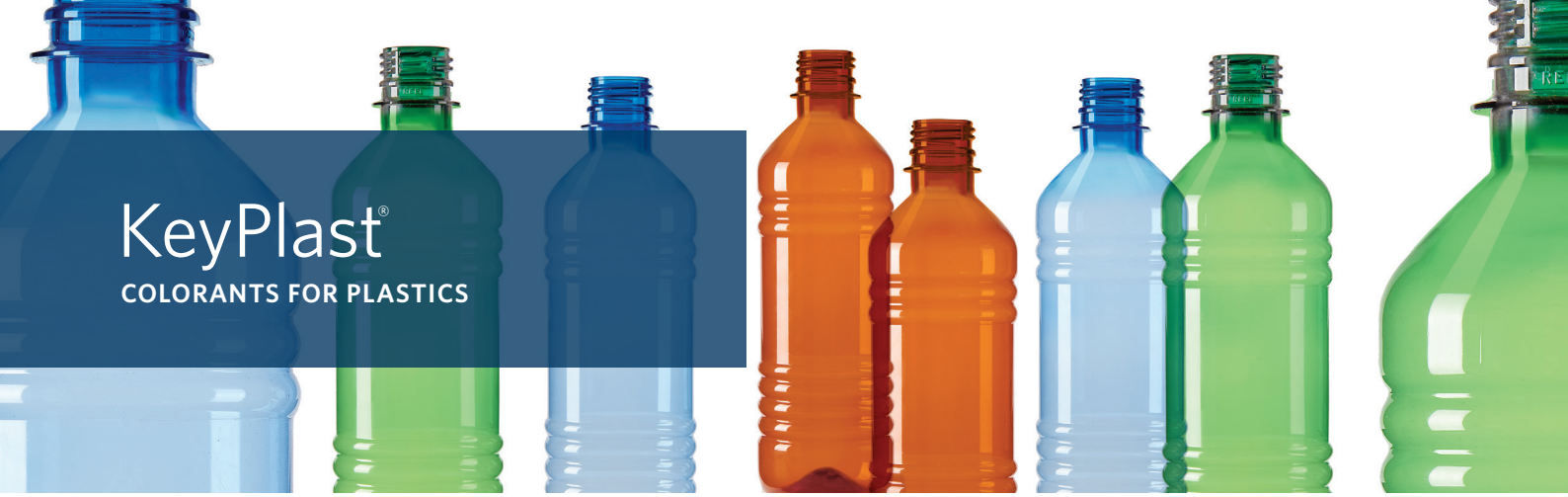
Milliken™

# KeyPlast®

A spectrum of bright colorants for plastics



# KeyPlast®

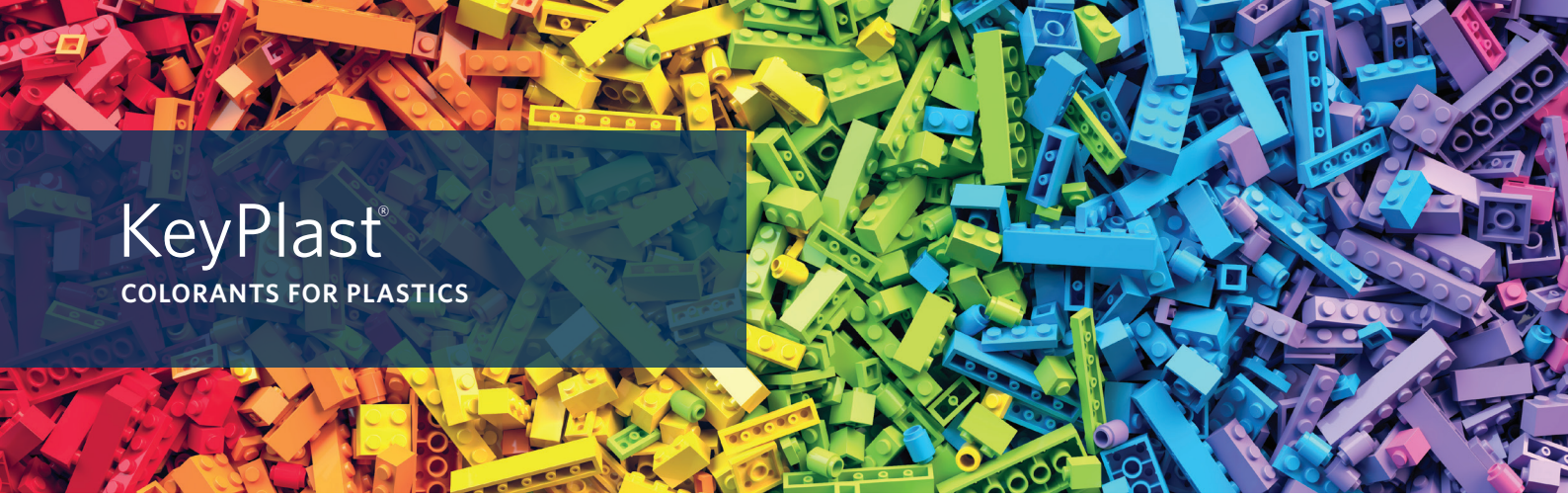
## COLORANTS FOR PLASTICS

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 provided in this brochure depict 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 | Acrylonitril Butadine Styrene (ABS) | Thermoplastic Acrylic (PMMA) | Polycarbonate (PC) | Polyesters (e.g PET, PETF, 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.



