TEST REPORT

Attention: Mr. S. Mooideen
Bremz Brake Manufacturers
PO Box 65009
Reservoir Hills
4090

VC 8053
Compulsory Specification for Replacement brake lining assemblies for road vehicles

Published by Government Notice No. R. 443 (Government Gazette No. 33211) of 28 May 2010. [Correction Notice published by Government Notice No. R. 1228 (Government Gazette No. 33897) of 24 December 2010]

Report Number: 2710/11014

Date: 12 June 2014

Sample Tested: DRUM BRAKE LININGS
4515

Tested by: LK Motsapa
(Operator)

Checked by: AP Wright
(Technical signatory)

Approved by: JLC Pretorius
(Manager)

Conclusion:
The sample tested complied with the requirements of VC 8053 ‘Compulsory Specification for Replacement brake lining assemblies for road vehicles’ specific to the tests mentioned in this report.

Number of pages  6

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1. **INTRODUCTION**

1.1 **Object**

To evaluate Brems replacement drum brake linings against the performance requirements of VC 8053 ‘Compulsory Specification for Replacement brake lining assemblies for road vehicles’ specific to those tests conducted in this report.

1.2 **Submitted information**

The sample was delivered together with:

- No document.

1.3 **Sampling procedure**

Brems Brake Manufacturers submitted the test sample personally. The test house had no influence on the selection of the sample. The samples provided were in a test worthy condition.

1.4 **Conditioning**

The sample brake pads were conditioned by conducting repeated stops at various speeds and pressures. On completion of the conditioning schedule more than 80% contact area between the friction material of the brake pads and the brake discs.

1.5 **Test method**

The tests were conducted in accordance with the requirements of Annex 6 of SANS 20090: 2010 and Annex 4 of SANS 20013: 2009.

1.6 **General information**

1.6.1 **Original Equipment component (Benchmark)**

<table>
<thead>
<tr>
<th>OE part number</th>
<th>OE manufacturer</th>
<th>OE batch number</th>
<th>OE component description</th>
<th>Vehicle description</th>
<th>Vehicle category</th>
<th>Tyre rolling radius</th>
<th>Gross axle mass</th>
</tr>
</thead>
<tbody>
<tr>
<td>4515</td>
<td>Dynotherm</td>
<td>TC3</td>
<td>Drum brake lining</td>
<td>Henred Fruehauf</td>
<td>O₄</td>
<td>526 mm</td>
<td>11 000 kg</td>
</tr>
</tbody>
</table>

1.6.2 **Replacement component**

<table>
<thead>
<tr>
<th>Replacement part number</th>
<th>Replacement supplier</th>
<th>Replacement manufacturer</th>
<th>Replacement component description</th>
<th>Replacement component batch number</th>
<th>Date sample received</th>
<th>Date testing commenced</th>
<th>Date testing completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>4515</td>
<td>Brems Brake Manufacturers</td>
<td>Brems Brake Manufacturers</td>
<td>Brems Drum brake lining assemblies</td>
<td>BN100</td>
<td>6 May 2014</td>
<td>10 June 2014</td>
<td>12 June 2014</td>
</tr>
</tbody>
</table>
2. **TEST RESULTS**

Summary of the results

The symbols referred to in the results column are as follows:

- N/A = not applicable
- N/F = not fitted
- P = compliance
- N/T = not tested
- I = inspected
- F = non compliance
- N/R = not requested
- N/I = not inspected
- * = see remarks

