

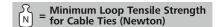
Material Specification Overview

HellermannTyton manufactures a large range of fastenings and fixings made from different raw materials to suit particular applications and environments. The overview below shows a wide range of these materials including technical information, material properties and material specifications.

	Material	Operating				Material
MATERIAL	Shortcut	Temperature	Colour**	Flammability	Material Properties*	Specifications
Aluminium-alloy	AL	-40 °C to +180 °C	Natural (NA)		Corrosion resistant Antimagnetic	RoHS
Chloroprene	CR	-20 °C to +80 °C	Black (BK)		Weather-resistant High yield strength	RoHS
Ethylene Tetrafluoroethylene (Tefzel®)	E/TFE	-80 °C to +170 °C	Blue (BU)	UL 94 V0	Resistance to radioactivity UV- resistant, not moisture sensitive Good chemical resistance to: acids, bases, oxidizing agents	RoHS
Polyacetal	POM	-40 °C to +90 °C, (+110 °C, 500 h)	Natural (NA)	UL 94 HB	Limited brittleness sensitivity Flexible at low temperature Not moisture sensitive Robust on impacts	RoHS
Polyamide 11	PA11	-40 °C to +85 °C, (+105 °C, 500 h)	Black (BK)	UL 94 HB	Bio-plastic, derived from vegetable oil Strong impact resistance at low temperature Very low moisture absorption Weather-resistant Good chemical resistanc	HF RoHS
Polyamide 12	PA12	-40 °C to +85 °C, (+105 °C, 500 h)	Black (BK)	UL 94 HB	Good chemical resistance to: acids, bases, oxidizing agents UV- resistant	HF RoHS
Polyamide 4.6	PA46	-40 °C to +150 °C (5000 h), +195 °C (500 h)	Natural (NA), Grey (GY)	UL 94 V2	Resistance to high temperatures Very moisture sensitive Low smoke sensitiv	HF LFH RoHS
Polyamide 6	PA6	-40 °C to +80 °C	Black (BK)	UL 94 V2	High yield strength	RoHS
Polyamide 6, high impact modified	PA6HIR	-40 °C to +80 °C	Black (BK)	UL 94 HB	Limited brittleness sensitivity Higher flexibility at low temperature	RoHS
Polyamide 6.6	PA66	-40 °C to +85 °C, (+105 °C, 500 h)	Black (BK), Natural (NA)	UL 94 V2	High yield strength	HF RoHS
Polyamide 6.6, glass-fibre reinforced	PA66GF13, PA66GF15	-40 °C to +105 °C	Black (BK)	UL 94 HB	Good resistance to: lubricants, vehicle fuel, salt water and a lot of solvent	HF RoHS
Polyamide 6.6, heat and UV stabilised	PA66HSW	-40 °C to +105 °C	Black (BK)	UL 94 V2	High yield strength Modified elevated max. temperature UV-resistant	HF RoHS
Polyamide 6.6, heat stabilised	PA66HS	-40 °C to +105 °C	Black (BK), Natural (NA)	UL 94 V2	High yield strength Modified elevated max. temperature	HF RoHS
Polyamide 6.6, high impact modified	PA66HIR	-40 °C to +80 °C, (+105 °C, 500 h)	Black (BK)	UL 94 HB	Limited brittleness sensitivity Higher flexibility at low temperature	RoHS
Polyamide 6.6, high impact modified, heat and UV stabilised	PA66HIRHSW	-40 °C to +110 °C	Black (BK)	UL 94 HB	Limited brittleness sensitivity Higher flexibility at low temperature Modified elevated max. temperature High yield strength, UV-resistant	RoHS
Polyamide 6.6, high impact modified, heat stabilised	PA66HIRHS	-40 °C to +105 °C	Black (BK)	UL 94 HB	Limited brittleness sensitivity Higher flexibility at low temperature Modified elevated max. temperature	RoHS
Polyamide 6.6, high impact modified, ScanBlack	PA66HIR(S)	-40 °C to +80 °C, (+105 °C, 500 h)	Black (BK)	UL 94 HB	Limited brittleness sensitivity Higher flexibility at low temperature	RoHS
Polyamide 6.6, UV-resistant	PA66W	-40 °C to +85 °C, (+105 °C, 500 h)	Black (BK)	UL 94 V2	High yield strength UV-resistant	HF RoHS

