

Milliken®

KeyPlast®

A spectrum of bright colorants for plastics













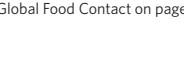
Milliken™

KeyPlast®

COLORANTS FOR PLASTICS

KeyPlast® colorants can be applied across a broad range of polymers, to include ABS, acrylic, polycarbonate, polyesters, styrenics, PVC and even PLA bioplastics. The charts below help to specify exactly which shades — ranging from bright, sunshine-like yellows, and warm reds and oranges, to rich blues, greens and violets — work with which types of resin.

- Highly recommended
- Recommended
- Suitable
- Not recommended



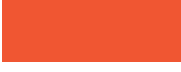









Product Name	Chemical Type	C.I. Generic Name	Thermal Stability	Lightfastness Masstone	Lightfastness Tint	ABS-Acrylonitril Butadiene Styrene	Thermoplastic Acrylic (PMMA)	Polycarbonate	Polyesters-e.g PET, PETG, PETG	Polystyrenes e.g GPPS, MIPS, HIPS	Polyvinyl Chloride - Rigid	PLA	Global Food Contact*			
													US ¹	EU ²	China ³	LA ⁴
KeyPlast FL Yellow 10GN		Coumarin	S.Y. 160:1 300°C (575°F)	7	4	●	●	●	●	●	○	●	✓	✓	✓	✓
KeyPlast FL Yellow Green 7G		Perylene	S.G. 5 300°C (575°F)	6	4	●	●	●	●	●	●	●	✓	✓		✓
KeyPlast FL Yellow 3R		Thioxanthene	S.Y. 98 300°C (575°F)	7	5	●	●	●	●	●	●	●				
KeyPlast Yellow 6G		Methine	D.Y. 201 300°C (575°F)	8	7	●	●	●	●	●	●	●				
KeyPlast Yellow 4GL		Monoazo	D.Y. 241 280°C (540°F)	7	6	○	●	●	●	●	●	●	✓	✓	✓	✓
KeyPlast Yellow AG		Quinoline	S.Y. 114 300°C (575°F)	7	5	●	●	●	●	●	●	●	✓	✓	✓	✓
KeyPlast Yellow G		Quinophthalone	D.Y. 64 300°C (575°F)	8	7	●	●	●	●	●	●	●		✓		✓
KeyPlast Yellow 3G		Methine	S.Y. 93 300°C (575°F)	7	6	○	●	○	●	●	●	●				
KeyPlast Yellow GHS		Anthraquinone	S.Y. 163 300°C (575°F)	7	5	●	●	●	●	●	●	●				
KeyPlast Yellow 2GH		Monoazo	S.Y. 72 280°C (540°F)	6	4	●	○	○	○	●	○	●				
KeyPlast Orange LFP		Perinone	S.O. 60 300°C (575°F)	7	6	●	●	●	●	●	●	●	✓	✓	✓	✓

*See notes regarding Global Food Contact on page 6.

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- Suitable
- Not recommended









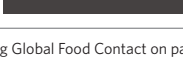
Product Name	Chemical Type	C.I. Generic Name	Thermal Stability	Lightfastness Masstone	Lightfastness Tint								Global Food Contact*				
						ABS-Acrylonitril Butadiene Styrene	Thermoplastic Acrylic (PMMA)	Polycarbonate	Polyesters-e.g PET, PETG, PETG	Polystyrenes e.g GPPS, MIPS, HIPS	Polyvinyl Chloride - Rigid	PLA	US ¹	EU ²	China ³	LA ⁴	
KeyPlast FL Orange 2G		Thioxanthene	S.O.63	300°C (575°F)	7	4	●	●	●	●	●	●	●	✓	✓	✓	✓
KeyPlast FL Red GL		Coumarin	Proprietary	300°C (575°F)	6	5	●	●	●	●	●	○	●	✓	✓	✓	✓
KeyPlast Orange MR		Methine	D.O. 47	300°C (575°F)	7	5	●	●	●	●	●	●	●	✓	✓	✓	✓
KeyPlast Red AA-TL		Anthraquinone	S.R. 111	300°C (575°F)	7	4	●	●	●	○	●	●	●				
KeyPlast FL Red 5B		Thioindigoid	Vat Red 41	280°C (540°F)	4	3	●	●	●	●	●	○	●				
KeyPlast FL Red G		Anthraquinone	S.R. 149	300°C (575°F)	6	5	●	●	●	●	●	●	●	✓	✓	✓	✓
KeyPlast Red 60		Anthraquinone	D.R. 60	300°C (575°F)	7	6	●	●	○	●	●	●	●	✓	✓		✓
KeyPlast Red AG		Perinone	S.R. 135	300°C (575°F)	8	6	●	●	●	●	●	●	●	✓	✓	✓	✓
KeyPlast Red A2G		Perinone	S.R. 179	300°C (575°F)	7	5	●	●	●	●	●	●	●		✓	✓	✓
KeyPlast Red H		Azo	Proprietary	280°C (540°F)	6	5	●	●	○	●	●	●	●	✓	✓	✓	✓
KeyPlast Red CB		Monoazo	S.R. 195	280°C (540°F)	7	6	●	●	○	○	●	●	●	✓	✓	✓	✓
KeyPlast Magenta M6B		Anthraquinone	S.R. 207	300°C (575°F)	7	6	○	●	●	○	●	●	●				

