Medalist

Elastomers for Medical Cables & Connectors

When designing medical devices, equipment, and electrosurgical instruments, selecting the right wire and cable solution is paramount. The cable must be constructed of a clean, biocompatible material that complies with UL standards, exhibits excellent electrical properties, and is able to withstand multiple cycles of sterilization. Until now, medical device designers have had limited options available; and the industry standard is a general purpose TPV. The Medalist MD-84300 Series of TPEs outperform the industry standard and provide other major benefits. These medical-grade TPEs were developed specifically for electrical applications, are available from 48 to 88 Shore A, and are suitable for injection molding and extrusion. The Medalist MD-84300 Series TPEs are good candidates for cable insulation and jacketing and molded products like fittings, connectors, or diaphragms.

Why Medalist for Medical Cable?

- Superior electrical properties
- Sterilization by e-beam, gamma, ethylene oxide, and autoclave
- Withstands repeat autoclave sterilization
- Resistant to cleaning solutions used in medical facilities
- Proven technology with processors
- Free of PVC, phthalates and latex

Regulatory Compliance

- Meets UL-94 flammability classification of HB
- Meets UL-1581 maximum continuous operating temperature rating of 105°C
- Made with FDA compliant ingredients
- Biocompatible recipes; ISO 10993-5 compliant
- RoHS and REACH SVHC compliant
- Free of animal derived materials
- Manufactured in an ISO-13485 certified facility

Typical Properties	ASTM Test Method	Units	MD-84348	MD-84368	MD-84383	MD-84388
Specific Gravity	D792	----	0.92	0.93	1.00	0.98
Hardness (5 sec del)	D2240	Shore A	48	68	83	88
Tensile Stress at 300%	D412	psi	325	660	820	1120
Tensile Strength at Yield		psi	1950	2650	2200	2700
Elongation at break		%	730	700	680	650
Melt Mass-Flow Rate	D1238	g/10 min	0.15	4.5	17	16
Brittleness Temperature	D746	°F	< -76	< -76	< -76	< -76
Volume Resistivity	D257	ohms·cm	5.80E+16	4.30E+16	2.00E+16	2.80E+16
Dielectric Strength	D149	V/mil	1100	1200	1200	1300
Dielectric Constant	D150	----	2.2	2.3	2.3	2.3
Dissipation Factor			4.10E-04	8.60E-04	6.70E-03	7.60E-04

Table 1. Typical Properties for the Medalist MD-84300 Series

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Medalist MD-84300 Series Outperforms Competitive TPVs

For medical wire and cable, the Medalist MD-84300 Series TPEs are a better alternative than the TPVs that have formerly dominated the market. With the MD-84300 series, you don't have to worry about the inherent complications associated with TPVs, like black specks, a dark natural color, odor, and pre-drying before use. However, the major advantage of the Medalist series over TPVs is the improved tensile and elongation properties before and after single and multiples sterilization cycles. Superior performance after multiples autoclave cycles is critical for medical devices intended for repeat use.

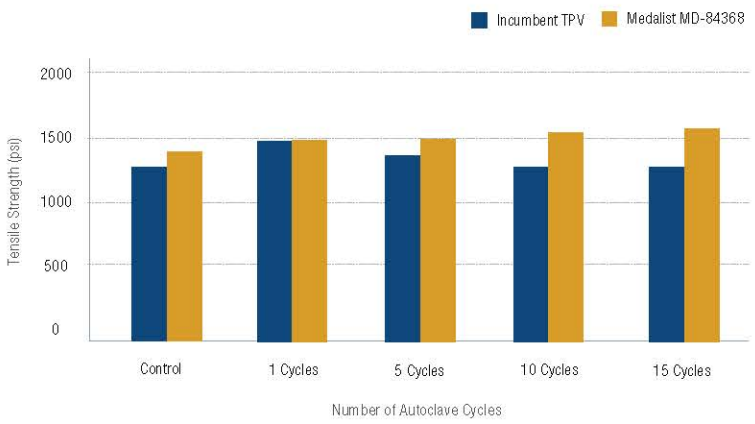

Chart 1: Performance of Medalist MD-84368 versus TPV after Repeat Sterilization

	MD-84368
Change in Hardness	-0.5
Tensile Strength Retained	88%
Elongation Retained	102%
100% Modulus Retained	101%

Table 2: Performance of Medalist MD-84368 after 36 kGy of Gamma

Medalist MD- 84300 Series vs. Competitive TPVs

- Excellent colorability; important for complex cable assemblies
- Enhanced look and feel to the end product
- Improved processability
- Superior electrical properties enabling thinner walls for easy coiling
- Better retention of physical properties after repeat sterilization

	Betadine (Neat)	Cidex (Neat)	Virex II (25%)	Chlorox Bleach (1000 ppm)	IPA (70%)	HCL (36 g/L)
Change in Hardness	0.4	0.5	-0.4	0	-2.5	0
Tensile Strength Retained	93%	95%	97%	90%	99%	98%
Elongation Retained	98%	99%	98%	97%	97%	101%
100% Modulus Retained	103%	103%	95%	94%	102%	102%
Typical Exposure	5-12 min	5-12 min	0.4% conc.	wipe down	wipe down	wipe down

Table 3: Chemical Resistance Data for Medalist MD-84368

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