

Ultimate Nighttime Performance Wet or Dry

3M™ Reflective Elements utilize the most advanced technologies to deliver true reflected color and optimized visibility tailored to meet your needs.

Featuring unique 3M microcrystalline ceramic beads, 3M™ Reflective Elements are tougher and more efficient than other glass-beaded optics systems, so you can expect superior performance in any condition.

Why use 3M™ Reflective Elements?

Most Efficient Optics for Liquid-applied Markings

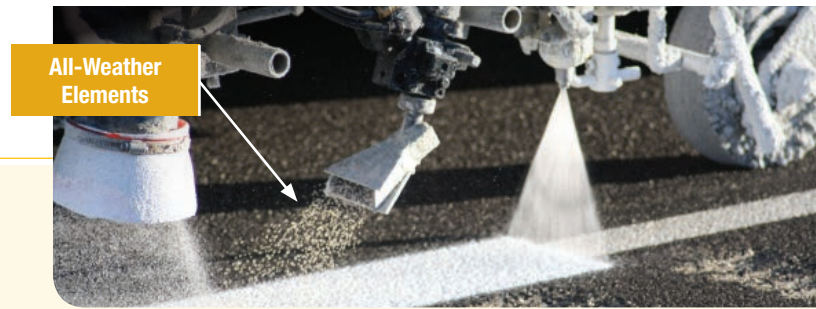
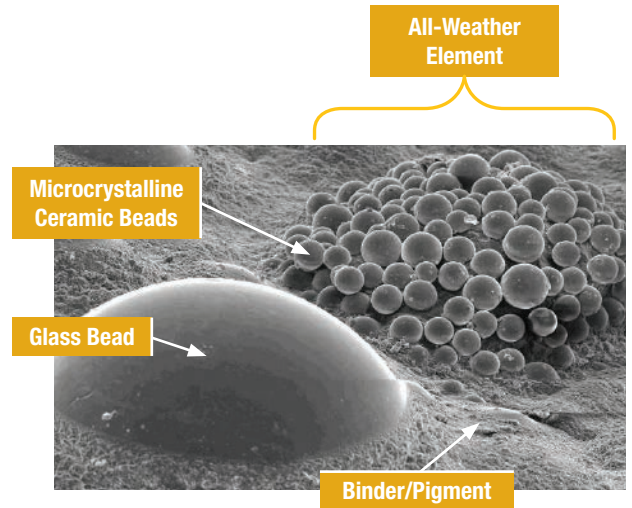
Each all-weather element is a complete pavement marking optical system comprised of microcrystalline ceramic beads, binder and pigments.

Factory Optimized

3M's bonded core elements consist of microcrystalline ceramic beads embedded on a center core to provide optimal performance in all weather conditions.

Easily Installed by Double-drop Systems

As the first drop of a double-drop system, the elements provide visibility to motorists in both wet and dry conditions. They are effective as either new marking applications or as part of a maintenance marking application.

