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1 June 2010

**Committee D11 on Rubber
Subcommittee D11.20 on Compounding Materials and Procedures**

Research Report D11-1101

**Interlaboratory Study to Establish Precision Statements for ASTM
D6741-10, Standard Test Methods for
Silanes Used in Rubber Formulations (bis-
(triethoxysilylpropyl)sulfanes): Sulfur Content**

Method A or B:

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1. Introduction:

Interlaboratory Study 433 was conducted to establish a precision statement for D6741, Silanes Used in Rubber Formulations. Due to the small number of labs results were not differentiated respectively method A or B.

2. Test Method:

The Test Method used for this ILS is D6741-10. To obtain a copy of D6741, go to ASTM's website, www.astm.org, or contact ASTM Customer Service by phone at **610-832-9585** (8:30 a.m. - 4:30 p.m. Eastern U.S. Standard Time, Monday through Friday) or by email at service@astm.org.

3. Participating Laboratories:

The following laboratories participated in this interlaboratory study

1. GOODYEAR INNOVATION
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2. Evonik Degussa GmbH
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3. Evonik Degussa GmbH
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4. Description of Samples:

There were 1 samples of varying targeted results used for this study. Each sample was prepared and distributed by Evonik Degussa. Below is a list of the samples with the corresponding supplier:

1. Sample A- commercially available bis-(triethoxysilylpropyl)tetrasulfane
Provided Evonik Degussa GmbH, Germany

5. Interlaboratory Study Instructions

Laboratory participants were emailed the test program instructions. For a copy of the instructions, please see Annex A.

6. Description of Equipment/Apparatus¹:

For information on the equipment/apparatus used by each laboratory, please see Annex B.

7. Data Report Forms:

Each laboratory was provided with a data report form for the collection of data. A copy of the data is provided in Annex C.

Please note: The laboratories have been randomly coded and cannot be identified herein.

8. Statistical Data Summary:

A summary of the statistics calculated from the data returned by the participating laboratories is provided in Annex D.

9. Precision and Bias Statement:

9.1 The precision of this test method is based on an interlaboratory study of ASTM D6741, Standard Test Methods for Silanes Used in Rubber Formulations (bis-(triethoxysilylpropyl)sulfanes): Sulfur Content, conducted in 2008. Six laboratories participated in this study. Each of the labs reported up to four replicate test results for a single material. Every “test result” reported represents an individual determination. Except for the use of only a single material, Practice E691 was followed for the design and analysis of the data; the details are given in ASTM Research Report No. D11-1101.

9.1.1 *Repeatability limit (r)* - Two test results obtained within one laboratory shall be judged not equivalent if they differ by more than the “*r*” value for that material; “*r*” is the interval representing the critical difference between two test results for the same material, obtained by the same operator using the same equipment on the same day in the same laboratory.

9.1.1.1 Repeatability limits are listed in Table 1 below.

9.1.2 *Reproducibility limit (R)* - Two test results shall be judged not equivalent if they differ by more than the “*R*” value for that material; “*R*” is the interval representing the critical difference between two test results

¹ The equipment listed was used to develop a precision statement for D6741-10. This listing is not an endorsement or certification by ASTM International.
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