

Sollega FR510 Ultramid UV Report

Title: “Accelerated Age Testing: Nylon 6 Plastic Compound”

Purpose Statement

- Suitability of glass reinforced nylon 6 for long term outdoor use
- Accelerated weathering and past experience were used to make this determination
- Xenon Arc weather-o-meter testing simulates outdoor sunlight exposure on the test samples. The intense UV exposure can be considered as accelerated age testing on the test samples.

Conclusion

- Nylon 6 with optimized level of carbon black additive, as supplied by BASF, has shown to have good performance properties retention in the long term, as demonstrated by test data.

Test Description

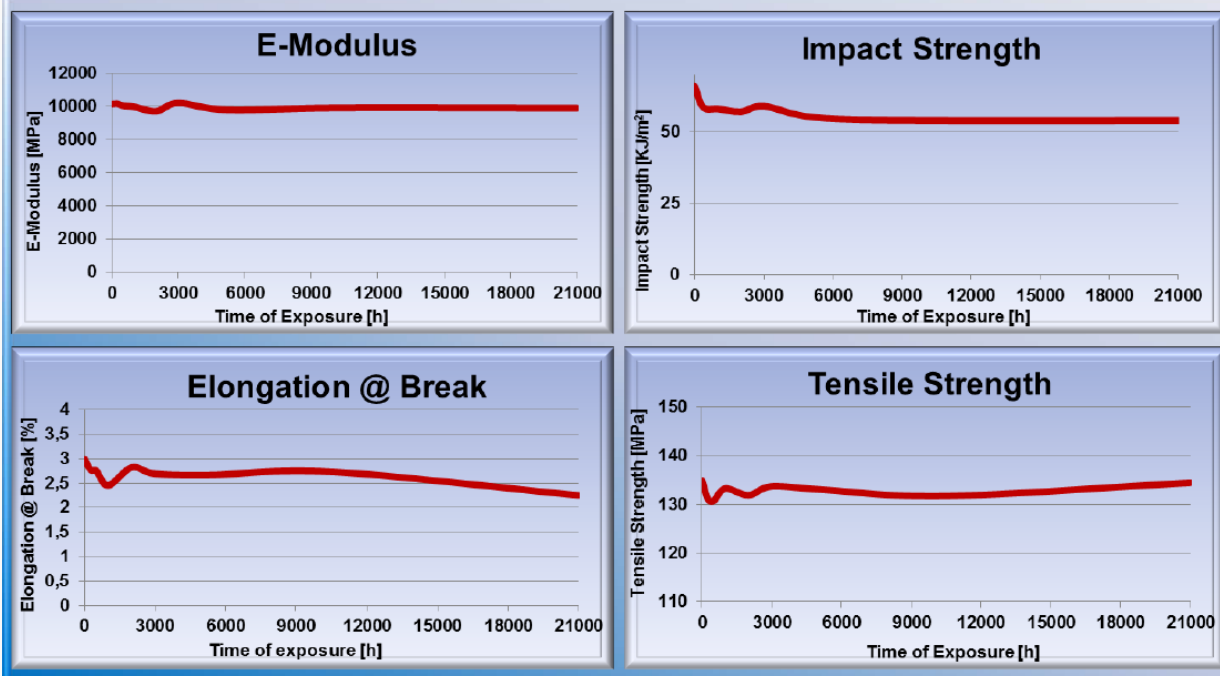
- Accelerated weathering per Xenon Arc (10 year exposure on nylon 6 with 30% glass fiber and low level of carbon black)
- Actual outdoor exposure of nylon 6 automotive application with optimized level of carbon black for 12 years in Phoenix, Arizona.
- Performance Properties measured – tensile strength and elongation

Results

There is an initial tensile strength reduction within the first six months to two years, after that performance properties stabilize going forward. Similar trends and results were observed on other engineering plastics tested under similar conditions in Xenon Arc for the equivalent of up to 20 years UV exposure.

Some graying and chalking of the surface takes place after long term exposure, but the mechanical performance below the surface remains robust.

BASF Long Term UV Data on Ultramid 8233G HS BK - 106 (Xenon Arc) acc. ISO 4892-2



3/31/14

Results after 10 years equivalent exposure of nylon 6 with 30% glass fiber and low level of carbon black in Xenon Arc

Product Information

Aug 2012

Ultramid® 8233G HS BK-106
Polyamide 6

Product Description

Ultramid 8233G HS BK-106 is a heat stabilized, weather resistant, 33% glass fiber reinforced PA6 injection molding compound offering excellent strength, stiffness, high temperature performance and dimensional stability. This balance of engineering properties in combination with excellent processability make it ideal in applications replacing metal, resulting in an overall cost and weight savings.

Applications

Ultramid 8233G HS BK-106 is generally recommended for applications such as weed trimmer components, gears, automotive window hardware, electrical connectors and coil bobbins and all external parts exposed to the environment.

PHYSICAL	ISO Test Method	Property Value	
Density, g/cm	1183	1.39	
Moisture, %	62		
(24 Hour)		1.1	
(50% RH)		1.8	
(Saturation)		6.4	
MECHANICAL	ISO Test Method	Dry	Conditioned
Tensile Modulus, MPa	527		
-40C		10,400	11,500
23C		10,500	7,700
80C		4,660	4,600
121C		4,015	4,200
Tensile stress at break, MPa	527		
-40C		210	215
23C		155	100
80C		85	70
121C		70	60
Tensile strain at break, %	527		
23C		2	6
Flexural Strength, MPa	178		
23C		225	-
Flexural Modulus, MPa	178		
23C		8,700	-
IMPACT	ISO Test Method	Dry	Conditioned
Izod Notched Impact, kJ/m ²	180		
23C		8.5	-
-40C		6	-
Charpy Notched, kJ/m ²	179		
23C		8	-
-30C		5.5	-
Charpy Unnotched, kJ/m ²	179		
23C		55	-

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