Halogen-free Low Flow Prepreg

EM-37B(L)

Feature

- Hi-Tg Halogen-free material
- Lead-free processing compatible
- Good adhesion for rigid-flex board

Basic Properties

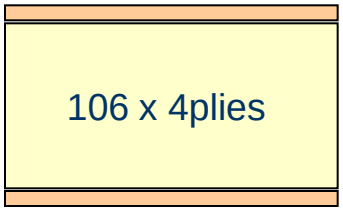
Laminate Thickness (0.5 mm)	Test Method	Test Condition	Unit	EM-37B(L)
Laminate Property	IPC-TM-650			
Glass Transition Temp.	2.4.25	DSC	℃	175
Decomposition Temp.	2.3.40	TGA	℃	385
Peel Strength(0.5 oz)	2.4.8	as receive	lb/in	6.3
Thermal Stress (288℃ /10s)	2.4.13.1	Clad	cycle	>20
T-260	2.4.24.1	Clad	min	>60
T-288	2.4.24.1	Clad	min	>60

Reliability Test

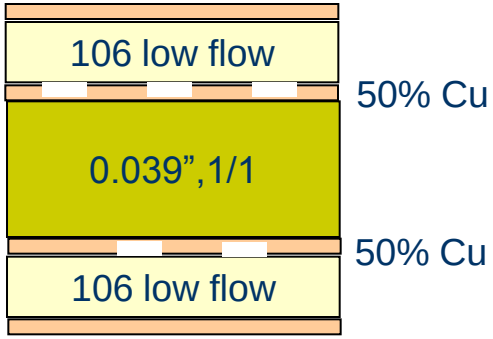
N=5

Item	Unit	SPEC.	EM-37B(L)
Dipping 288℃ x 10s (CCL) clad	cycle	10	> 20
Dipping 288℃ x 10s (B/O) clad	cycle	10	>20
Dipping 288℃ x 10s (PI) clad	cycle	10	>20

