

1712 – NON- METALLIC DRUMS AND CONICAL PORTABLE DELINEATORS

SECTION 1712

NON- METALLIC DRUMS AND CONICAL PORTABLE DELINEATORS

1712.1 DESCRIPTION

This specification covers fully reflectorized non-metallic two-piece drums and two-piece conical delineators for channelizing traffic, lane closures and marking of specific projects.

1712.2 REQUIREMENTS

Provide drums and conical delineators that comply with Part VI of the Manual on Uniform Traffic Control Devices, Section 6F-5 and the following general specifications:

a. Configuration of Drums. Drums are a two-piece, closed top, breakaway design capable of being securely fastened together to prevent accidental separation from air turbulence created by passing trucks, normal winds, etc., but capable of separating on impact from a vehicle. Provide a base that contains a self-draining storage compartment for ballast. The base must allow for storage of ballast so that the ballast does not become a projectile upon impact. The base must be low enough to allow a normal passenger vehicle to pass over it and not make contact with the vehicle undercarriage.

Provide drums designed for the attachment of two standard barricade lights that comply with the crashworthy criteria for category II devices contained in the testing and acceptance guidelines of the National Cooperative Highway Research Program (NCHRP) Report 350.

As an alternative, provide two-piece closed top drums with the same dimensions as above, but with a different method of ballasting and balancing. Provide a plastic drum with a bottom flange that protrudes a minimum of 2 inches from the lowest section around the entire circumference of the drum body. Balance the drums with a rubber base ring that also acts as ballast. Designs of this type that also require bags of material for ballast are not acceptable. Provide a plastic drum and rubber base capable of being secured together to prevent accidental separation from air turbulence created by passing vehicles, normal winds or lifting by the handle. Design the drums to allow the body to separate from the rubber base upon impact by vehicles. Provide a rubber base with a mass between 25 and 35 lbs. Install the drums so that the bottom of the rubber base has circumferential contact with the road surface. Construct the plastic drum and rubber base so no water can accumulate. Design the drums to be stacked with or without the rubber bases.

b. Configuration of Conical Delineators. Delineators are a two-piece, breakaway design capable of being securely fastened together to prevent accidental separation from air turbulence created by passing vehicles, normal winds, etc., but capable of separating on impact from a vehicle. The cone body must have a minimum weight of 2 lbs and have an integrally molded handle on the top. The cone body must be a minimum height of 42 inches when measured from the bottom flange to the top shoulder excluding the handle.

Provide black rubber bases that weigh approximately 10, 15 or 30 lbs each. As an alternate, provide a plastic sand fillable base weighing approximately 15 lbs. All bases must be low enough to allow a normal passenger vehicle to pass over it and not make contact with the vehicle undercarriage. Design the delineators to be stacked with or without the bases.

Provide delineators that comply with the crashworthy criteria for category I devices contained in the testing and acceptance guidelines of the National Cooperative Highway Research Program (NCHRP) Report 350.

c. Reflective Stripes. Provide drums and delineators reflectorized with Type III, High Performance Retroreflective Sheeting complying with **DIVISION 2200**. Alternate stripes, starting with orange at the top. Additional orange and white stripes may be non-reflectorized.

d. Fabrication. Provide drums and delineators manufactured from plastic polymer, plastic copolymer, rubber elastomer, or any other non-metallic material, that complies with this specification.

Pigment and mold drums and delineators of a highway orange color throughout and use ultra-violet inhibitors to prevent fading.

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Satisfactory drums and delineators exhibit good workmanship and are free of objectionable marks or defects, which affect appearance or performance. Seams must be equal in strength to the rest of the item.

Provide drums and delineators capable of withstanding 5 cold weather impacts between 25°F and 40°F and 5 hot weather impacts between 80°F and 90°F.

1712.3 TEST METHODS

a. Impact Resistance Test. Test drums and delineators for impact resistance as prescribed by the AASHTO National Transportation Product Evaluation Program (NTPEP) test procedures for flexible delineator posts and plastic barrels.

b. Crashworthy Test. Test drums as prescribed by the NCHRP Report 350 for category II devices. Test delineators as prescribed by the NCHRP Report 350 for category I devices. Federal Highway Administration (FHWA) guidance indicates that category I devices may be accepted based on a self-certification by the manufacturer. This certification may be a one-page affidavit signed by the manufacturer, with documentation supporting the certification (crash tests and/or engineering analysis) kept on file by the certifying organization.

1712.4 PREQUALIFICATION

a. Drums. Submit 1 drum to the Engineer of Tests. Submit impact resistance data for tests that have been performed on the identical product by the AASHTO NTPEP test location that includes both hot and cold weather conditions. Submit NCHRP, Report 350 crashworthy test data. Forward an official copy of the test report and FHWA acceptance along with evidence that the product referenced is identical to that submitted for prequalification, to the Engineer of Tests for evaluation.

b. Conical Delineators. Submit 1 delineator to the Engineer of Tests. Submit impact resistance data for tests that have been performed on the identical product by the AASHTO NTPEP test location which includes both hot and cold weather conditions. Submit a NCHRP, Report 350 crashworthy certification, along with evidence that the product referenced is identical to that submitted for prequalification, to the Engineer of Tests for evaluation.

c. The sample drum or delineator will be tested for compliance with this specification, and the impact resistance data reviewed. The producer will be notified in writing of the results. The Bureau of Materials and Research will maintain a list of qualified products.

1712.5 BASIS OF ACCEPTANCE

a. Prequalification as specified in **subsection 1712.4.**

b. New drums or delineators will be accepted upon receipt and approval of a certification from the manufacturer, indicating the drums or delineators being supplied are the same model and design as previously approved. Provide a certification listing the manufacturer, model number and type of drum, and the grade and manufacturer of the reflective sheeting. Submit 2 copies of the certification to the Field Engineer in charge of the project.

c. Used drums or delineators to be used on a temporary basis will be accepted upon receipt and approval of a certification containing all of the information required in **subsection 1712.5a.** The certification may be prepared by the Contractor.