



Smithers Rapra Technology Limited

Confidential Technical Report :

52806

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Project no : GT0133

25,000 MILES CONTINUOUS DRUM TESTING OF A PASSENGER CAR TYRE CONTAINING « SEAL » TYRE SEALANT PRODUCT

INTRODUCTION

A passenger car tyre containing “SEAL”, which prevents under inflation and is a puncture proof sealant, be tested continuously for 25k miles (40,232km) at a speed of 100mph (161kmph) against the drum (rolling road) of Smithers Rapra’s tyre test machine. The Test to be conducted in general accordance with the principles of ECE Regulation 30, Uniform Provision concerning the approval of Pneumatic tyres for motor vehicles and their trailers. The Test to be conducted in general accordance with the principles of ECE Regulation 30, Uniform Provision concerning the approval of Pneumatic tyres for motor vehicles and their trailers.

LIMITATIONS

Smithers Rapra Technology is an ISO/IEC 17025 laboratory.

This report has been prepared solely based on information supplied up to the point of its completion and has been accepted in good faith.

The results relate only to the tyre as tested and the particular tests as undertaken.

TEST DETAILS

Smithers Rapra purchased a 185/60 R14 (82H) Continental tyre on behalf of the client for the purposes of the Test. The tyre was mounted onto a suitable rim and conditioned for 3 hours within the test bay, prior to test, which is maintained at between 20°C and 30°C.

The client was present and assisted with the preparation of the tyre prior to the commencement of the Test. The valve core was removed from the tyre and 300ml of SEAL sealant is injected into the tyre, the valve core was then replaced and the tyre re-inflated.

In three locations in the crown area of the tyre, a 6mm diameter bradawl was hammer driven into and removed from the tyre. The tyre was then rotated to seal the penetrations in turn and being inflated to the test pressure of 41psi (2,8bar) and mounted

against Smithers Rapra's 1,7m diameter tyre testing drum. Once mounted the circumference and section widths at the tread wear indicators were measured.

The tyre was then subjected to 25k mile continuous test at a speed 100mph (161kmph) (500rpm). A load of 380kg was applied to the tyre, which corresponds to 80% of the tyre's load index. Please see below for the exact build up and test conditions:

Time	Speed (mph) / (kmph)	Load (kg)
5 mins	Up to 25 / 40	50
1 hour	25 / 40	50
2 hours	40 / 64	100
2 hours	62 / 100	150
2 hours	80 / 129	250
250 hours	100 / 161	380

The surface speed of the drum has been calculated from drum rotation speed and drum diameter and the tyre speed is taken as equal to this.

The testing was performed at Smithers Rapra Shawbury Testing Facility between the 31st March and 11th April 2011.

RESULTS AND TES DATA

The tyre completed the test schedule as outlined, immediately after which the inflation pressure, circumference and section widths were recorded. The inflation pressure was measured again after the tyre had been allowed to cool for 24 hour period at the customer's request.

	Test Start	Immediately after test completion	24 hours after test completion
Inflation Pressure (psi/bar)	41 / 2.8	41 / 2,8	36 / 2,5
Tyre circumference (mm)	1815	1821	-
Section width (mm)	187	187	-

Tyre Bay temperature (°C)	22	23	23
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On completion of the test schedule it was apparent that the SEAL had performed effectively as a tyre sealant throughout the duration of the 25k mile Test.

When the tyre was removed from the rim, the sealant was found to be in its original semi-liquid state. The contents were then washed out with water, leaving no deposits behind. No detrimental effects were observed either on the test rim utilized for this program.

CONCLUSIONS

The client requested that a passenger car tyre containing SEAL, which prevents under inflation and is a puncture proof sealant, be tested continuously for 25K miles (40,232 km) at a test speed of 100mph (161kmph) against the drum (rolling road) of Smithers Rapra's tyre test machine.

The 185/60 R14 tyre containing the sealant and penetrated with a 6mm diameter bradawl in three locations in its crown region, completed the test and retained its inflation pressure during the test schedule as outlined, therefore the SEAL tyre sealant, had performed effectively as a puncture repair throughout the duration of the conducted 25k mile test.

On completion of the Test, the product was easily removed with water, with no detrimental effects to the tyre or rim being visible.