Tefzel® is a registered trademark of DuPont. General linguistic usage for cable ties made from raw material E/TFE is Tefzel®-Tie. In addition to Tefzel® from DuPont HellermannTyton is also using equivalent E/TFE raw material from other suppliers.
*These details are only rough guide values. They should not be regarded as a material specification and are no substitute for a

^{**}More colours on request.



suitability test. Please see our datasheets for further details.



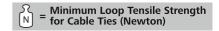
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MATERIAL	Material Shortcut	Operating Temperature	Colour**	Flammability	Material Properties*	Material Specifications
Polyamide 6.6, with metal particles	PA66MP	-40 °C to +85 °C, (+105 °C, 500 h)	Blue (BU)	UL 94 HB	High yield strength Metal and X-Ray detectable	HF RoHS
Polyamide 6.6, with metal particles	PA66MP+	-40 °C to +85 °C	Blue (BU)	not flame retardant	High yield strength Metal and x-ray detectable	HF RoHS
Polyamide 6.6 V0	PA66V0	-40 °C to +85 °C	White (WH)	UL 94 V0	High yield strength Low smoke emission	HF LFH RoHS
Polyester	SP	-50 °C to +150 °C	Black (BK)	halogen free	UV-resistant Good chemical resistance to: most acids, alkaliks and oils	HF LFH RoHS
Polyetheretherketone	PEEK	-55 °C to +240 °C	Beige (BGE)	UL 94 V0	Resistance to radioactivity Not moisture sensitive Good chemical resistance to: acids, bases, oxidizing agents	HF LFH RoHS
Polyethylene	PE	-40 °C to +50 °C	Black (BK), Grey (GY)	UL 94 HB	Low moisture absorption Good chemical oilsresistance to: most acids, alcohol and oils	HF RoHS
Polyolefin	РО	-40 °C to +90 °C	Black (BK)	UL 94 V0	• Low smoke emissions	HF LFH RoHS
Polypropylene	PP	-40 °C to +115 °C	Black (BK), Natural (NA)	UL 94 HB	Floats in waterModerate yield strengthGood chemical resistance to: organic acids	HF RoHS
Polypropylene, Ethylene-Propylene- Dien-Terpolymere- rubber free of Nitrosamine	PP, EPDM	-20 °C to +95 °C	Black (BK)	UL 94 HB	Good resistance to high temperatures Good chemical and abrasion resistance	HF RoHS
Polypropylene with metal particles	PPMP	-40 °C to +115 °C	Blue (BU)	UL 94 HB	Metal and X-Ray detectableHeat resistantModerate yield strengthGood chemical resistance	RoHS
Polypropylene with metal particles	PPMP+	-40 °C to +85 °C	Blue (BU)	not flame retardant	High yield strength Metal and x-ray detectable	HF RoHS
Polyvinylchloride	PVC	-10 °C to +70 °C	Black (BK), Natural (NA)	UL 94 V0	Low moisture absorption Good chemical resistance to: acids, ethanol and oil	RoHS
Stainless Steel	SS304, SS316	-80 °C to +538 °C	Natural (NA)	non-burning	Corrosion resistant Antimagnetic Weather resistant Outstanding chemical resistance	HF LFH RoHS
Thermoplastic Polyurethane	TPU	-40 °C to +85 °C	Black (BK)	UL 94 HB	High elastic Good chemical resistance to: acids, bases and oxidizing agents	HF RoHS

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HF = Halogenfree LFH = Limited Fire Hazard RoHS = Restriction of Hazardous Substances

 ${\rm **More\ colours\ on\ request.}$





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