



Dr. Suresh Neelakantan

Associate Professor

Test Report

31 January 2024

Mr. Ankur
M/s. PRA Panels Pvt., Ltd.,
Near Udyog Bhavan, 1st Floor,
PRA House, Telibandha,
Raipur, Chhattisgarh.

Ref: No.: Your Email dated 21/09/2023

Sample Received: 14/11/2023, Testing Dates: 15th Nov. to 31st Jan 2024

Product Detail: Paint Coated ACP Sample

Test No.	Colour	Sample Type	Size and Qty of Sample
Test-01	Silver	ACP	1 x 1 Size, 2 Pieces

Subject: - Report on the testing of paint coated ACP sample

Dear Sir,

Find herewith the test report for the testing of paint coated ACP Sample. Further details along with photographs are enclosed.

Results:

TEST 01 - SILVER				
#	Description	Standard Test	Acceptable Value Unit	Result
A. PHYSICAL PROPERTIES				
1.	Panel thickness of ACM	Visual Check/Measurement as per QAP	mm	4 mm
2.	Panel weight (ACM)	Visual Check/Measurement as per QAP	Kg/m ²	5.27
3.	Panel Density	D 1505	g/cm ³	1.337
4.	Polyethylene Core Density	Visual	g/cm ³	0.925
5.	Bond Integrity (peel strength)	D 903	N/mm	11.72 N /25mm
6.	Tensile Strength	D 882	MPa	48.0
7.	Yield Strength	D 882	MPa	40.2
8.	Elongation	D 882	%	17.6 %
9.	Flexural Stregth	D 790	MPa	120.5
10.	Water Absorption	D 570	%	0%
11.	Thermal expansion	D 696	Mm/M/°C	0
B. Properties of Aluminum Skin				
1.	Skin Thickness	Visual Check/Measurement as per QAP	mm	0.5 mm
2.	Tensile Strength	D882	MPa	154.4



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3.	Yield Strength	D882	MPa	141.6
4.	Elongation	D882	$A_{50} \geq 2\%$	8.34%
5.	Modulus of Elasticity	ASTM E8	> 68000 MPa	76300 MPa
C.	Paint Finish and Test properties			
1.	Coating Type (Lacquering)	Using FTIR (instrument) or chemical method	LUMIFLON – Fluoro Ethylene Alkyl Vinyl Ether PVDF Kynar 500 (70:30) – Polyvinylidenfluorid	PVDF
2.	Coating Thickness D.F.T. (Dry Film Thickness) of paint	ASTM D 1400 or ECCA T1	23.75 Micron to 45 Micron	30.2 μ m
3.	Specular Gloss at 60 degree angle	ASTM D523 or ECCA T2	Solid Colors 25-40% Metallic colors 20-35%	30 %
4.	Formability (T-Bend)	D 4145	Visual	T-No damage
5.	Reverse Impact, 27 Joules	D 2794	Visual	No damage
6A	Cross Hatch	D3359	Visual	No damage
6B	Cross Hatch after 120 °C	D3359	Visual	No damage
7.	Hardness- Pencil	D 3363	Visual	2H
8.	Impact test	ASTM D 2794	Visual	25.4 KJ/m ²
9.	Chemical resistance : 10% HCL, 15 min	AAMA 2605	Visual	No damage visible
10.	Chemical resistance : 10% H ₂ SO ₄ 18 hrs	AAMA 2605	Visual	No damage visible
11.	Chemical resistance : 10% NaOH : 1hrs	AAMA 2605	Visual	No damage visible
12.	Chemical resistance : 10% HNO ₃ 30min	AAMA 2605	Visual	No damage visible
13.	Chemical resistance : Detergent : 24 hrs	AAMA 2605	Visual	No damage visible
14.	Mortar Pat Test	AAMA 2605	Visual	No Damage visible

All results reported here pertain only to the samples submitted to us.

