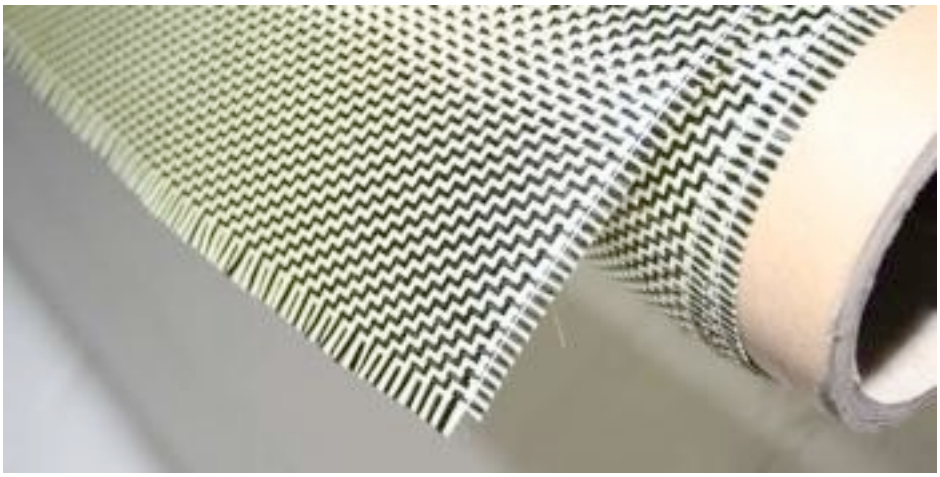
MATERIALS



The materials used to manufacture the kayaks in our offer are divided into two groups.

1. LAMINATE

The production of laminate kayaks involves filtering of polyester resins onto different kinds of composites, laid in a properly prepared form. The filtering can take place in two processes – manual (HLP) or vacuum (VIP).

- **HLP** *(hand laminating process)* – in this process, the composite fabrics are saturated by one layer at a time, using rollers and brushes, what results in a durable, homogenous form of the laminate
- **VIP** *(vacum infusion process)* – it is an improvement of the manual process. It consists of putting successive layers of materials, adding the resin and then to filtering it by suction in the vacuum. This process allows the lighter kayak shells to gain a more homogenous laminate, than in the manual process.

In both methods to achieve the best results, the most important factor is the usage of first-class materials and the proper time that the shell has to remain in the form.

After the shell has been made, it is equipped with additions such as the seat, the rudder, the rigging, bulkheads etc.

To manufacture laminate kayaks we use 3 kinds of composites:

DIOLEN/POLIAMID (D/P) – based on polyester-glass fibers, its characteristics are as follow:

- good durability to weight ratio
- optimal resistance to external factors and atmospheric conditions
- it is the standard material used to manufacture kayaks that we offer

DIOLEN/KEVLAR (D/K)– based on polyester-Kevlar fibers, its characteristics are as follow:

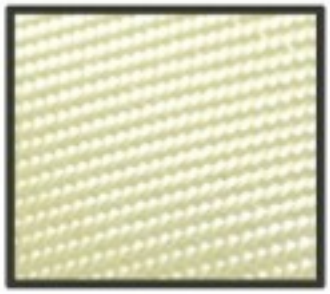
- good durability to weight ratio
- good resistance to external factors and atmospheric conditions
- bigger, than diolen/polyamide rigidity of the kayak shell

- it is an optional material, used in the production of the kayaks that we offer. Kayaks made of this composite weigh on average 2,5 – 3 kg less than those made from *D/P composite.*

CARBON/KEVLAR – based on carbon-Kevlar fibers, its characteristics are as follow:

- the best durability to weight ratio of all the composites that we use
- very good resistance to external factors and atmospheric conditions
- very good resistance to tearing and direct hits (in the C/K coil, the carbon fibers reduce weight and the Kevlar fibers are responsible for endurance)
- attractive appearance
- it is an optional material, used in the production of the kayaks that we offer
- kayaks made of this composite weigh on average 5,5 – 6 kg less than those made from D/P composite.
- chosen by customers looking for a very light kayak, with impressive appearance, dedicated first and foremost for the fitness group and the sea kayaks.

DIOLEN



KEVLAR

CARBON - KEVLAR

2. POLYETHYLENE

Production of polyethylene kayaks involves:

- placing the polyethylene granulate of proper density in the previously prepared form
- the matrix (or form) goes into the furnace, where due to high temperature the granulate evenly fills out the form, transforming into a hard kayak shell
- the third step is the cooling and taking the kayak shell out of the form
- finally the kayak is equipped with all necessary accessories

Polyethylene is a relatively new material used in kayak manufacture, but for sure in the future it will force out laminate from some of the disciplines of kayaking. Whitewater kayaking may serve as an example, where practically all used kayaks are made of polyethylene.
The characteristics of this material are as follow:

- very good resistance to external factors and atmospheric conditions
- outstanding resistance to hits, tearing and scratches

- big displacement, which makes the polyethylene kayaks, even if not equipped with large displacement chambers, practically unsinkable
- heavier weight of the kayak when compared to composite kayak

Polyethylene kayaks are dedicated most of all for difficult waters with numerous rocks and obstacles. Due to its great resistance from damage and easy repairs, they are being chosen first of all by rentals and organizers of canoe rallies, customers, who value resistance of the kayak the most and are prepared for the extra weight.

DOLNA CZĘŚĆ FORMY Z GRANULATEM POLIETYLENOWYM

PIEC DO KTÓREGO TRAFIA FORMA WYPEŁNIONA GRANULATEM