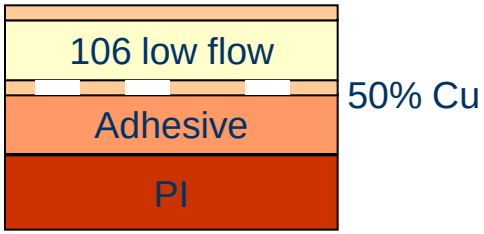
CCL



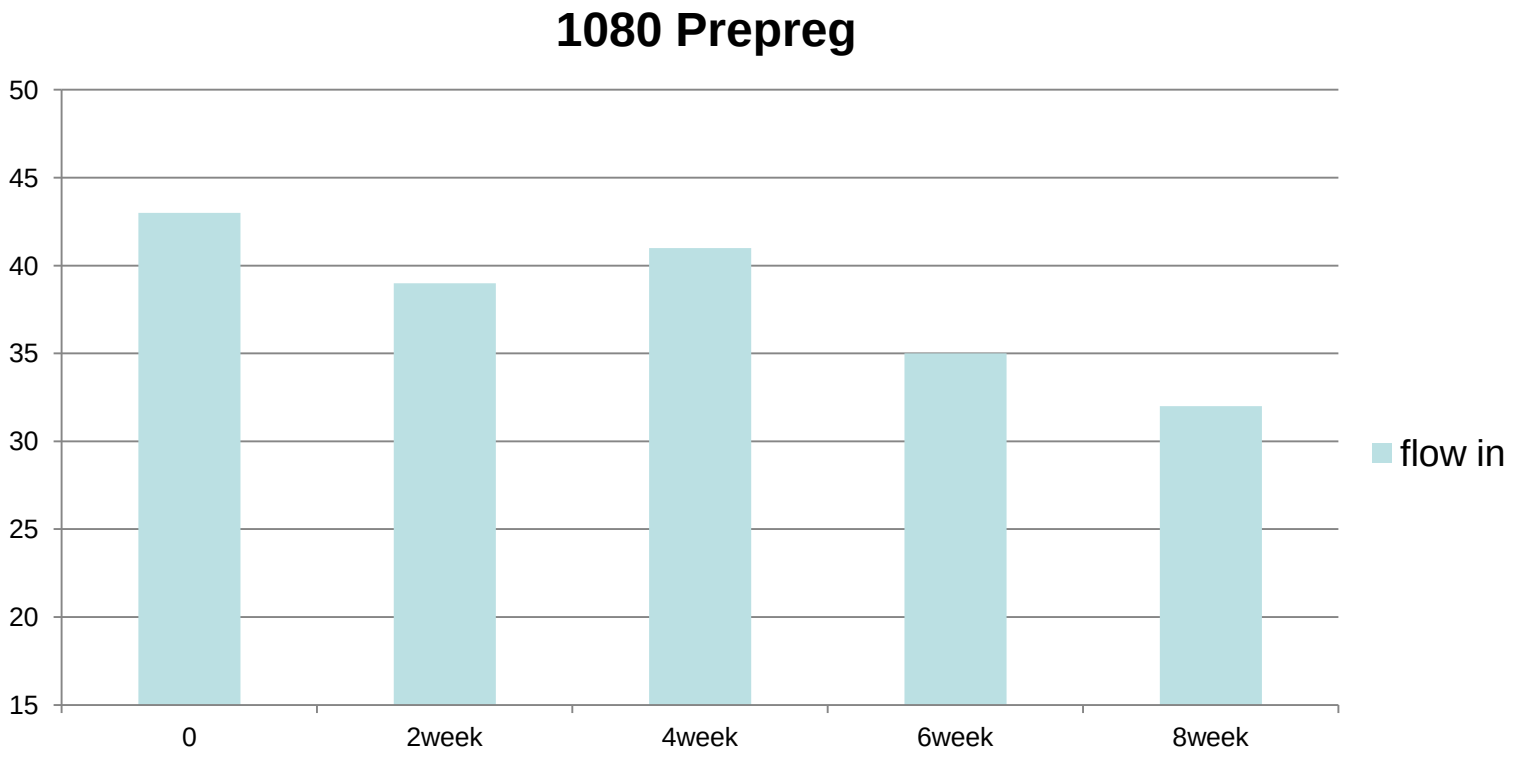
B/O



PI



Shelf Life vs. Flow in variation



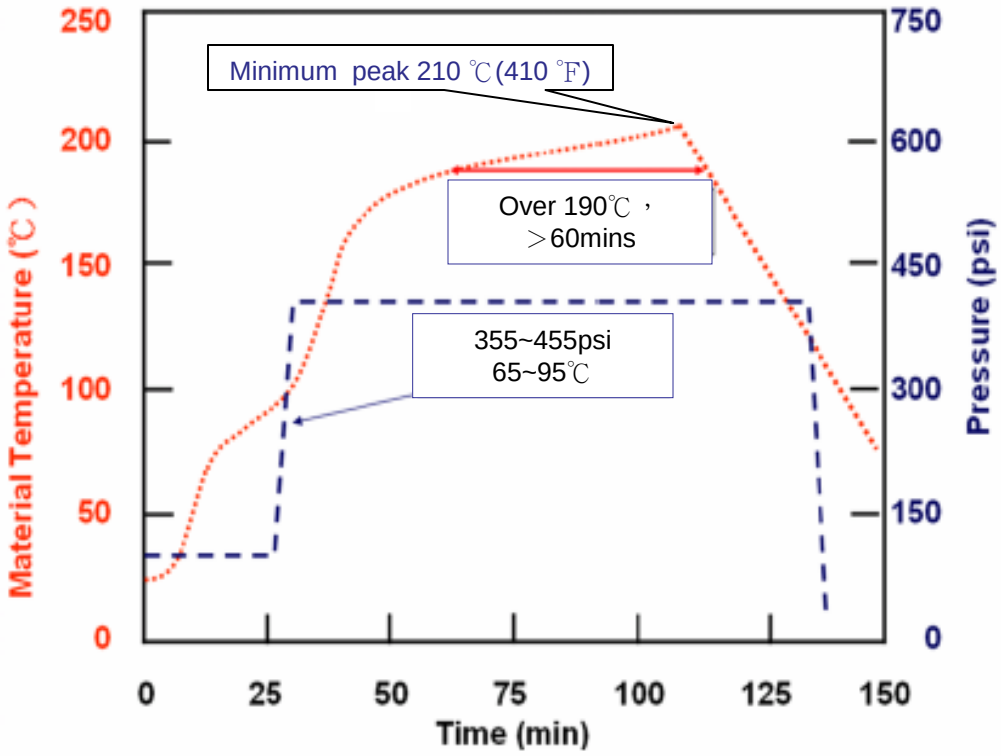
※Prepreg should be stored under 23℃，RH55% for 2 months shelf life .

