

Solutions@Mecmesin

Surfboard Foam 3-point Bend Test

Specification

A company manufacturing surfboard blanks, made from rigid polyurethane (PU) foam, undertake a stringent testing program to guarantee the **rigidity of the foam** and **strength** of the final surfboard product.

The blank must maintain a certain level of hardness throughout its construction to ensure its strength and responsiveness when 'riding the waves.' The company wanted a test solution to determine the **peak load strength** of PU foam samples by compressing them until failure occurred. A graphical representation of every test was also needed to provide an easy way of comparing results.

Solution

Mecmesin offered a suitable solution in the form of a **motorised test system**, together with an **Advanced Force Gauge (AFG)** and **3 point bend jig**, all capable of testing up to 1000N. In addition, the customer was supplied with Windows-based **Emperor™ Lite** software, which provides users with a '**live**' display of the test on a PC screen and enables **evaluations** to be made once the test is completed.

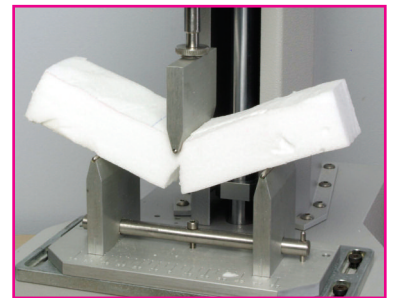
The 3 point bend jig consists of a 120mm span support plate and 2 adjustable 60mm high support arms, each of which is capped with hard wearing 3mm diameter stainless steel rods for friction free and damage proof testing. The foam is positioned symmetrically on top of the support arms, enabling an even amount of force to be applied to each sample. The blade is then lowered at a constant speed of 30mm/min to deform the sample causing it to fracture and break at its weakest point. As the assessment gets underway, the software displays the test data in graphical form, allowing engineers and quality personnel to scrutinise results in more detail and pinpoint precise areas of interest. Using this test solution, the company were in a much better position to **guarantee product performance** and make objective judgements regarding the standard of material used within their products.

System

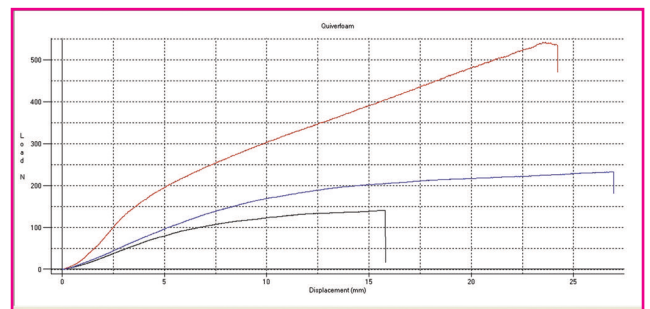
- MultiTest 1-d - motorised test frame, rated to 1000N
- AFG 1000N
- 3 point bend jig

Other Solutions

- Tensile test on rubber
- Delamination peel test
- Toothbrush tester
- Tray crush test
- Plastic component tension test



Foam sample is shown at fracture point



Test graph shows fracture point

Mecmesin Limited

Newton House, Spring Copse Business Park, Slinfold,
West Sussex, United Kingdom, RH13 0SZ.

sales@mecmesin.com t: +44 (0) 1403 799979 f: +44 (0) 1403 799975 www.mecmesin.com

plastics & rubber industry



plastics & rubber