ANALYTICAL REPORT

Customer:	Terence Akroyd – Bremworth Carpets and Rugs Ltd
Address:	7 Grayson Avenue Papatoetoe, Auckland, 2104 New Zealand
SGS Report Number:	SP036049
Date Reported:	4 November 2022
Date of Receipt of Samples:	25 October 2022
Sample Description:	Product 755, Charmeuse
Analysis Requested:	VOC Emissions Testing

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:

Minh Nguyen
Advanced Analytical Services Manager

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 October 25, 2022 and assigned a laboratory reference number as follows:

Your Reference	Our Reference
Product 755, Charmeuse	SP036049-1

The sample was provided as a subsample of carpet (210 mm × 300 mm, 0.063 m^2) 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^{-1} 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 SP036049-1 VOC's, are given in the table below:

Chemical	Maximum Emission Factor (µg/m^2/h)	Emission Factor (µg/m^2/h)
Formaldehyde	10	< 1
Acetaldehyde	20	9
Vinyl Acetate	400	< 3
Benzene	55	< 3
Toluene	280	< 3
Xylenes	50	7
Styrene	410	20
4-Vinylcyclohexene	85	< 4
4-Phenylcyclohexene	50	14
Naphthalene	20	< 5
Hydrocarbons (C10-C14)	300	37
2-Ethylhexanol	50	< 5
2-Ethylhexanoic Acid	46	< 5
1-Methyl-2-pyrrolidinone	300	< 5
Caprolactam	120	< 5
Octanal	24	< 5
Nonanal	24	< 5
Total VOC Emissions	**500**	**92**

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 µg/m^2/h and no individual VOC may exceed its specific maximum emission rate.

Sample SP036049-1 **satisfies the specification** with a total VOC emission rate of 92 µg/m^2/h over a 24-hour period and with no individual VOC exceeding its specific maximum emission rate.