Shelf Life Test

Item	Unit	Stack up	Time				
			0 week	2 week	4 week	6 week	8 week
Solder dip 288℃ (n=5)	cycle	106+ 39mil+ 106	> 20	> 20	> 20	> 20	> 20

※Prepreg should be stored under 23℃，RH55% for 2 months shelf life.

Recommend Press Cycle



Heat rate: 2.0~4.0 ℃ / min

Kiss pressure: 10 kgf / cm^2

Full pressure: 25 ~ 32 kgf / cm^2

Apply Full pressure at: 65 ~ 95 ℃

Dwell time: >190 ℃ / 60 min

(The material peak temperature is prefer to reach 210℃ for fully curing)

Prepreg Specification

G/F	R/C (%)[1]	Flow In (mil)[2]	V/C (%)[3]	Scale Flow (mil)[4]	THK (mil)[5]
106	72 ± 3	25~80	≦ 1.5	2.2 ± 0.3	2.1
	75 ± 3	25~80	≦ 1.5	2.5 ± 0.3	2.4
1080	65 ± 3	25~80	≦ 1.5	3.2 ± 0.3	3.1
	68 ± 3	25~80	≦ 1.5	3.5 ± 0.3	3.4

1. Resin content: IPC TM-650 2.3.16.1
2. Flow In: refer IPC TM-650 2.3.17.2
3. Volatile content: IPC TM-650 2.3.19
4. Scale Flow: IPC TM-650 2.4.38
5. Thickness measured by micrometer

