

**CARSONITE PRODUCT SPECIFICATION
FOR BOUNDARY/ID MARKER
(CBM-250)**

1 SCOPE

This specification covers the minimum material, mechanical and performance requirements of Carsonite's continuous glass reinforced CBM-250 Composite Markers. These products may be used as sign support or to provide daytime and nighttime delineation for survey, right of way, or other marking applications requiring outdoor durability, lightweight, and vandal and impact resistance.

2 GENERAL REQUIREMENTS

2.1 DESIGN

The CBM-250 Marker shall be a single piece marker capable of simple, permanent installation by one person using a manual driving tool. The marker upon proper installation shall resist displacement from wind and vehicle impact forces. The CBM-250 shall be of a constant "T" cross sectional design which provides a flat surface for sheeting application and a reinforcing rib incorporated longitudinally along the back midsection to provide structural rigidity. The bottom end of the marker shall be pointed for ease of ground penetration.

2.2 MATERIAL

The CBM-250 shall be constructed of a durable, UV resistant, continuous glass fiber and resin reinforced, thermosetting composite material which is resistant to impact, ozone, and hydrocarbons within a service temperature range of -40°F to +140°F.

2.3 WORKMANSHIP

The CBM-250 Marker shall exhibit good workmanship and shall be free of burns, discoloration, cracks, bulges or other objectionable marks which would adversely affect the marker's performance or serviceability.

2.4 MARKING

A black line shall be stamped horizontally across the front of the marker near the bottom to indicate proper burial depth.

3 PHYSICAL AND MECHANICAL REQUIREMENTS

3.1 DIMENSIONS

The CBM-250 Marker shall conform to the shape and overall

dimensions shown in Figure 1.

3.1.1 Width

The nominal CBM-250 Marker width shall be 2.6 inches in order to accommodate a 2.5-inch wide decal and provide adequate daytime delineation.

3.1.2 Length

The marker shall be of such length to provide the required height above the road surface with a minimum embedment depth of 18 inches.

3.2 **MECHANICAL PROPERTIES**

The CBM-250 Marker shall have the minimum mechanical properties as follows:

<u>PROPERTY</u>	<u>ASTM TEST METHOD</u>	<u>MINIMUM</u>
<u>VALUE</u>		
Ultimate Tensile Strength	D-638	50,000 psi
Ultimate Compressive Strength	D-638	45,000 psi
Specific Gravity	D-792	1.7
Weight % Glass Reinforcement	D-2584	50%
Barcol Hardness	D-2583	47

3.3 **COLOR FASTNESS**

The CBM-250 Marker shall be pigmented throughout the entire cross-section so as to produce a uniform color which is an integral part of the material. Ultraviolet resistant materials shall be incorporated in the construction to inhibit fading or cracking of the marker upon field exposure.

3.4 **DEFLECTION**

Deflection tests shall consist of a two-pound load suspended from one end of the CBM-250 while the other end is clamped to a support in cantilevered fashion. Horizontally, the distance from the fulcrum to the weight shall be 48 inches. The maximum allowable free end deflection shall be four inches.

3.5 **COLD IMPACT RESISTANCE**

The CBM-250 shall be conditioned a minimum of two hours at $-40^{\circ}\text{F} \pm 3^{\circ}\text{F}$. A minimum two-pound spherical weight shall be dropped a distance of five feet through a virtually frictionless vertical guide to impact the surface of the marker at midsection. The surface of the post being struck by the steel ball shall be in a horizontal position with the marker supported and held in position at both ends. The marker shall be subjected to five impact tests

concentrated near the middle of the marker within 10 minutes from the removal from the environmental chamber. Fracturing, cracking, or splitting of the posts shall constitute failure.

Another marker after conditioning shall be struck flush against a flat solid surface three times within two minutes after removal from the conditioning chamber. To strike the delineator it should be manually swung through a 90° arc, and the marker shall not fracture or shatter upon impact.

3.6 VEHICLE IMPACT RESISTANCE

The CBM-250 Composite Marker shall be capable of self-erecting and remain functional after being subjected to an impact by a typical passenger sedan at 35 m.p.h. without substantially damaging the vehicle.

4 DECALS

4.1 DESCRIPTION

The decals shall be of impact resistant, pressure sensitive vinyl sheeting which shall be subject to approval by the ordering agency.