(Dr. Suresh Neelakantan)

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(Dr. Jayant Jain)

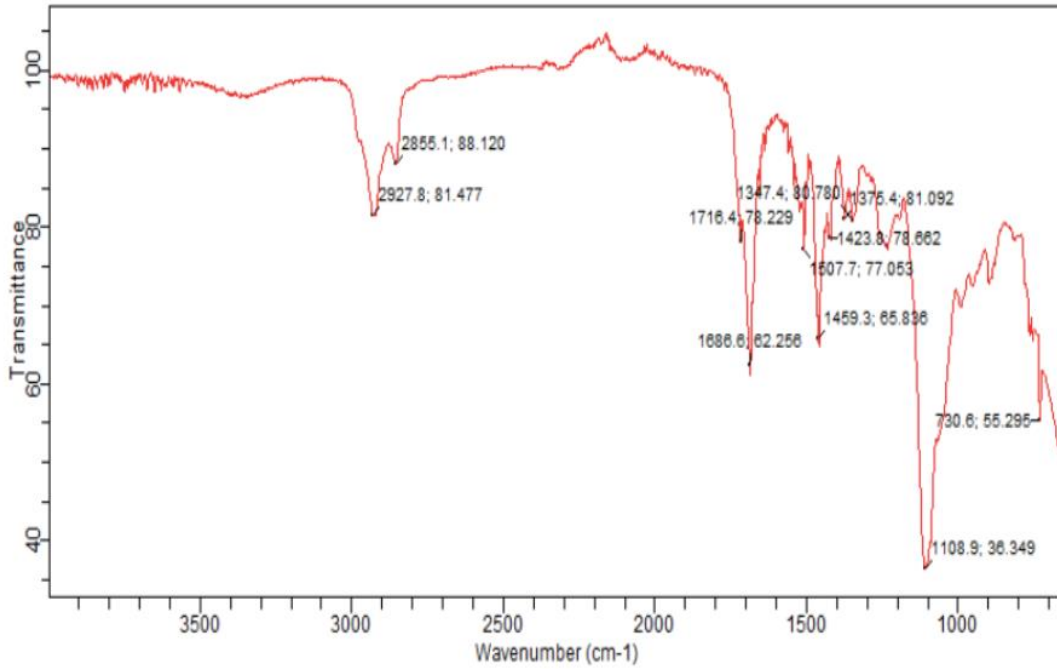
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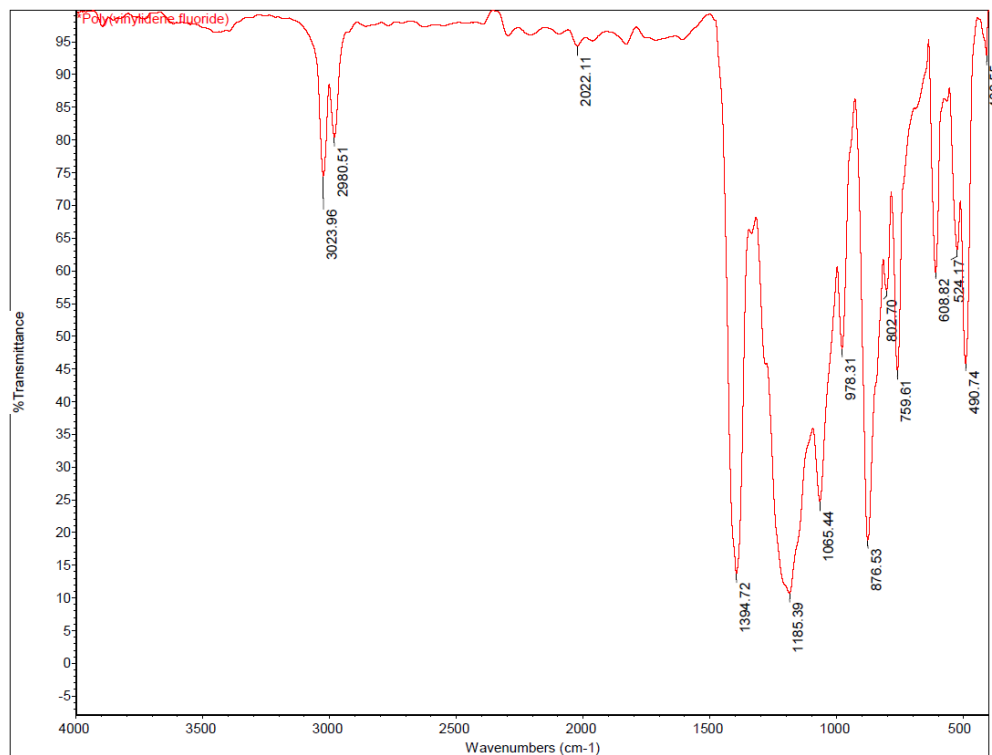


