

	SURFACE VEHICLE STANDARD	SAE J1876 MAR2012
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Plastic Dust Shield for Hydraulic Disc Brakes		

RATIONALE

This technology is viewed as stable by the committee, and the standard will be reviewed for stabilization.

STABILIZED NOTICE

This document has been declared "Stabilized" by the SAE Hydraulic Brake Components Standards Committee and will no longer be subjected to periodic reviews for currency. Users are responsible for verifying references and continued suitability of technical requirements. Newer technology may exist.

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Foreword—This proposed SAE Standard, reviewed initially at the November 18, 1987 subcommittee meeting in New Orleans, Louisiana, was developed to characterize the material requirements for a dust shield for hydraulic disc brakes. Plastic dust shields are currently in production on some domestic passenger vehicles. The use of plastic in this application offers advantages in cost, corrosion resistance, and design flexibility relative to a conventional stamping.

- 1. Scope**—The material defined by this SAE document is an impact modified, heat stabilized, 66 nylon reinforced with glass fibers. This material is for use in dust shields for hydraulic disc brakes.

NOTE—The applicability of a plastic dust shield must be evaluated for each individual brake system. Its use with solid rotors and/or high performance brake systems is not recommended.

2. References

- 2.1 Applicable Publications**—The following publications form a part of the specification to the extent specified herein. Unless otherwise indicated, the latest revision of SAE publications shall apply.

2.1.1 ISO PUBLICATIONS—Available from ANSI, 25 West 43rd Street, New York, NY 10036-8002.

ISO 75—Plastics—Determination of temperature of deflection under load

ISO 178—Plastics—Determination of flexural properties

ISO 180—Plastics—Determination of Izod impact strength

ISO/R 527—Plastics—Determination of tensile properties

ISO 1218—Plastics—Polyamides—Determination of "melting point"

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2.1.2 ASTM PUBLICATIONS—Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM D 256—Test Methods for Impact Resistance of Plastics and Electrical Insulating Materials

ASTM D 638—Test Method for Tensile Properties of Plastics

ASTM D 648—Test Method for Deflection Temperature of Plastics Under Flexural Load

ASTMD789—Test Methods for Determination of Relative Viscosity, Melting Point, and Moisture Content of Polyamide (PA)

ASTMD790—Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials

3. General Material Requirements

3.1 **Conditioning**—All test values indicated herein are based on materials conditioned in a controlled atmosphere of $23\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ and $50\% \pm 5\%$ relative humidity for 24 h prior to testing and tested under the same controlled conditions.

4. Test Requirements

4.1 **Tensile Strength**—The material when tested by the procedure specified in 5.1 shall have a minimum tensile strength of 62 MPa.

4.2 **Ultimate Elongation**—The material when tested by the procedure specified in 5.1 shall have a minimum ultimate elongation of 4%.

4.3 **Flexural Modulus**—The material when tested by the procedure specified in 5.2 shall have a minimum flexural modulus (tangent modulus of elasticity) of 2000 MPa.

4.4 **Flexural Strength**—The material when tested by the procedure specified in 5.2 shall have a minimum flexural strength of 106 MPa.

4.5 **Impact Strength**—The material when tested by the procedure specified in 5.3 shall have the following minimum notched izod impact strengths:

- a. Notched specimen at $23\text{ }^{\circ}\text{C}$ 85 J/m
- b. Notched specimen at $-40\text{ }^{\circ}\text{C}$ 28 J/m

4.6 **Deflection Temperature**—The material when tested by the procedure specified in 5.4 shall have the following minimum deflection temperatures:

- a. At 455 kPa 240 $^{\circ}\text{C}$
- b. At 1820 kPa 230 $^{\circ}\text{C}$

4.7 **Melting Point**—The material when tested by the procedure specified in 5.5 shall have a melting point of $256\text{ }^{\circ}\text{C} \pm 6\text{ }^{\circ}\text{C}$.

5. Test Procedures

5.1 **Tensile Strength and Ultimate Elongation**—Determine the tensile strength at maximum load and the elongation of the material at maximum load by ASTM D 638 (ISO/R 527), using $5\text{ mm/min} \pm 1.25\text{ mm/min}$ testing speed.

5.2 **Flexural Modulus and Flexural Strength**—Determine the flexural modulus and the flexural strength of the material by ASTM D 790 (ISO 178).