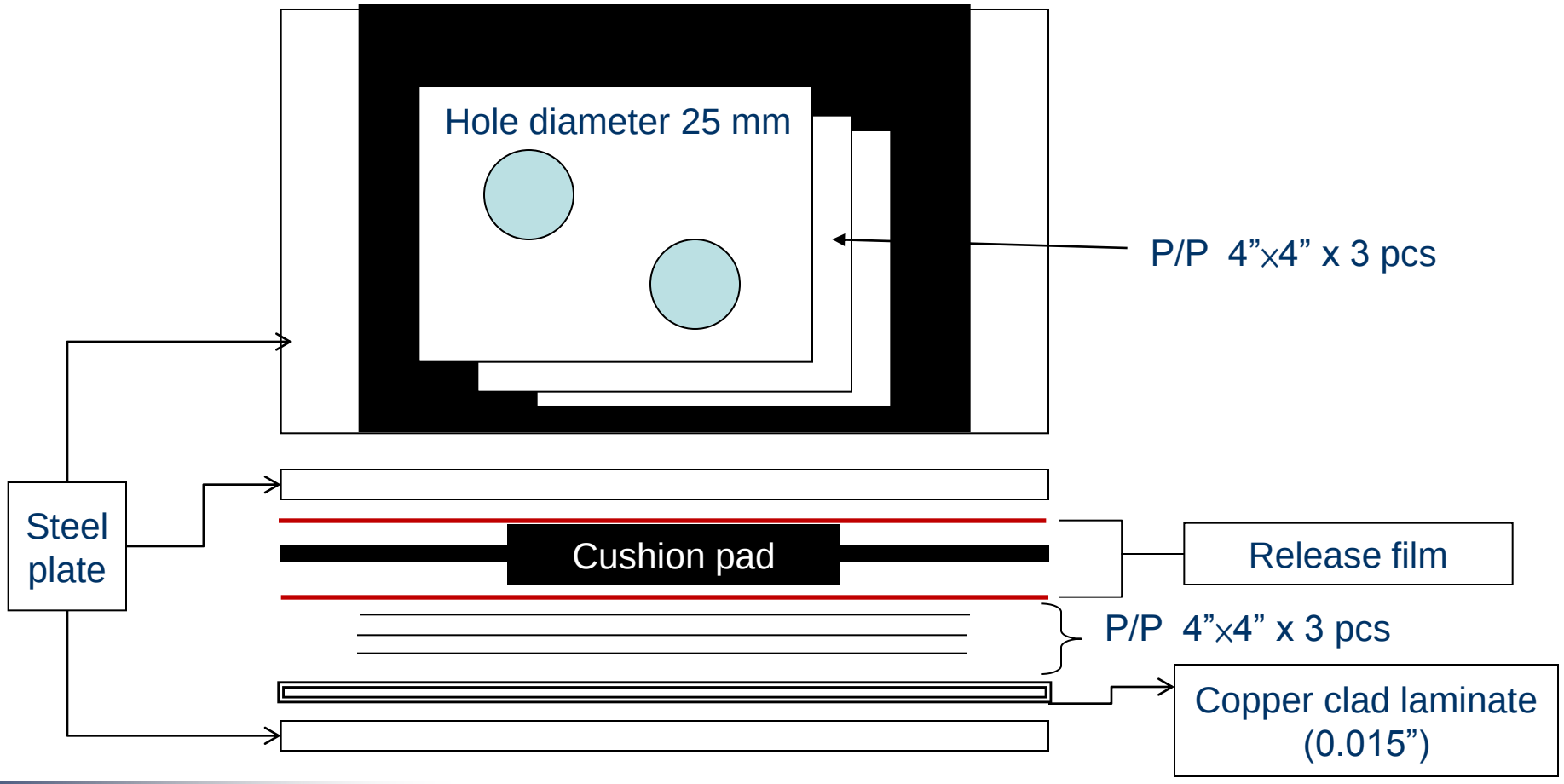
Conclusion

Advantage of EM-37B(L)

- Good thermal resistant and adhesion with BO and PI material surface
- Shelf life (RH 55%, < 23 ℃ with 2 months), that could provide stable pressed flow for rigid-flex board application

Flow-in Test Method

Refer to IPC-TM650- 2.3.17.2
Equipment & Condition Setting
Hot press: Temperature 171 ± 2.8℃, press 200±10 psi
Press time: 5 min.

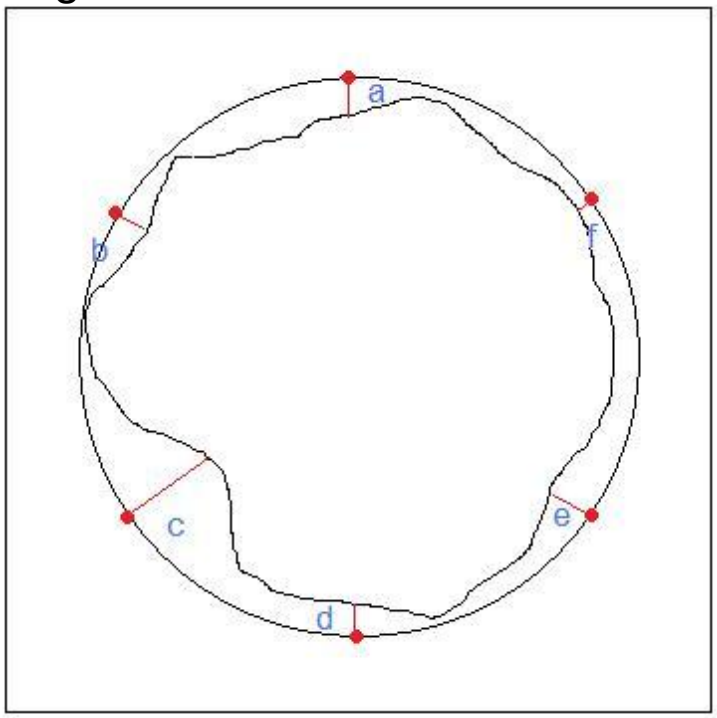


Flow-in Test Method

Calculation

1. 2 punched holes (A' & B', diameter = 25mm) in 4" x 4" prepreg
2. 3 pcs prepreg are pressed and divided to averaged 6 points with the 2 punched holes respectively as Fig 1.
3. Then calculating "Flow-in" data as formula as below

Fig 1.



A' = (a+b+c+d+e+f) / 6
B' = (a+b+c+d+e+f) / 6

Flow-in = (A'+B') / 2