*See notes regarding Global Food Contact on page 6.

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- Highly recommended
- Recommended
- Suitable
- Not recommended

Product Name	Chemical Type	C.I. Generic Name	Thermal Stability	Lightfastness Masstone	Lightfastness Tint								Global Food Contact*				
						ABS-Acrylonitril Butadiene Styrene	Thermoplastic Acrylic (PMMA)	Polycarbonate	Polyesters-e.g PET, PETG	Polystyrenes e.g GPPS, MIPS, HIPS	Polyvinyl Chloride - Rigid	PLA	US ¹	EU ²	China ³	LA ⁴	
KeyPlast Rubine T		Anthraquinone	S.R. 52	300°C (575°F)	7	6	●	●	●	●	●	●	●	✓	✓	✓	✓
KeyPlast Bordeaux HBL		Anthraquinone	D.V. 26	300°C (575°F)	7	6	●	○	●	●	●	●	●				
KeyPlast Violet PT		Anthraquinone	S.V. 14	300°C (575°F)	7	5	●	●	○	○	●	●	●				
KeyPlast Violet IRS		Anthraquinone	S.V. 13	300°C (575°F)	8	6	●	●	●	●	●	●	●	✓	✓	✓	✓
KeyPlast Blue KR		Anthraquinone	S.B. 104	300°C (575°F)	7	6	●	●	●	●	●	●	●	✓	✓	✓	✓
KeyPlast Blue A		Anthraquinone	S.B. 36	240°C (465°F)	6	4	●	●	○	○	●	●	●				
KeyPlast Blue RR		Anthraquinone	S.B. 97	300°C (575°F)	7	6	●	●	●	●	●	●	●		✓	✓	✓
KeyPlast Blue B		Anthraquinone	S.B. 35	290°C (550°F)	7	5	●	●	○	○	●	●	●		✓		✓
KeyPlast Blue BGL		Anthraquinone	D.B. 60	290°C (550°F)	6	4	○	●	○	●	●	●	●	✓	✓		✓
KeyPlast Green B		Anthraquinone	S.G. 3	300°C (575°F)	7	6	●	●	●	●	●	●	●	✓	✓	✓	✓
KeyPlast Nigrosine R		Azine	S.Blk. 7	300°C (575°F)	7	5	●	●	●	●	●	●	●				

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KeyPlast® colorants can be applied across a broad range of polymers, to include ABS, acrylic, polycarbonate, polyesters, styrenics, PVC and PLA bioplastics.

Leverage the rainbow of hues and shades offered by these colorants to help bring your products to life and to enhance and reinforce your brand's story. These KeyPlast have approval globally for food-contact applications. See the chart below and page 6 for more details.

