FLORIDA DEPARTMENT OF TRANSPORTATION
State Materials Office
5007 NE 39th Avenue
Gainesville, Florida 32609

September 1, 2000

Florida Test Method
For
REFRACTIVE INDEX OF GLASS SPHERES

Designation: FM 5-523

1. SCOPE

This method covers the determination of the refractive index of glass spheres for traffic paint and thermoplastic compound by the immersion method (Becke line) via comparison to single standards at each acceptance limit.

2 PROCEDURE

2.1 Crush a small sample of spheres with a mortar and pestle just enough to effect some fracturing of the individual sphere but avoiding reduction to a powder.

2.2 Place a small portion of the crushed material on a microscope slide.

2.3 Place a drop or two of liquid of known index (1.50) on the portion on the slide.

2.4 Place under a microscope and focus on the outline of a single fragment.

2.5 Watch the bright line (Becke) representing the edge of the fragment and slowly raise the microscope barrel. Observe the direction of movement of the bright line with this interpretation:

2.6 If line moves toward glass fragment, Index of bead is greater than 1.50

2.7 If no movement, index of bead = 1.50

2.8 If line moves away from fragment, index of bead is less than 1.50

2.9 Repeat steps 2.2 through 2.5 using a known liquid of 1.65 refractive index.

3 REPORT

3.1 For passing samples, report:
Refractive index Passes

3.2 For failing samples, report:
Refractive index Fails, less than 1.50 or Fails, greater than 1.65