



# SURFACE VEHICLE RECOMMENDED PRACTICE

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Qualifying Aftermarket Two-Component Structural Foams

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## **1. Scope**

This recommended practice provides a guideline for qualifying automotive aftermarket, two-component structural foams, and defines a classification system for such foams.

### **1.1 Purpose**

To establish a classification system for structural foams, and a method for testing them, thus allowing auto manufacturers and foam makers to specify the proper product for use in recommended repair procedures.

### **1.2 Background**

The need for structural foams in the automotive collision repair market has grown as their use by the automotive OEMs in cars and trucks has grown. In recent years, structural foams have been used in new cars and trucks to help improve noise, vibration and harshness (NVH) characteristics, lower vehicle weight and improve structural integrity. The proper performance of structural foams is especially critical during a collision, as they play an important role in collision energy management. Many aftermarket two-component structural foams are not implemented in the same manner as at the OEM level, nor are they tested against rigorous OEM standards. This recommended practice provides OEMs with a method for specifying appropriate structural foams in their repair recommendations (see SAE J2376).

There are several types of structural foams available in the OEM market. They can be characterized several ways: the mode of cure, (i.e. heat cure or two-component ambient cure), by chemistry (epoxy or urethane) or by the strength of the final cured product.

The critical factor in choosing the appropriate structural foam for aftermarket replacement is to match the original foam strength and cavity fill as closely as possible to that applied at the OEM. Structural foams are tested against rigorous standards for strength, corrosion resistance, and most importantly, vehicle performance, during the initial design stages at the OEM.

OEM structural foams may be applied as a pumped-in mass that may be contained by baffles or blockers to maintain the foam in a specific configuration. Structural foams may also be supplied as drop-in parts that contain an engineered carrier (metal or plastic) to which the structural foam is applied. These parts are then placed in the vehicle and cured during the bake process in the OEM paint shop.

Repair of a body section in a manner that does not fill the cavity as specified by the OEM, or utilizes a structural foam that does not meet the original engineering requirements, can lead to a vehicle that no longer meets the original OEM performance objectives.

## **2. References**

### **2.1 Applicable Publications**

The following publications form a part of this specification to the extent specified herein.

#### **2.1.1 SAE PUBLICATIONS**

Available from SAE, 400 Commonwealth Dr., Warrendale, PA 15096-0001. The latest issue of SAE publications shall apply.

SAE J369—Cured Flammability  
SAE J1523—Cure Rate  
SAE J1756—Fogging Test  
SAE J2376—New-Vehicle Collision Repair Information

#### **2.1.2 FORD MOTOR COMPANY SPECIFICATIONS**

Available from Ford Motor Company, 20000 Rotunda, Dearborn, MI 48121.

Ford WSS—M99P35—A—Material Specification  
Ford BV 11801—Sag Resistance  
Ford BI 104-01—Water Immersion Test  
Ford BQ 104-02—Humidity Resistance Testing

#### **2.1.3 GENERAL MOTORS CORPORATION SPECIFICATIONS**

Available from Global Engineering Documents, 15 Inverness Way East, Englewood, CO 80112

GM N8297—Structural Foam Performance Guidelines for Aftermarket Service Use

#### **2.1.4 AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) PUBLICATION**

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959

ASTM B 117—Salt Spray Testing  
ASTM D 1621—Compressive Strength  
ASTM D 3574 (Test A)—Cured Density