- Highly recommended
- ◐ Recommended
- ◑ Suitable
- Not recommended






Product Name	Chemical Type	C.I. Generic Name	Thermal Stability	Lightfastness Masstone	Lightfastness Tint	ABS-Acrylonitril Butadiene Styrene	Thermoplastic Acrylic (PMMA)	Polycarbonate	Polyesters-e.g PET, PETE, PETG	Polystyrenes e.g GPPS, MIPS, HIPS	Polyvinyl Chloride - Rigid	PLA	Global Food Contact*			
													US ¹	EU ²	China ³	LA ⁴
KeyPlast Yellow RNB		Antraquinone	P.Y. 147 290°C (550°F)	7	6	○	◐	◐	●	●	●	●	✓	✓	✓	✓
KeyPlast Yellow 7GK		Quinoline	P.Y. 138 260°C (500°F)	7	7	◐	○	◐	○	●	●	●	✓	✓	✓	✓
KeyPlast Yellow KG		Azo	P.Y. 180 290°C (550°F)	6	6	●	●	●	○	●	●	●	✓	✓	✓	✓
KeyPlast Yellow 3KLTN		Isoindolinone	P.Y. 110 300°C (575°F)	8	8	●	○	○	○	●	●	●	✓	✓	✓	✓
KeyPlast Orange GP		Benzimidazolone	P.O. 64 300°C (575°F)	8	8	●	◐	◐	○	●	●	●	✓	✓	✓	✓
KeyPlast Red KPP		Diketo-pyrrolopyrrole	P.R. 254 300°C (575°F)	8	8	◐	○	○	○	◐	●	◐	✓	✓	✓	✓
KeyPlast Vat Red V		Antraquinone	P.R. 177 290°C (550°F)	6	6	●	●	○	●	◐	●	◐	✓	✓	✓	✓
MPC Channel Black		Carbon Black	P.Blk. 7 400°C (750°F)	8	8	●	●	●	●	●	●	●	✓	✓	✓	✓
MPC Channel Black Micro-pulverized		Carbon Black	P.Blk. 7 400°C (750°F)	8	8	●	●	●	●	●	●	●	✓	✓	✓	✓

*See notes regarding Global Food Contact on page 6.

Aesthetic Enhancer: All-In-One

Amorphous transparent polymers often have a yellow appearance due to the production technology used to make them. These polymers tend to be color tuned with very low loadings of optical brighteners and/or solvent dyes. KeyPlast's aesthetic enhancer can help here, with its innovative anti-yellowing package. Offering purity, consistency and traceability, these additives – combined with Milliken's strong regulatory and technical support – can help a brand to protect its all-important image.

- Highly recommended
- Recommended
- Suitable
- Not recommended

Product Name	Chemical Type	C.I. Generic Name	Thermal Stability					Global Food Contact*			
				Polystyrene (PS)	High Impact Polystyrene (HIPS)	Polycarbonate (PC)	Polyethyleneterephthalate (PET)	US ¹	EU ²	China ³	LA ⁴
KeyPlast Red CB 	Monoazo	S.R. 195	280°C (540°F)	○	○	●	●	✓	✓	✓	✓
KeyPlast Rubine T 	Anthraquinone	S.R. 52	300°C (575°F)	○	○	●	○	✓	✓	✓	✓
KeyPlast Violet PT 	Anthraquinone	S.V. 14	300°C (575°F)	●	●	●	○				
KeyPlast Violet IRS 	Anthraquinone	S.V. 13	300°C (575°F)	●	●	○	○	✓	✓	✓	✓
KeyPlast Blue KR 	Anthraquinone	S.B. 104	300°C (575°F)	○	○	●	●	✓	✓	✓	✓

NOTES

Determination of Fastness Properties

Thermal Stability determined at 0.05% in MMA. Light Fastness determined at 0.05% in Mass & Tint in MMA under Xenon light.

Color Chips

The colors shown are intended as a general guide only. For a more precise representation, we would be pleased to provide plastic color chips upon request.

Global Food Contact

¹US = Product is compliant with Federal Food Drug and Cosmetic Act (FFDCA) requirements for use in food contact plastics. Compliance is limited by polymer type, maximum loading, food types, and conditions of use. Please contact your Milliken representative for FDA details.

²EU = Product has been tested and meets the purity requirements of the AP(89)1 Council of Europe resolution on the Use of Colorants in Plastic Materials Coming into Contact with Food. Please contact your Milliken representative for further details.

³China = Product is listed and meets applicable requirements in the GB9685:2016 National Food Safety Standard - Standard for Uses of Additives in Food Contact Materials and Articles.' Additional restrictions may apply, please contact your Milliken representative for full compliance details.

⁴LA = Product has been tested and meets the purity requirements of MERCOSUR GMC Res. No. 15/10 'Technical Regulation on Colors in Containers and Plastic Equipment Designed to be in Contact with Foods.' Please contact your Milliken representative for further details.

KeyPlast RESIST™

HIGH PERFORMANCE COLORANTS FOR ENGINEERING POLYMERS

Milliken continues to support customers meeting ever-increasing market requirements. The following list of products represent high performance colorants for Engineering Polymers such as Polyamide, PolySulfone, and other high heat polymers and alloys. Milliken recommends testing in your specific system, and under your conditions.

Polyamide resins, also known as Nylon, are polymers often chosen for their ability to withstand elevated or extremely low service temperatures without loss of physical properties. They are used in demanding applications like power tools, automotive parts, gears, and appliance parts. The combination of high processing temperatures and amines present in Nylon polymers make most traditional colorants unsuitable for use.

Milliken offers the following selection of colorants that are known to be stable in most compounds of Nylon 6, Nylon 6,6, glass-filled compounds as well as other Polyamide resins.