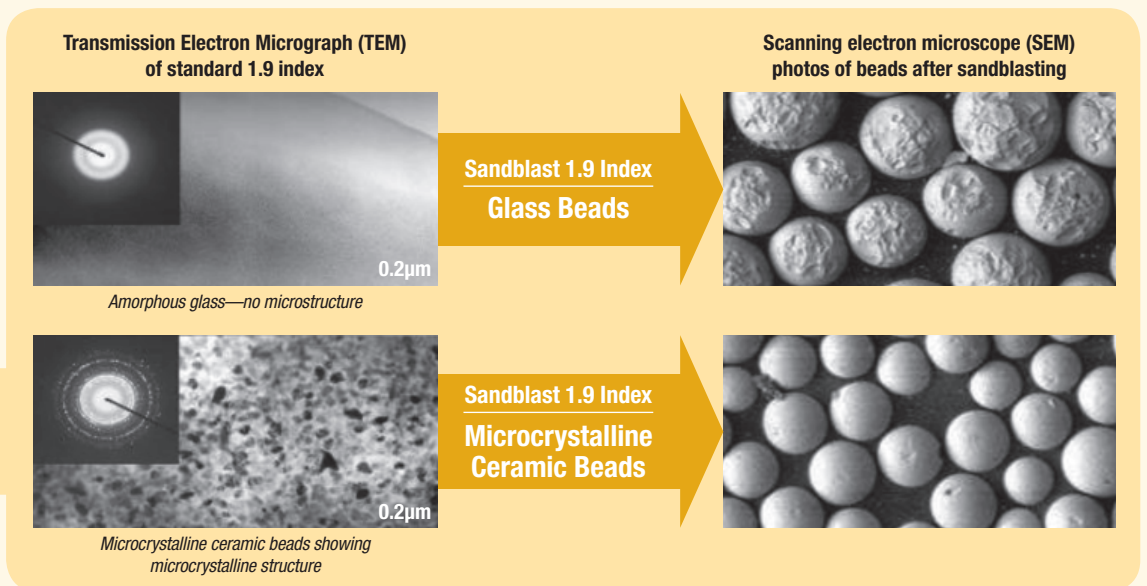


It Starts with Unique 3M Microcrystalline Ceramic Beads

Microcrystalline Toughness

3M's microcrystalline ceramic beads are engineered to prevent cracks from starting and propagating, resulting in unprecedented toughness.

Effects of bead microstructure on toughness as demonstrated in the sandblast test ▶▶



True Reflected Color, Superior Visibility

Yellow Elements—Yellow Beads

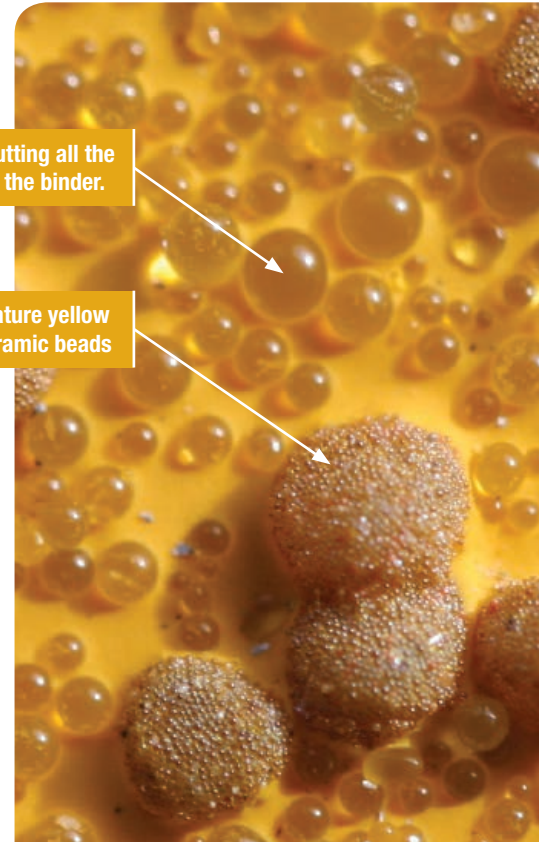
Standard glass beads are clear, putting the entire burden for color performance on the binder. 3M incorporates yellow microcrystalline ceramic beads in its yellow elements to improve reflected color.

Color Recognition Day and Night—Wet or Dry

Most pavement markings have acceptable daytime color. Conventional yellow markings use clear glass beads which often result in a washed out appearance at night. 3M's yellow beads improve nighttime color, making the markings conspicuous at any time of day or night.

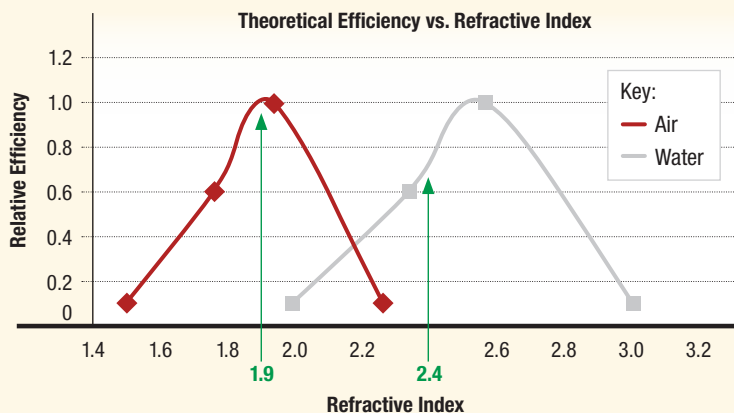
Standard glass beads are clear, putting all the burden for color performance on the binder.

