



SURFACE VEHICLE RECOMMENDED PRACTICE

J3281™

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Desorption of Brake Friction Materials

RATIONALE

Brake friction materials adsorb moisture when exposed to standard atmospheric conditions. The moisture can affect the material's physical properties and performance characteristics. These include thickness, weight, shape, compressibility, hardness, modulus, coefficient of friction, noise propensity, wear rate, and others. Knowing a friction material's propensity to adsorb moisture and the moisture content during testing and validation is of growing interest.

1. SCOPE

This SAE Recommended Practice specifies a method to reduce and stabilize the moisture of products containing brake friction material (disc brake pads, drum brake shoes, friction blocks) so the parts are conditioned and maintained in a stable low moisture state.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

SAE J2986 Brake Pads, Lining, Disc, and Drum Wear Measurements

2.2 Related Publications

The following publications are provided for information purposes only and are not a required part of this SAE Technical Report.

2.2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

SAE J160 Swell, Growth, and Dimensional Stability of Friction Materials and Noise Insulators when Exposed to Elevated Temperatures

SAE J2468 High-Preload Deflection and Compressibility Test Procedures for Friction Materials

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Full document details: SAE J3281_202305

For more information on this standard, visit
https://www.sae.org/standards/content/J3281_202305/

Documents

Document Sharing Hub

SAE J3079/1 Validation of Compressibility Test Systems for Friction Materials

SAE J3079/2 Low-Preload Deflection Measurement for Brake Pads, Noise Shims, and Brake Pad Assemblies

SAE J3231 Deflection Measurement for Friction Materials Using Segment Applicator

2.2.2 ISO Publications

Copies of these documents are available online at <https://webstore.ansi.org/>.

ISO 6310 Road Vehicles - Brake Linings - Compressive Strain Test Methods

ISO 6313 Road Vehicles - Brake Linings - Effects of Heat on Dimensions and Form of Disc Brake Pads - Test Procedure

3. DEFINITIONS

None.

4. EQUIPMENT

4.1 Oven

An oven capable of maintaining $120\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$.

4.2 Desiccator

A desiccator capable of storing test parts and maintaining <10% RH.

4.3 Scale

A scale capable of measuring the test parts with a resolution of 0.01 gram or less.

4.4 Thickness

Measurement equipment capable of performing SAE J2986, except the measurement resolution should be 0.001 mm or less.

5. SAMPLING AND PREPARATION

5.1 Number of Test Samples

The recommended number of test samples is at the discretion of the test requestor and depends on the purpose of the test.

5.2 Preparation of Friction Materials

- This procedure can be performed on both new and used parts.
- Brush or vacuum clean all samples to remove debris.
- Inspect the friction material and backplate and note in the test report any chips, cracks, or other imperfections and abnormalities.

5.3 Parts Labeling

Label the test parts with unique identifiers. Ensure the sample labels do not significantly influence the mass of the part or the ability to desorb moisture.