are ideal for use in selective soldering applications. They are engineered to provide excellent solderability with minimal dross, and they also resist copper dissolution in processes requiring long, high temperature contact times.

Select the right ALPHA® SACX Plus® alloy for your board type using the chart below. You should also consider your mechanical reliability requirements.



Technology Enabling Alloys



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