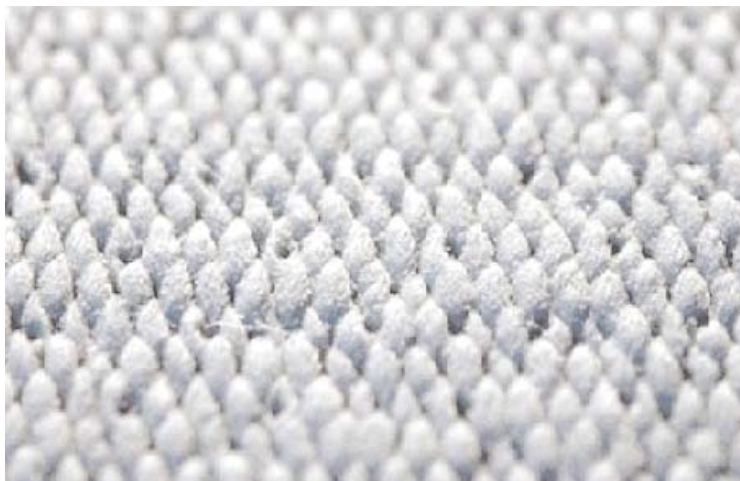


Spheretex



Description

Sphere.tex is a flat textile basic material made of woven fabric, non crimp fabrics (mainly E-glass fibers, alt.: Carbon, aramid, polyester), which is volumised through the embedding of thermoplastic microspheres.

Through the structure of the basic material, the strength characteristics of sphere.tex can be adjusted as required by modifying the fiber arrangement (warp and weft) as required to suit the requirements for the end product quality. At the same time the weights of the fibers based on the area unit can also be adjusted as required. With a material thickness of 2 mm for instance area weights of 80 – 800 gr/m² are possible.

Basic materials made of hybrids are also possible in any conceivable combination (glass/carbon, glass/aramid, aramid/carbon, etc.)

Because of this huge material flexibility it is possible to produce customised products for all conceivable applications or requirements.

This makes sphere.tex particularly suitable for high tech applications. The areas of canoes, kayaks, racing rowing boats, surfboards can be mentioned as examples. For more than 10 years, canoes or kayaks built by using sphere.tex have won medals at the Olympic games, world, European and national championships. Several hundred gold, silver and bronze medals have been accumulated in this period altogether.

Difference

Sphere.tex consists of a woven, stitch bonded (NCFs) textile basic material. sphere.tex is always employed when high mechanical strengths with low weight are demanded. sphere.tex is preferably employed in closed working processes.

There is currently no competitive product for a core material suitable for lamination which can compete with sphere.tex in the totality of these characteristics.

Applications

The combination of high physical strengths and considerable weight saving compared with classic composite materials makes sphere.tex the ideal material where these characteristics are particularly important. This applies especially to areas where no structural compromises can be made because of the required efficiency and safety.

This includes the entire automotive sector and also the construction of wind power plants or sports equipment where maximum performance is demanded. Some of the world's largest manufacturers or motor homes and caravans have tested sphere.tex with test prototypes in toughest long-term tests more than 1½ years in the freezing cold of Alaska and extremely hot desert areas over thousands of kilometres and compared with competitive products. The result was a clear material superiority and a clear decision for the production in favour of sphere.tex.

Particularly significant are the long-term results, where sphere.tex was able to prove its clear superiority compared with other composite solutions. In yacht building and for the use in building truck cooling containers, the excellent characteristics have been confirmed for more than ten years in terms of longevity of these components subjected to many years of continuous loads.

Of particular advantage is the high flexibility with regard to the various processing methods. sphere.tex can be used both in open (hand-layup, sprayup) and in closed moulding processes (wet pressing, RTM, vacuum system, vacuum injection, autoclaves). sphere.tex is always processed as core material in combination with outer skins made of pure composite materials. The desired laminate thicknesses can be

adjusted as required by placing several individual layers.

Processing

sphere.tex is largely processed similar to the other laminate materials on the basis of chopped strand mats, woven rovings Or stitch bonded layers. The same work methods and tools can be used. sphere.tex is a core material and is always covered with external top layers made of pure GRP.

In open moulding processes (hand -layup, sprayup) one or several layers of glass fiber/resin (alt.: Carbon or aramid) are initially placed in a negative mould in accordance with the design specifications.

It is recommended to initially wet the bottom of the subsequent sphere.tex layer with resin, this because of the high material density and thickness brought about by the embedding of the microspheres. This can be done outside the mould or inside the mould by folding over the bottom. The partly impregnated sphere.tex is then placed on the wet laminate surface and wetted with the necessary residual amount of resin. The impregnated sphere.tex is then deaerated in the usual manner using usual rollers.

It must be ensured that the sphere.tex is impregnated until fully saturated. Oversaturation is not possible because any surplus of resin can be used for the subsequent top layers made of pure GRP.

The special feature of sphere.tex – compared with core materials made of foam material, Balsa or honeycomb – is the possibility that the entire laminate can be produced wet in wet in one operation. This creates a unique laminate homogeneity. In closed moulding processes (wet pressing, RTM, vacuum process, injection process, autoclaves) sphere.tex is treated like a normal layer of glass fibers or similar. It must merely be ensured that the applied pressure is limited especially with wet pressing to avoid destroying the sphere.tex structure. This can be done for instance by limiting the distance of the press tools with the help of spacers.

Sphere.tex can be processed with all popular thermoset resin types. (unsaturated UP, vinyl ester, PU, epoxy, acrylic, phenolic resin). Most applications make use of UP or vinyl ester resins. sphere.tex contains bonding agents, soluble in styrene, so that, comparable with chemically bonded chopped strand mats, softening of the fiber structure and an increase of the drapeability occurs following contact with styrene.

A third processing method of sphere.tex is the manufacture of Prepreg, in that the material is pre-impregnated with Prepreg resins at the factory and delivered to the manufacturer of corresponding finished parts in a "B-condition". However, it must be ensured that the limited temperature and compressive strengths of the thermoplastic microspheres is taken into account during the subsequent pressing and curing process.

Delivery specifications

Thickness values:

Standard: 1 mm, 1.5 mm, 2 mm, 3 mm

Other core thickness values can be attained by combining several layers.

Widths:

Standard: 125 cm

Special widths up to a max. of 2.70 possible on request

Fiber proportion per material thickness:

Standard:

1 mm approx. 80 gr/m²

1.5 mm approx 104 gr/m²

2 mm approx. 170 gr/m²

2 mm approx 290 gr/m²

3 mm approx. 300 gr/m²

Special weaving structures and area weights are possible on request.

Delivery unit:

Standard roll material:

1.0 / 1.5 mm = 100 running meter

2 mm = 67.5 running meter

3 mm = 67.5 running meter

Special delivery units possible on request.

The weight specifications of the sphere.tex qualities always refer to the area weights of the basic fabrics.

**Importers and
Distributors:**



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