CICOIL CABLE EXPOSURE TO HEAT AND UV RADIATION

CICOIL CABLE PROPERTIES ARE COMPARED TO LIKE MATERIALS AFTER UV AND HEAT EXPOSURE

The inherent chemical properties of Flexx-Sil™ make for a strong, durable, and UV resistant material. Flexx-Sil™ outperforms thermoplastics such as Polycarbonate (PC) and Poly(methyl methacrylate) (PMMA) when exposed to UV radiation. As with most organic compounds, PC and PMMA are made of branched alkane groups. The energy needed to break the bonds of these thermoplastics can be dependent on many factors. These factors include, but are not limited to, orientation in space, surrounding atoms in the carbon chains and number of bonds (i.e. single, double or triple bonding). Even though many factors contribute to the bonding strength of these materials, the energy needed to break the bonds of Flexx-Sil™ is approximately 30% higher than the energy needed to break the bonds of single carbon chains found in organic plastics or other like materials. Thermoplastics do not typically possess long-term durability to thermal or UV light exposure. The table below compares the property characteristics and durability of Flexx-Sil™ other like materials:

Category	Property	Flexx-Sil Rubber	PC	PMMA	Glass
Properties of Material Clarity	Transmission [%]	94	86~89	89~92	92
	Index of Refraction (RI)	1.41	1.59	1.49	1.5~1.6
	Haze %	<1	1-3	2-4	-
	Yellowness index	<1	1.0~3.0	1.0~3.0	-
Durability	Heat resistance	Excellent	Poor	Poor	Excellent
	UV resistance	Excellent	Poor	Good	Excellent

Figure 1: Property Characteristics and Durability for Flexx-Sil™ and other like Materials

This table measures the characteristic properties of Flexx-Sil™ to other known materials. As shown, Flexx-Sil™ out-performs other materials in its class. It has higher heat and UV resistance than PC and PMMA. The transmission % is 94, index of refraction is 1.41, haze % is less than 1, and yellowness index is also less than 1. This table supports that Flexx-Sil™ ranks higher in UV resistance than its competitors. This also validates that Flexx-Sil™ is a leader in jacketing materials.

Along with UV-resistance, Flexx-Sil™ also demonstrates great heat stability. This is shown to be true at extremely high temperatures. Compared to other thermoplastics, Flexx-Sil™ continues to show long-term performance with a low yellowness index.

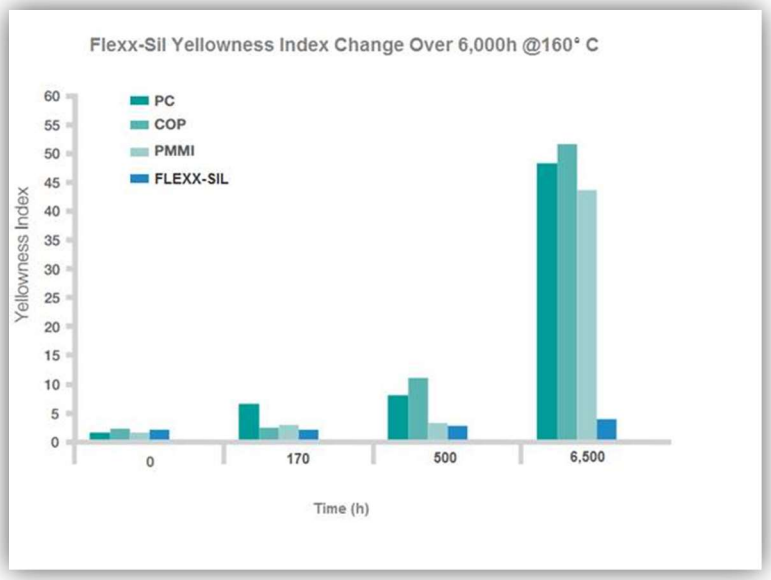

Figure 2: Yellowness Index Change for Flexx-Sil™ and other like Materials over 6,000 Hours.

As shown in Figure 2, Flexx-Sil™, PC, Cyclic Olefin Polymer (COP), and PMMI have all been exposed to 160°C (320°F) over a period of 0 hours, 170 hours, 500 hours and finally, 6,500 hours. Flexx-Sil™ is the only material that has maintained a Yellowness Index of <5 after extreme exposure to heat over time. All other materials have compensated their structure after such exposer.

Lastly, the below shows the material's yellowing after such exposure, comparatively.

Figure 3: Yellowing in Flexx-Sil™ Material and other like Materials over 6,000 Hours.

Figure 3 provides visible proof of Flexx-Sil's™ ability to withstand yellowing after vulnerability to high amounts of heat over long periods of time in contrast to its leading adversaries. Flexx-Sil™ is a top choice when looking for a jacketing material capable of tolerating high amounts UV and heat exposure over time.

Please contact CICOIL for more information.

(661)295-1295 CICOIL

techsupport@cicoil.com Or on the web at: cicoil.com