

**SAFE-HIT TWO-PIECE FLEXIBLE DELINEATOR  
GROUND MOUNT SYSTEM  
GENERAL PRODUCT SPECIFICATION**

**1.0 DESCRIPTION**

The two-piece delineator shall consist of a flexible, ground mounted delineator made from durable, non-discoloring, polyethylene plastic to which reflective sheeting is applied, and a galvanized steel anchor which is placed into the ground. The delineator shall be capable of self-righting after repeated vehicle impacts. The delineator shall insert into the galvanized steel anchor and engage with two locking tabs. It is required that when the delineator is no longer serviceable, it can be removed and a new delineator can be manually inserted and locked into the existing ground anchor. The delineators are to be of a size and have a locking mechanism compatible with the ground anchors in service. Delineators that are not compatible will be rejected for use.

**2.0 GENERAL REQUIREMENTS**

The delineator shall be tubular in shape and two and one-quarter inches [ $2\frac{1}{4}'' \pm 1/32''$ ] in diameter. A one and three quarter inches [ $1\frac{3}{4}'' \pm 1/32''$ ] diameter interior reinforcement tube shall be located and secured in the lower portion of the delineator. The total above ground height of the delineator shall be delivered as required. The delineator shall be white in color and resistant to ultraviolet and infrared radiation.

Reflective sheeting per Federal Highway Specification FP-96, Type III (minimum), Class 1 shall be applied to the uppermost portion of the delineator. The delineator shall be capable of providing 360 degree visibility by applying reflective sheeting completely around the delineator. The reflective sheeting shall be white (silver) or yellow (amber) in color and applied to the front or back of the delineator or around the circumference as required.

The delineators shall be designed, manufactured and/or supplied by Trinity Highway of Dallas, TX, a Trinity Industries, LLC company. The delineators shall be branded as Safe-Hit®.

**3.0 PERFORMANCE REQUIREMENTS**

**A. HEAT RESISTANCE:**

Three (3) delineators shall be conditioned in a test chamber for 4 hours at  $150 \pm 3$  degrees F. The delineators shall be bent 180 degrees at their midpoint around a 1-1/2 inch diameter mandrel. The delineators shall be bent 10 times within one and one half minutes after removal from the chamber and return to within 10 degrees of their original position with 10 seconds after the last bend. Any delineator cracking, splitting or not returning to within 10 degrees in the allotted time constitutes a failure.

**B. COLD RESISTANCE:**

Three (3) delineators shall be conditioned in a test chamber for 24 hours at  $-20 \pm 3$  degrees F. The delineators shall be bent 90 degrees at their midpoint around a 1-1/2-inch diameter mandrel. The delineators shall be bent 4 times within one and one half minutes after removal from the chamber and return to within 10 degrees of their original position within 60 seconds after the last bend. Any delineator cracking, splitting or not returning to within 10 degrees in the allotted time constitutes a failure.

**C. VEHICLE IMPACT PERFORMANCE:**

Eight (8) delineators shall be impacted at 55 mph by a typical passenger sedan weighing approximately 3500 lbs. and having no unusual sharp hood ornaments or other projections. Four delineators shall be impacted 5 times with bumper hits and four delineators impacted 5 times with combined bumper/direct wheel hits at both  $85 \pm 5$  degrees F and  $32 \pm 5$  degrees F for a total of 10 impacts per delineator. At the conclusion of both high and low temperature testing, at least 3 of the 4 bumper hit and 3 of the 4 bumper/direct wheel hit tested delineators shall remain intact, securely anchored, return to their original vertical orientation within an angle of  $\pm 10$  degrees and retain a minimum of 50% of the total initial reflective sheeting.

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**D. HIGH TEMPERATURE RESISTANCE:**

Three delineators shall be placed in a test chamber set to  $180 \pm 3$  degrees F. The delineators shall be sufficiently rigid to withstand two hours without wilting. Any delineator observed to wilt shall constitute a failure.

**E. LOW TEMPERATURE RESISTANCE:**

Three delineators shall be conditioned in a test chamber for four hours at  $-20 \pm 3$  degrees F. A steel dart with a one-inch hemispherical end, weighing five pounds, shall be dropped a distance of five feet through virtually frictionless vertical guide to impact the surface of the delineator. The delineator shall be struck at the midpoint by the steel dart. The delineator shall be in a horizontal position and supported only at the ends. The height of the supports shall be such that the delineator will not be sandwiched against any surface by the impact. The delineators shall be subjected to five impacts. Each impact must be completed within 30 seconds after removal from the chamber and the delineator must be returned to the chamber for a minimum of one hour between impacts. Fracturing, cracking or splitting of any of the delineators shall constitute a failure.

**F. STATIC RIGIDITY:**

Three delineators 48 inches in above ground length shall be tested by suspending a five pound weight at the free end. The delineators shall be cantilevered horizontally with the weight within two inches from the unsupported end. The test shall be conducted at  $77 \pm 5$  degrees F. Any delineator with a deflection greater than 60 degrees from horizontal shall constitute a failure.

**G. COLORFASTNESS:**

The delineator shall be exposed to 1000 hours weatherometer exposure per ASTM G53 or equivalent test. Significant yellowing, darkening, fading or changes in average tensile strength or elongation greater than 35% shall constitute a failure.

**H. CERTIFICATION:**

Certified test reports shall be made available upon request.