Shirley Technologies Limited

Confidential Report

Our Ref: 40019/STL/IGS

Shirley Technologies Limited. Registered Office :
Wira House, West Park Ring Road, Leeds, LS16 6QL.
A company registered in England & Wales with company number 04669651.
VAT Number GB 816764800.
The supply of all goods and services is subject to our standard terms of business, copies of which are available on request.
Our laboratories are accredited to EN ISO/IEC 17025

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5 October 2015

Our Ref:	40019/STL/IGS
Your Ref:	Verbal 3 September 2015
Client:	Carousel
Address:	Carousel Unit 7, Castle Industrial Estate Beresford Street Failsworth Manchester M35 0HD FAO Paul Boomer
Job Title:	Airflow Tests on Manufactured Mattress Topper
Client's Order Ref:	Verbal 3 September 2015
Date of Receipt:	3 September 2015
Description of Sample(s):	Manufactured mattress topper – full details in the body of the report
Work Requested:	Testing for airflow using BS procedure

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INTRODUCTION

Shirley Technologies Limited (STL) was supplied with a sample of the client's new development in mattress topper manufacture. This was stated to incorporate features improving its airflow characteristics. The intended market for the product was for individuals suffering with epilepsy, as the improved airflow characteristics would prevent the potential for oxygen deprivation caused by blocked airways if the individual should have a fit and fall face down into the topper.

STL was requested to perform tests to measure the airflow through the products, using an existing British Standard method developed for children's pillows.

The technology employed in this product was stated to be slightly different from that employed in pillows manufactured by the client for a similar purpose. These pillows had been previously tested by STL under 39813/STL/IGS and shown to have excellent airflow characteristics, better than other products on the market. The reason for this particular test request was to confirm that the slight difference in product technology did not detrimentally affect the products airflow characteristics.

LABORATORY TESTING AND RESULTS

Subcontracted: # test sub-contracted to another UKAS laboratory

Specification for methods of test for hardness of, and for air flow through, infant's pillows
(BS4578:1970)

Methodology
The apparatus used consists of a plane rigid unperforated support for the pillow, over which is mounted a metal tube 150mm in length with an internal diameter of 36mm. On the bottom of the tube is a metal flange with an outside diameter of 100mm. Means are provided to allow either the pillow support or the tube to move in a vertical direction and to submit the pillow under test to a thrust of 10N. The top of the tube is connected to the inlet of a flowmeter, the outlet of which is connected to the suction side of a blower. Provision is made to control the voltage input to the blower motor, and thereby to control the air flow rate. A diaphragm-type valve is fitted to the inlet end of the flowmeter and is used, where necessary, to give fine adjustment of the air flow. From the side of the tube a connection is taken to an inclined manometer. The pressure differential indicated by the manometer shall be noted when the flow rate has been adjusted to 200 ml/sec.

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Test Results

The test is performed at ten separate locations on both the upper and reverse side of the topper and the mean values reported. As the product is essentially reversible, one side was arbitrarily selected as being the upper surface.

	Air flow test results (mm H_2O)
Tested with 'upper' side uppermost	0.44
Tested with 'reverse' side uppermost	0.46

COMMENTS AND CONCLUSIONS

Based on the assessments and laboratory testing carried out on the samples submitted, and bearing in mind the information made available by the client, Shirley Technologies Ltd would suggest the following comments and conclusions relating to the matter under investigation.

The client's mattress topper exhibits an extremely good level of air flow through its construction. STL would suggest that this is likely due to the very 'open knit' fabric surrounding the core, as this allows air flow to diffuse through the topper construction and not directly pass perpendicularly downwards from the tube to the base plate.

STL would also comment that the test results previously obtained ion the clients pillows were 0.38mm and 0.37mm. STL would therefore suggest that the results from the topper compare favourably and show that the slight difference in product technology has not had a significantly detrimental effect on the toppers airflow characteristics.

Reported by: Ian Strudwick
Technical Manager

Countersigned by: John Buckley
Principal Analyst

Enquiries concerning this report should be addressed to Customer Services.