

LUMIFLON® Product Data Sheet

LUMIFLON EXLP-36



Asahi Glass developed LUMIFLON fluoropolymers in 1982. LUMIFLON polymers are made of alternating fluoroethylene and alkyl vinyl ether segments (FEVE). The fluorinated segments provide outstanding UV stability, weather resistance, and chemical resistance, while the vinyl ether segments provide cross-linking sites.

LUMIFLON LF-710F

LUMIFLON LF-710F is a powder coating resin. It provides the ability to supply highly weatherable powder coatings with either high gloss or matte finishes. LF-710F is crosslinked using standard blocked aliphatic isocyanates. Coatings formulated with LF-710F, while offering the advantages discussed above, also have problems. Because of the reactivity of the resin, coatings can have an orange peel appearance. In addition, impact resistance can be slightly low. Both of these problems can be addressed by the use of additives; however, these may have an adverse effect on other coating properties.

LUMIFLON EXLP-36 Resin

To address these issues, AGC Chemicals has developed a new powder coating resin, known as EXLP. By changing elements in the polymer's structure, LUMIFLON EXLP-36 can be formulated to give smoother coatings with higher impact resistance.

The physical properties of EXLP-36 are close to those of LF-710F. This means that the handling characteristics of the two resins are identical. No special equipment or handling techniques are required to process the new resin. Table 1 below shows a comparison of the properties of the resins.

Table 1
Typical Physical Properties of EXLP-36 and LF-710F

Property	EXLP-36	LF-710F
Resin Type	Fluoroethylene Vinyl Ether Copolymer	
Non-Volatile Content, %	>99	>99
T _g , °C	50	53
OH Number, mg KOH/g	52	46

* LUMIFLON EXLP-36 is a development product. Physical properties are provisional.

The data given in this product bulletin is for information purposes only. It is given in good faith and based on the best knowledge and experience of the company. This product should be used only in applications for which it was intended. This product is not designed for special applications such as pharmaceutical or other medical use. The company makes no warranties and undertakes no responsibilities regarding this product except as stated in contract documents for its supply.



In order to compare fluorourethane coatings made with LUMIFLON EXLP with those from LF-710F, the following generic formulation was prepared:

Hardener: Trifunctional blocked isocyanate, NCO index =1

TiO₂ pigment: PWC=35

Additives: Flow promoter, Benzoin as degassing agent, DBTDL catalyst

Figure 1 below shows the relative performance of the two fluorourethane coatings. Figure 2 shows results obtained from the DuPont Impact Test of the two coatings. The new resin offers significant improvements in smoothness and in impact resistance.

Figure 1
Relative Performance of EXLP and LF-710F Coatings (2.2-2.4mils)

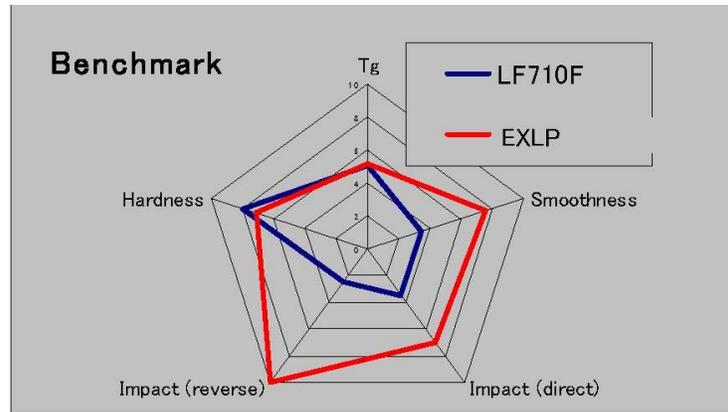


Figure 2
Comparative Impact Resistance of EXLP-36 and LF-710F

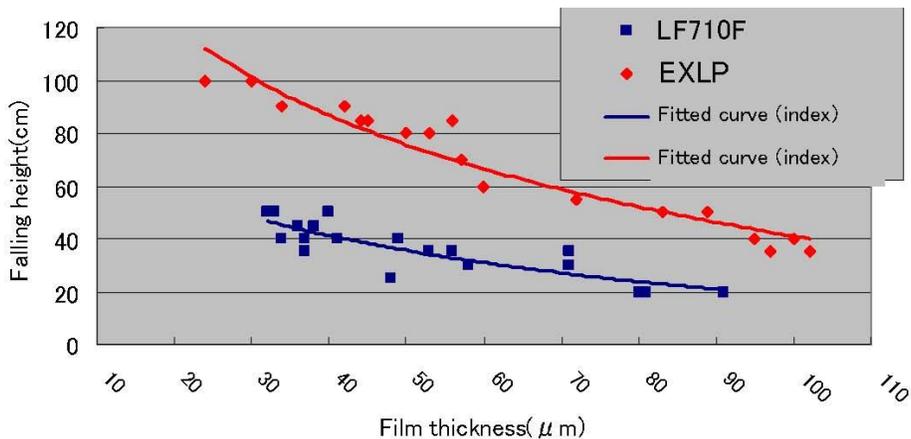




Table 2
Comparative Coating Properties of EXLP-36 and LF-710F

Property	EXLP-36*	LF-710F*
60° Gloss	78	80
20° Gloss	51	50
Adhesion (1mm cross cut), ISO 2409	0	0
Leveling (PCI standard panel rating)	6-7.5	2.5-3.5
DuPont Direct Impact (0.5" x 0.5 kg x fall height, m)	0.65-0.75	0.2-0.3
DuPont Reverse Impact & tape pull (0.5" x 0.5 kg x fall height, m, cracking no abrasion)	1.0	0.15-0.2
Mandrel Bend, mm	3	>8
Gloss retention, % (6,000 hrs.)	84%	87%
Film Thickness, μm	50-70	50-70

*Average of several tests

Figure 3
QUV-B Comparative Testing of EXLP-36 and LF-710F

