

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	Material Shortcut	Operating Temperature	Colour**	Flammability	Material Properties*	Material Specifications
Aluminium alloy	AL	-40 °C to +180 °C	Natural (NA)		<ul style="list-style-type: none"> Corrosion resistant Antimagnetic 	RoHS
Chloroprene rubber	CR	-20 °C to +80 °C	Black (BK)		<ul style="list-style-type: none"> Weather resistant High yield strength 	RoHS
Ethylene Tetrafluoroethylene (Tefzel®)	E/TFE	-80 °C to +170 °C	Blue (BU)	UL 94 V0	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Limited brittleness sensitivity Flexible at low temperature Not moisture sensitive Robust on impact 	RoHS
Polyamide 11	PA11	-40 °C to +85 °C, (+105 °C, 500 h)	Black (BK)	UL 94 HB	<ul style="list-style-type: none"> Bio-plastic, derived from vegetable oil Strong impact resistance at low temperature Very low moisture absorption Weather resistant Good chemical resistance 	HF RoHS
Polyamide 12	PA12	-40 °C to +85 °C, (+105 °C, 500 h)	Black (BK)	UL 94 HB	<ul style="list-style-type: none"> Good chemical resistance to acids, bases, oxidizing agents UV resistant 	HF RoHS
Polyamide 4.6	PA46	-40 °C to +130 °C, (+150 °C, 5000 h; +195 °C, 500 h)	Natural (NA), Grey (GY)	UL 94 V2	<ul style="list-style-type: none"> Resistance to high temperatures Very moisture sensitive Low smoke sensitivity 	HF LFH RoHS
Polyamide 6	PA6	-40 °C to +80 °C	Black (BK)	UL 94 V2	<ul style="list-style-type: none"> High yield strength 	RoHS
Polyamide 6, high impact modified	PA6HIR	-40 °C to +80 °C	Black (BK)	UL 94 HB	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> High yield strength 	HF RoHS
Polyamide 6.6, glass-fibre reinforced	PA66GF13	-40 °C to +105 °C, (+105 °C for 500 h)	Black (BK)	UL 94 HB	<ul style="list-style-type: none"> Good resistance to lubricants, fuels, salt water and solvents 	HF RoHS
Polyamide 6.6, heat and UV-stabilised	PA66HSUV	-40 °C to +105 °C, (+105 °C for 500 h)	Black (BK)	UL 94 V2	<ul style="list-style-type: none"> High yield strength Modified elevated maximum temperature UV resistant 	HF RoHS
Polyamide 6.6, heat stabilised	PA66HS	-40 °C to +105 °C, (+105 °C for 500 h)	Black (BK), Natural (NA)	UL 94 V2	<ul style="list-style-type: none"> High yield strength Modified elevated maximum temperature 	HF RoHS
Polyamide 6.6, high impact modified	PA66HIR	-40 °C to +80 °C, (+105 °C, 500 h)	Black (BK)	UL 94 HB	<ul style="list-style-type: none"> Limited brittleness sensitivity Higher flexibility at low temperature 	RoHS
Polyamide 6.6, high impact modified, heat and UV-stabilised	PA66HIRHSUV	-40 °C to +110 °C	Black (BK)	UL 94 HB	<ul style="list-style-type: none"> Limited brittleness sensitivity Higher flexibility at low temperature Modified elevated maximum temperature High yield strength, UV resistant 	RoHS
Polyamide 6.6, high impact modified, heat stabilised	PA66HIRHS	-40 °C to +105 °C, (+105 °C for 500 h)	Black (BK)	UL 94 HB	<ul style="list-style-type: none"> Limited brittleness sensitivity Higher flexibility at low temperature Modified elevated maximum temperature 	RoHS
Polyamide 6.6, high impact modified, scan black	PA66HIR(S)	-40 °C to +80 °C, (+105 °C, 500 h)	Black (BK)	UL 94 HB	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> High yield strength UV resistant 	HF RoHS

 = Minimum Loop Tensile Strength for Cable Ties (newton)



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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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> High yield strength Low smoke emission 	HF LFH RoHS
Polyester	SP	-50 °C to +150 °C	Black (BK)		<ul style="list-style-type: none"> UV resistant Good chemical resistance to most acids, bases and oils 	HF LFH RoHS
Polyetheretherketone	PEEK	-55 °C to +240 °C	Beige (BGE)	UL 94 V0	<ul style="list-style-type: none"> Resistance to radioactivity Not moisture sensitive Good chemical resistance to acids, bases, oxidising agents 	HF LFH RoHS
Polyethylene	PE	-40 °C to +50 °C	Black (BK), Grey (GY)	UL 94 HB	<ul style="list-style-type: none"> Low moisture absorption Good chemical resistance to most acids, bases, alcohol, oils 	HF RoHS
Polyolefin	PO	-40 °C to +90 °C	Black (BK)	UL 94 V0	<ul style="list-style-type: none"> Low smoke emissions 	HF LFH RoHS
Polypropylene	PP	-40 °C to +115 °C	Black (BK), Natural (NA)	UL 94 HB	<ul style="list-style-type: none"> Floats in water Moderate yield strength Good chemical resistance to acids, bases and solvents 	HF RoHS
Polypropylene, Ethylene Propylene Diene Terpolymer rubber free of Nitrosamine	PP, EPDM	-20 °C to +95 °C	Black (BK)	UL 94 HB	<ul style="list-style-type: none"> Good resistance to high temperature Good chemical and abrasion resistance 	HF RoHS
Polypropylene with metal particles	PPMP	-40 °C to +115 °C	Blue (BU)	UL 94 HB	<ul style="list-style-type: none"> Metal and X-Ray detectable Heat resistant Moderate yield strength Good chemical resistance 	RoHS
Polypropylene with metal particles	PPMP+	-40 °C to +85 °C	Blue (BU)	not flame-retardant	<ul style="list-style-type: none"> High yield strength Metal and X-Ray detectable 	HF RoHS
Polyvinylchloride	PVC	-10 °C to +70 °C	Black (BK), Natural (NA)	UL 94 V0	<ul style="list-style-type: none"> Low moisture absorption Good chemical resistance to acids, bases, salts, alcohol, oils 	RoHS
Stainless Steel	SS304, SS316	-80 °C to +538 °C	Natural (NA)	Non burning	<ul style="list-style-type: none"> Corrosion resistant Antimagnetic Weather resistant Chemical resistance SS316 also resistant against seawater, salt spray and anorganic acids 	HF LFH RoHS
Thermoplastic Polyurethane	TPU	-40 °C to +85 °C	Black (BK)	UL 94 HB	<ul style="list-style-type: none"> High elasticity Good chemical resistance to: acids, bases and oxidizing agents 	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 also uses equivalent E/TFE raw material from other suppliers.

**Further colours available on request.

*These details are only guide values. They should not be regarded as an exhaustive material specification and are no substitute for suitability tests. Please see our datasheets for further details.

HF = Halogen Free

LFH = Limited Fire Hazard

RoHS = Restriction of Hazardous Substances

 = Minimum Loop Tensile Strength for Cable Ties (newton)

