

AUTHORIZATION REQUIREMENTS AND ACCEPTANCE CRITERIA FOR HIGH-PERFORMANCE RETROREFLECTIVE GLASS BEADS

The following procedures are required to authorize high performance glass bead suppliers for inclusion on the Authorized Material List (AML). This program is administered by the Office of Roadway Materials Testing, Chemical Testing Branch. Specification requirements are in Sections 84-2.02E and 84-2.03C(2)(e) of the 2018 Standard Specifications.

1. For new materials the manufacturer will provide:

- A. Authorized Material List Submittal Form TL-9502, <<http://cefs.dot.ca.gov/jsp/forms.jsp>>
- B. Material/system data sheet with detailed performance information, properties and installation instructions. Data in this document will indicate that the system will meet the performance acceptance criteria.
- C. Safety Data Sheet.
- D. When contacted, submit a sample of retroreflective glass beads.

2. Performance acceptance criteria:

- A. Submit data from a test deck that indicates that after installation of the thermoplastic stripe with the post-applied glass beads, the traffic stripe shall have a minimum retroreflectivity of 700 mcd m⁻² lx⁻¹ for white and 500 mcd m⁻² lx⁻¹ for yellow. The measurement will be in accordance with ASTM E 1710. Test deck striping shall be evaluated periodically for retained retroreflectivity and durability over a course of a year. The American Association of State Highway and Transportation Officials (AASHTO) National Transportation Product Evaluation Program (NTPEP) test decks have been successful in fulfilling this requirement.
- B. Confirm that glass beads contain less than 200 ppm each of arsenic and lead when tested under Environmental Protection Agency (EPA) Test Methods 3052 and 6010B or 6010C.
- C. They shall be either,
 - A composite bead made up of a central core with small high index glass beads (minimum of 1.8 refractive index) bonded with colored material to the outside of the core.
 - A solid, large glass bead with greater than 1.6 refractive index.
- D. Beads with integral color shall be supplied in white and yellow versions for use in corresponding white and yellow traffic stripes.

3. Send the submittal and sample to the Chemical Testing Branch.

California Department of Transportation Laboratory
Attn: Ricky Wilmshurst, High-Performance Glass Beads
5900 Folsom Boulevard
Sacramento, CA 95819

When the submittal package has been evaluated and reviewed, the Department will notify the manufacturer of the findings. When any discrepancies are resolved to the satisfaction of the Department, the material will be placed on the AML.

The authorization of High-Performance Glass Beads will expire in five (5) years.

The Department reserves the right to sample, test, and to remove the product from the AML at any time.

4. Reauthorization:

Manufacturer should submit its package with current information to the Chemical Testing Branch at least three (3) months prior to the listed expiration date.

If you have any questions about this program, please contact the Caltrans Chemistry Branch by e-mail sent to <chemistry.branch@dot.ca.gov> or Ricky Wilmshurst at (916) 227-7041 or <richard.wilmshurst@dot.ca.gov>.