



## TECHNICAL BULLITEN

Purpose: Solvent welding E2 XTRM PLY PVC and EIA series with HH-66 Vinyl Cement

At E2 Technical Textiles lab wetested HH-66 Vinyl cement, which is a marketed as the world's most effective PVC vinyl adhesive on E2 XTRM PLY 7100 PVC and E2 XTRMPY 7087 EIA series. We had originally tested the PVC back in April 2021, and repeated the study on along with our E2 XTRM PLY 7087 EIA series, which is a PVC alloy-based material. The main difference between the two is the plasticizer where the PVC uses polymeric or monomeric plasticizers which have a molecular weight above 400, plasticizers like phthalates (e.g., diisononyl phthalate or DINP) and a EIA uses ketone ethylene ester (KEE), available under the trade name Elvaloy® from DOW, is a high molecular weight solid plasticizer, with molecular weight of 100,000 to more than 260,000 grams/mole or 500 times greater than the molecular weight of traditional liquid plasticizers imparting excellent chemical stability.

HH-66 is a MEK-Acetone-Toluene Blend adhesive manufactured by RH adhesives used widely in the PVC industry for solvent welding. E2 tested the adhesive on our formulations based on the manufactures application instructions and saw excellent results with E2 XTRM PLY 7100 PVC series based on the chemistry of the product imparting excellent seam peel strength and seam shear strength.

Material Used for testing: 30 mil (Item # 7100-30120)

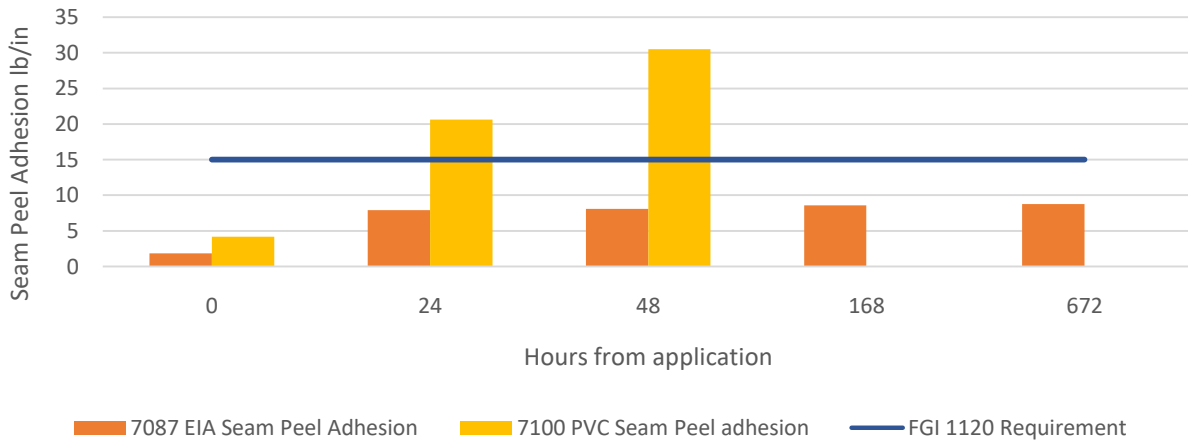
Seam width: 2.75in

Hours from application	Seam Peel Strength, lbs	Seam shear strength, lbs.
FGI 1120 requirement	15 lbs	58 lbs
0	4.28	53.32
6	14.12	99.65
12	22.00	66.00
24	20.64	61.80
48	30.51	74.60

While the HH-66 adhesive is an excellent choice for the PVC, we did not see similar results when compared to the Elvaloy (KEE) products. The adhesion of the material increased marginally and is subpar when compared to requirements from FGI 1120. After testing the samples for 168 hours/ 7 days the Seam Peel strength were below the 15 lbs. requirement, while we saw adhesion failure during the Seam shear strength.



### Seam Peel Strength using HH-66 Vinyl Cement



From the above chart we can conclude that the HH-66 adhesive is an excellent choice for our E2 XTRM PLY PVC and E-Coat based formulations but does not bond well with the EIA polymer and there could be several contributing factors to this, the chemistry of EIA makes it more chemically resistant, the surface of the reinforced EIA is not smooth because of the fabric profile leading to uneven coating surface. We do not recommend using HH-66 Vinyl cement with E2 XTRM PLY 7087 EIA or the ER Coat series products, the best method to weld the material would be hot air welding, wedge welding and RF/HF welding.