<table>
<thead>
<tr>
<th>Clause</th>
<th>Description</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.</td>
<td>SPECIFICATIONS AND TESTS</td>
<td></td>
</tr>
<tr>
<td>5.1</td>
<td>General</td>
<td></td>
</tr>
<tr>
<td>5.2</td>
<td>Performance requirements</td>
<td>T/P* (Annex 1)</td>
</tr>
<tr>
<td>5.3</td>
<td>Mechanical characteristics.</td>
<td></td>
</tr>
<tr>
<td>5.3.2</td>
<td>Replacement brake lining assemblies and replacement drum brake linings for vehicles of categories M3, N3, N4, O3, and O4</td>
<td></td>
</tr>
<tr>
<td>5.3.2.1</td>
<td>Replacement brake lining assemblies of the type for which approval is requested shall be tested for shear strength according to Standard ISO 6312:1981 or ISO 6312:2001. The minimum acceptable shear strength is 250 N/cm².</td>
<td>N/A</td>
</tr>
<tr>
<td>5.3.2.2</td>
<td>Replacement brake lining assemblies and replacement drum brake linings of the type for which approval is requested shall be tested for compressibility according to Standard either ISO 6310:1981 or ISO 6310:2001. The compressibility values shall not exceed 2 per cent at ambient temperature and 5 per cent at 400 °C for pad assemblies and 2 per cent at ambient temperature and 4 per cent at 200 °C for shoe assemblies and drum brake linings.</td>
<td>N/A</td>
</tr>
<tr>
<td>6.</td>
<td>PACKAGING AND MARKING</td>
<td></td>
</tr>
<tr>
<td>6.3</td>
<td>Each package shall display the following information: manufacturer's name or trade mark</td>
<td>I/P</td>
</tr>
<tr>
<td>6.3.2</td>
<td>make and type of replacement brake lining assemblies or replacement drum brake linings; the vehicles/axles/brakes for which the contents are approved</td>
<td>I/P</td>
</tr>
<tr>
<td>6.3.3</td>
<td></td>
<td>I/P</td>
</tr>
<tr>
<td>6.5</td>
<td>Each replacement brake lining assembly or replacement drum brake lining shall display permanently one set of approval data: the date of manufacture, at least month and year, or a batch number; make and type of brake lining.</td>
<td>I/P</td>
</tr>
</tbody>
</table>
3. **REMARKS**

3.1 The sample was identified as follows: BREMZ DNA 4515 ANC STD BN100

4. **CONDITIONS**

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*Obtainable upon request from the President and CEO, SABS, Private Bag X191 Pretoria, 0001.
Annex 1

Test date: 10/06/2014

CV Dynamometer Test

Results of performance tests conducted in accordance with the requirements of the compulsory specification for replacement brake lining assemblies as published in Notice No. R. 443 appearing in Government Gazette No. 33211 dated 28 May 2010 as corrected by Notice No. 1228 appearing in Government Gazette No. 33897 dated 24 December 2010

Test Information
Customer: Bremz Brake Manufacturers
File No.: 11014A
Part No.: 4515
Original Linings: Dynotherm
Sample designation: Bremz brake linings

Test Results

<table>
<thead>
<tr>
<th>Requirement</th>
<th>% Diff.</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>The replacement brake lining assembly or the replacement drum brake lining shall be considered to show similar performance characteristics to the original brake lining assembly or the original drum brake lining if the achieved mean fully developed decelerations at the same line pressure in the upper two thirds of the generated curve are:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) within +15 per cent of those obtained with the original brake lining assembly or the original drum brake lining, or</td>
<td>-4.9%</td>
<td>P</td>
</tr>
<tr>
<td>b) within -5 per cent of those obtained with the original brake lining assembly or the original drum brake lining.</td>
<td></td>
<td>P</td>
</tr>
</tbody>
</table>

Test description

The achieved hot performance at the same input torque of the replacement brake lining assembly or the replacement drum brake lining in the Type-III test must be:

(a) equal to or higher than the hot performance of the original brake lining assembly or the original drum brake lining, or
(b) at least 90 per cent of the cold performance of the replacement brake lining assembly or the replacement drum brake lining.

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Required MFDD (m/s²)</th>
<th>Hot MFDD (m/s²)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) equal to or higher than the hot performance of the original brake lining assembly or the original drum brake lining, or</td>
<td>3.7</td>
<td>4.1</td>
<td>P</td>
</tr>
<tr>
<td>(b) at least 90 per cent of the cold performance of the replacement brake lining assembly or the replacement drum brake lining.</td>
<td>4.4</td>
<td>4.1</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Pressure sensitivity

![Pressure sensitivity graph]

Fade test

![Fade test graph]