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Palace Building
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Tokyo 100-8251, Japan

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Attention: SAI Global@ Assurance

Dear Mr. Reza Karani,

ALPOLIC/fr, NC Durability of Adhesion Strength

We wish to confirm that the adhesion strength between aluminium skin and NC core is similar level to ALPOLIC/fr and A2 cores. Here is our example of the comparison test data.

<180 deg Peeling ASTM D903> Our specification: Over 10 kgf/25mm

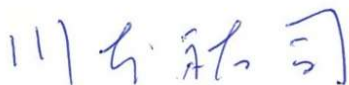
		Initial peel strength (kgf/25mm)				AVE.
		Ws	C	Ds		
NC/A1	Top	17.4	19.7	18.6	18.5	19.0
	Bottom	19.1	16.2	23.0	19.4	
A2	Top	20.9	20.5	21.3	20.9	21.7
	Bottom	22.7	22.4	22.5	22.5	
fr	Top	20.8	19.6	18.2	19.5	19.2
	Bottom	19.5	17.4	19.8	18.9	

<Climbing Drum Peel ASTM D1781> Our specification: Over 100 mmN/mm

		Initial peel strength (mmN/mm)					AVE.	
		Ws	QWs	C	QDs	Ds		
NC/A1	Top	122	105	103	115	118	112	114
	Bottom	126	101	109	103	138	115	
A2	Top	101	159	161	135	117	135	136
	Bottom	147	129	119	134	159	137	
fr	Top	192	185	172	177	185	182	182
	Bottom	188	192	162	186	185	183	

We have checked the adhesion durability of NC with several accelerated tests as the same as fr and A2 and based on the results, we will offer 20 years panel warranty to NC.

Yours faithfully



Yuji Kawamoto
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Business Unit Planning Department
Advanced Materials Business Unit