

### Standardising recycled carbon fibre backs its increasing acceptance

The cost benefit of recycled Carbon Fibre (rCF) is being increasingly recognized by the composites industry. The adoption, into mainstream production programmes, of the material formats offered by ELG Carbon Fibre Ltd (ELG) are signs of the growing momentum in the rCF market. However, there are still challenges to overcome. One of the ways ELG is addressing this is via standardisation through the recycling supply chain and processing methods for the recovered fibres.



*CARBISO™ M – nonwoven ply style*



*Press moulded recycled carbon fibre panel*

Classifying fibre types is a way of standardising the product formats provided. Rather than offering recycled T300, PX35 or AS4, ELG has developed a classification system which multiple feedstock fibres fall in to. For example, after recycling, a fibre may be classified as SM45D (Standard Modulus, with a tensile strength of between 4 and 5 Gpa sourced from Dry fibre feedstock). As well as guaranteeing to customers that the products adhere to a certain mechanical performance, this classification systems allows for peaks and troughs in the waste supply of different fibre types. ELG operates a strict system of fibre testing and classification as detailed in ELG Technical Note 1701.

#### Tight control all the way

To ensure customers are receiving fibres with their specified properties, the recycling process is tightly controlled from before the waste materials even arrive at ELG's facility. Prior to accepting waste, a

small quantity will be tested by the technical team to verify the fibres suitability for recycling.

Once verified as acceptable, suppliers of the waste manage the offcuts, scrap, surplus material to guarantee no cross contamination of fibre types. After supply has been secured, waste arrives on site and tests are carried out to prove the quality of the fibres. The batch is then assigned a code which stays with the fibres through storage, processing and quality control stages.

#### Lasting quality

Processing methods adhere to Standard Operating Procedures (SOPs) to ensure uniformity in the ELG product ranges. Once in their final format, the rCF products are subjected to rigorous quality checks.

For one such product format, CARBISO™ M and TM (nonwoven ply style materials supplied in a roll), standard tests and nomen-

clatures used in the composites industry are adopted. This gives an instant understanding to customers already familiar with virgin carbon fabrics enabling efficient replacements with lower cost rCFs. Furthermore, this ensures that any formalised standardisation imposed on the composites industry is applicable to ELG products.

#### A win for everyone

In short, the key to standardisation, and the way to ensure its uptake, is to provide benefits to both suppliers and customers. ELG's standardisation agenda is accelerating communication, streamlining customers development programmes and opening the door to new industries for using rCF based material. Through tight control and enforcing compliance to ELG's internal SOPs, the materials provided are of known, understood performance; vital to designing, validating and producing composite components with rCFs.

#### Further information:

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