# KeyPlast®

## COLORANTS FOR PLASTICS

● Highly recommended
◕ Recommended
◑ Suitable
○ Not recommended

| Product Name | Chemical Type | C.I. Generic Name | Thermal Stability | Lightfastness Masstone | Lightfastness Tint | Acrylonitril Butadine Styrene (ABS) | Thermoplastic Acrylic (PMMA) | Polycarbonate (PC) | Polyesters (e.g PET, PETF, PETG) | Polystyrenes (e.g GPPS, MIPS, HIPS) | Polyvinyl Chloride (Rigid) | PLA | Global Food Contact* 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.

# KeyPlast®

## COLORANTS FOR PLASTICS

● Highly recommended
◕ Recommended
◑ Suitable
○ Not recommended

| Product Name | Chemical Type | C.I. Generic Name | Thermal Stability | Lightfastness Masstone | Lightfastness Tint | Acrylonitril Butadine Styrene (ABS) | Thermoplastic Acrylic (PMMA) | Polycarbonate (PC) | Polyesters (e.g PET, PETF, PETG) | Polystyrenes (e.g GPPS, MIPS, HIPS) | Polyvinyl Chloride (Rigid) | PLA | Global Food Contact* 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 Green GH** | Anthraquinone | S.G. 28 | 300°C (575°F) | 7 | 6 | ● | ● | ● | ● | ● | ● | ● | ✔ | ✔ | | ✔ |

*See notes regarding Global Food Contact on page 6.

# KeyPlast®

## COLORANTS FOR PLASTICS

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. KeyPlast colorants may be compliant for global 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 | Acrylonitril Butadine Styrene (ABS) | Thermoplastic Acrylic (PMMA) | Polycarbonate (PC) | Polyesters (e.g PET, PETF, 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** | Anthraquinone | 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** | Benzimidazo-lone | 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** | Anthraquinone | 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 | Polystyrene (PS) | High Impact Polystyrene (HIPS) | Polycarbonate (PC) | Polyethyleneterephthalate (PET) | Global Food Contact* 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 Methyl Methacrylate (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

[1] **US** = 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.

[2] **EU** = Product has been tested and meets the requirements of Regulation (EU) No 10/2011, latest amended with Commission Regulation (EU) 2020/1245 of 2 September 2020.

[3] **China** = 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.

[4] **LA** = 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 full global compliance details.

# 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 (PA), 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 | Thermal Stability* | Process Stability | Lightfastness Tint | Nylon 6 (PA 6) | Nylon 66 (PA 66) | Glass Filled (PA 6 & PA 66) | Flame Retardant (PA 6 & PA 66) | Nylon 46 (PA 46) | Poly Butylene Terephthalate Unfilled & Glass Filled (PBT) | Polyphthalamide (PPA) | Polysulfone (PSU) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **RESIST Yellow 9785** | 325°C | Excellent | 6 | ● | ● | ● | ● | ● | ● | ◕ | ◕ |
| **RESIST Yellow 9187** | 320°C | Very good | 6 | ● | ● | ● | ● | ● | ● | ◑ | ◑ |
| **RESIST Yellow 9882** | 335°C | Excellent | 5 | ● | ● | ● | ● | ● | ● | ● | ◕ |
| **RESIST Orange 7986** | 305°C* | Very good | 6 | ● | ● | ● | ● | ◕ | ● | ◑ | ◑ |
| **RESIST XTR Orange 9798** | 340°C | Excellent | 7-8 | ● | ● | ● | ● | ● | ● | ● | ◑ |
| **RESIST Orange 9185** | 315°C | Very good | 6 | ● | ● | ● | ● | ● | ● | ◑ | ◑ |
| **RESIST Red 9171** | 320°C | Very good | 4 | ● | ● | ● | ● | ● | ● | ◑ | ◑ |
| **RESIST Red 8382** | 310°C | Good | 5 | ● | ● | ● | ● | ◕ | ● | ◑ | ◑ |
| **RESIST Red 9995** | 320°C | Excellent | 7 | ● | ● | ● | ● | ● | ● | ● | ◕ |
| **RESIST Red 9179** | 335°C | Very good | 5 | ● | ● | ● | ● | ● | ● | ● | ◕ |
| **RESIST Red 9082** | 335°C | Very good | 5 | ● | ● | ● | ● | ● | ● | ◕ | ◕ |
| **RESIST Blue 9778** | 300°C | Excellent | 5 | ● | ● | ● | ● | ◕ | ● | ◑ | ◔ |
| **RESIST Green 9687** | 310°C | Excellent | 6 | ● | ● | ● | ● | ◕ | ● | ◑ | ◑ |

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

Milliken®

# KeyPlast®

## A spectrum of bright colorants for plastics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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.**



*This brochure supersedes all previous versions.*



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Milliken™