- Highly recommended
- Recommended
- Suitable
- Process dependent
- Not recommended

Product Name	Color	Thermal Stability*	Process Stability	Lightfastness Tint	PA 6 (Nylon 6)	PA 66 (Nylon 66)	PA 6 & PA 66 Glass Filled	PA 6 & PA 66 Flame Retardant	PA 46 (Nylon 46)	PBT Poly Butylene Terephthalate Unfilled & Glass Filled	PPA (Polyphthalamide)	PSU (Polysulfone)
KeyPlast RESIST Yellow 9785		325°C	Excellent	6	●	●	●	●	●	●	●	●
KeyPlast RESIST Yellow 9187		320°C	Very good	6	●	●	●	●	●	●	○	○
KeyPlast RESIST Yellow 9882		335°C	Excellent	5	●	●	●	●	●	●	●	●
KeyPlast RESIST Orange 7986		305°C*	Very good	6	●	●	●	●	○	●	○	○
KeyPlast RESIST Orange 9185		315°C	Very good	6	●	●	●	●	●	●	○	○
KeyPlast RESIST Red 9171		320°C	Very good	4	●	●	●	●	●	●	○	○
KeyPlast RESIST Red 8382		310°C	Good	5	●	●	●	●	○	●	○	○
KeyPlast RESIST Red 9995		320°C	Excellent	7	●	●	●	●	●	●	●	●
KeyPlast RESIST Red 9179		335°C	Very good	5	●	●	●	●	●	●	●	●
KeyPlast RESIST Red 9082		335°C	Very good	5	●	●	●	●	●	●	○	○
KeyPlast RESIST Blue 9778		300°C	Excellent	5	●	●	●	●	○	●	○	○
KeyPlast RESIST Green 9687		310°C	Excellent	6	●	●	●	●	○	●	○	○

*Thermal stability is an indication and needs to be checked by polymer type and end applications.

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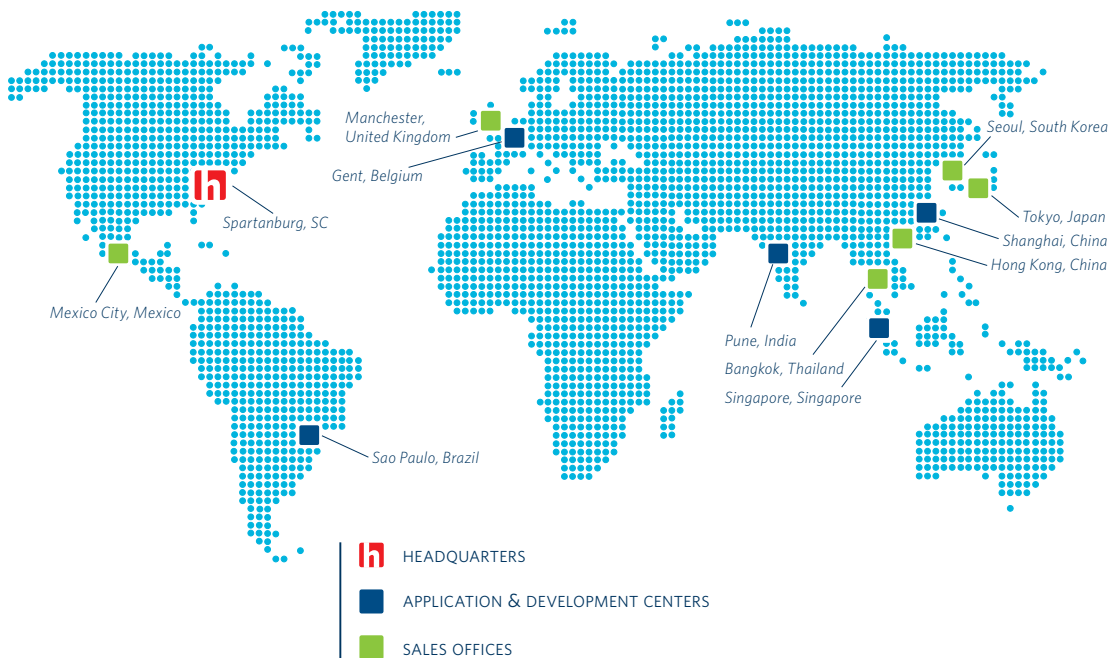
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This document is intended for guidance only and does not constitute a Regulatory Declaration of Compliance. Food contact restrictions vary by region and polymer type. Please contact your Milliken representative for more details and for official regulatory documentation.

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