



## ANALYTICAL REPORT

Client: **Bremworth Carpets and Rugs Ltd**  
7 Grayson Avenue  
Papatoetoe, Auckland, 2104  
New Zealand

Attention: Terence Akroyd

SGS Report Number: SP039068A

Date Reported: 15 October 2024

Date of Receipt of Samples: 10 October 2024

Sample Description: "Glenburn 799" – 70 oz wool loop pile carpet.

Analysis Requested: VOC Emissions Testing by ISO 10580

The work has been carried out in accordance with your instructions. The results and associated information are contained in the following pages of the report. Should you have any queries regarding this report please contact the undersigned.

Reported by:

Dr Christopher McRae  
Senior Chemist

Report Authorised by:

Dr Peter Novella  
National Technical Manager

This document is issued, on the Client's behalf, by the company under its General Conditions of Service available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). The client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any other holder of this document is advised that information contained hereon reflects the company's findings at the time of its intervention only and within the limits of client's instructions, if any. The company's sole responsibility is to its client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

This test report shall not be reproduced except in full, without written approval of the laboratory.

## 1. Background

SGS Industries & Environment – Technical Services, Sydney was requested by Terence Akroyd of Bremworth Carpets and Rugs Ltd to measure the VOC emission rate from a sample of carpet.

The sample was received by SGS Industries & Environment – Technical Services, Sydney on 10 October 2024 and assigned a laboratory reference number as follows:

Your Reference	Our Reference
"Glenburn 799" – 70 oz wool loop pile carpet	SP039068-1

The sample was provided as a subsample of carpet (210 mm × 300 mm, 0.063 m<sup>2</sup>) wrapped in 2-3 layers of aluminium foil. The sample was kept sealed in the aluminium foil and at room temperature until analysed.

## 2. Methods Used

The determination of the emission rate of volatile organic compounds was undertaken as per the international standard: *ISO 10580:2012 – Resilient, Textile and laminate floor coverings – Test method for volatile organic compound (VOC) emissions*. As this international standard is functionally equivalent to ASTM method D 5116-97, it can be considered that this determination was also undertaken as per ASTM method D5116-97.

The sample was prepared for analysis, by removing the sample from the aluminium foil and placing it immediately into the test chamber. The sample was then allowed to equilibrate for 24 hours in the test chamber under an air change rate of 1.3 hr<sup>-1</sup> of instrument grade air at 50-55% humidity. After the 24-hour equilibration period, vapour sampling of the test chamber and analysis of VOC's was undertaken in accordance with ISO 16000-3 for formaldehyde and acetaldehyde and ISO 16000-6 for all other VOC's.

### 3. Analytical Results

The maximum emission rates for chemicals listed in Carpet Institute of Australia's Environmental Certification Scheme technical document, together with the Area-Specific Emission Factors for sample SP039068-1 VOC's, are given in the table below:

Chemical	Maximum Emission Factor ( $\mu\text{g}/\text{m}^2/\text{h}$ )	Emission Factor ( $\mu\text{g}/\text{m}^2/\text{h}$ )
Formaldehyde	10	2
Acetaldehyde	20	2
Vinyl Acetate	400	< 3
Benzene	55	8
Toluene	280	3
Xylenes	50	< 4
Styrene	410	< 3
4-Vinylcyclohexene	85	< 4
4-Phenylcyclohexene	50	7
Naphthalene	20	< 5
Hydrocarbons (C10-C14)	300	56
2-Ethylhexanol	50	< 5
2-Ethylhexanoic Acid	46	< 5
1-Methyl-2-pyrrolidinone	300	< 5
Caprolactam	120	< 5
Octanal	24	< 5
Nonanal	24	< 5
<b>Total VOC Emissions</b>	<b>500</b>	<b>82</b>

### 4. Opinions and Interpretations:

To meet the specifications of the Green-Star rating a carpet must have a total VOC emission rate of less than  $500 \mu\text{g}/\text{m}^2/\text{h}$  and no individual VOC may exceed its specific maximum emission rate.

Sample SP039068-1 satisfies the specification with a total VOC emission rate of  $82 \mu\text{g}/\text{m}^2/\text{h}$  over a 24-hour period and with no individual VOC exceeding its specific maximum emission rate.