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Standard FTIR Graph of Fluoroethylene vinyl ether fluoropolymer (FEVE)



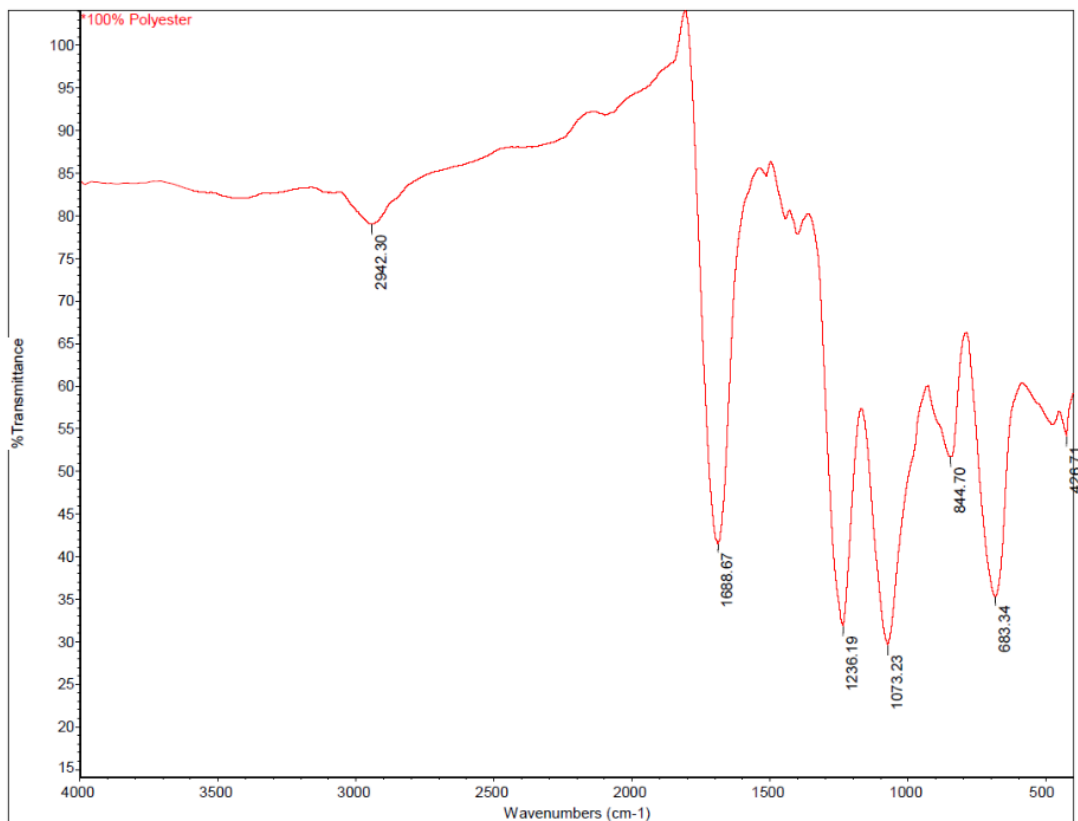
Standard FTIR Graph of polyvinylidene difluoride (PVDF)