Yellow elements feature yellow microcrystalline ceramic beads



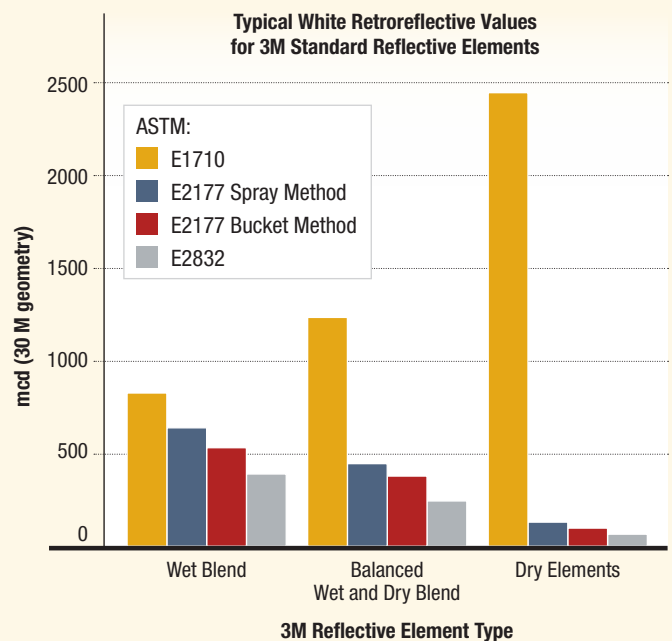
Optimized Index for Wet and Dry

- ▶ For optimum performance under dry conditions, 3M elements feature 1.9 refractive index microcrystalline ceramic beads.
- ▶ 3M's all-weather optics include ultra-high, 2.4 refractive index microcrystalline ceramic beads. The high refractive index results in good measurable wet reflectivity, the highest practical level achieved to date. The 2.4 refractive index microcrystalline ceramic bead has the same microcrystalline structure and level of toughness found in lower index microcrystalline beads.
- ▶ As a system, 3M's all-weather optics have dry reflective beads at peak efficiency, and wet reflective beads much higher in efficiency than any other commercial beads.



Tailored Performance to Meet Agency Needs

3M offers optics systems for both wet and dry climates, with each system boasting superior performance in its intended conditions.



3M™ Reflective Elements More Efficient Than The Rest

Compare Dry Reflectivity to Conventional Optics

3M's 1.9 index microcrystalline ceramic dry elements out-perform other commercial elements in comparative dry reflectivity.

Simply the Best

3M's microcrystalline ceramic beads have visibility, efficiency and toughness above and beyond other commercial marking systems.

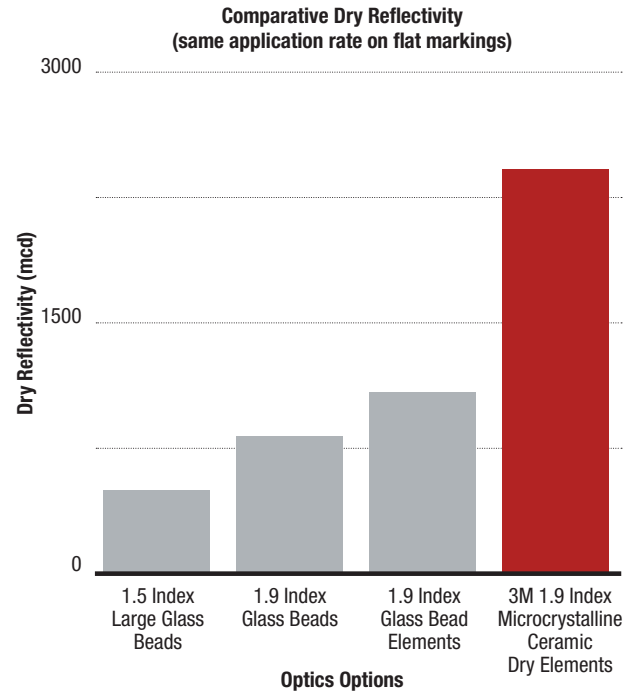
High Efficiency Pigments Deliver the Most Performance from the Beads

3M's microcrystalline ceramic beads feature 3M's high efficiency pigments to deliver improved reflectivity.

Compatible Elements for All Binders

3M offers elements compatible with different liquid binder types.

Most
Efficient Optics
for Liquid-Applied
Markings



Binder Compatibility			
Binder System	Target Thickness (0.001")	Element Blend Optimized for Wet Reflectivity	Element Blend Optimized for Dry Reflectivity
High Build Paint	25	90 ¹	50 ¹
	20	90S ^{1,2}	50S ^{1,2}
Thermoplastic	60-120+	90 ¹	50 ¹
Polyurea	18-30	70P ¹	50P ¹
Epoxy	18-30	70E	50E
MMA	30-150	70M	50M

¹ 3M Matched Component System available.

² For 20mil High Build Paint, use only "S" Series elements standard or "S" Series elements compatible with all other binder systems.

For technical information or to learn more about 3M™ Reflective Elements or 3M's full line of traffic safety products and services, visit 3M.com/roadwaysafety or contact your local 3M representative at 1-800-553-1380.



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75-0302-4002-4