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Standard FTIR Graph of Polyester

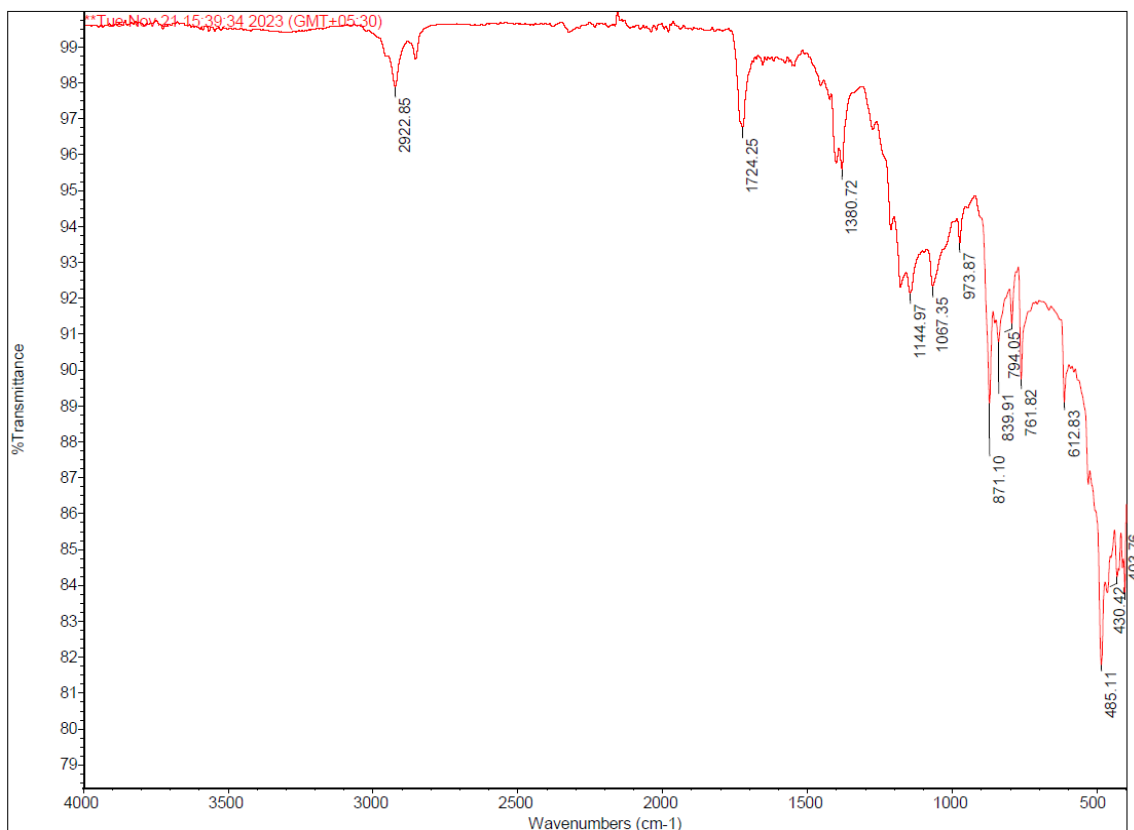




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Test 01- PRA Panels – Silver



Conclusion: The sample shows a high peak at 1144 cm^{-1} which indicates C-F stretch. There is a peak at 871 cm^{-1} indicating vinylidene C-H bend, and a peak at 1380 cm^{-1} , which represents vinyl C-H in-plane bend. Finally, there is a low intensity peak at 2922 cm^{-1} representing C-H stretch. The combination of these peaks indicates that the coating is PVDF-based.

Hence, the PRA Panels- Silver ACP Coating FTIR spectrum matches PVDF.

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Photograph of the Received Samples: -

Test-01 : PRA Panels- Silver



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—END OF THE REPORT—