



What is it?

In cooperation with the Dutch Olympic Committee/Dutch Sports Federation (NOC*NSF), the Royal Dutch Watersports Association, sailors and coaches, DSM has investigated which sailing innovations can contribute to the performance of the Dutch sailing team. Consequently, the company has developed a new boat (470 class) and supplied sailing lines for the entire Dutch team for the Olympic regatta in Qingdao.

470

- The new Olympic boat of sailors Marcelien de Koning and Lobke Berkhout was built with the aid of a certified mold for the 470 class and using composite laminates specially developed by DSM which provide extreme stiffness at minimum weight.
- As a result, energy loss caused by the waves is significantly lower, so that an optimum boat speed can be maintained.

Dyneema®

- All Dutch boats in the Olympics are equipped with custom-made lines with Dyneema® in the colors red, white, blue and orange.
- Dyneema®¹ is a superstrong polyethylene fiber, the strongest fiber in the world on a weight-for-weight basis, and is used for instance in high-performance sailing lines.
- Dyneema® is 15 times stronger than steel, has hardly any elongation, floats on water and is extremely durable.
- DSM supplies a total length of 3 km of specially developed lines with Dyneema® to the Dutch Watersports Association.

What does it do?

470

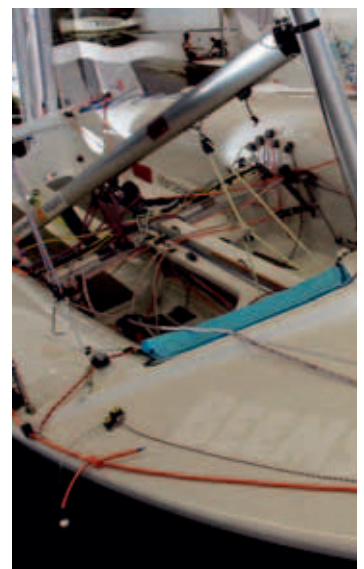
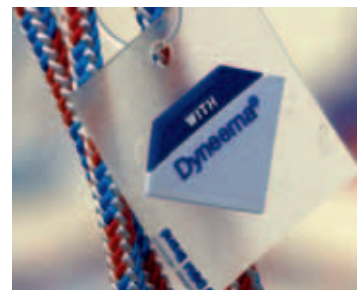
- The materials used for the boat determine its speed and position in the water.
- The right shape and materials enhance the boat's stiffness and stability and make it faster.
- A perfect shape in combination with the right stiffness makes for the best condition and a top speed. The amount of energy lost due to hull bending decreases with increasing hull stiffness.
- Its shape gives the boat an optimum position in the short waves characteristic of the Chinese coastal waters.

Dyneema®

- Lines with Dyneema® are the strongest lines available in sailing.
- Use of lines with Dyneema® gives sailors optimum control and confidence so they can focus all their attention on the race. This also gives them a mental advantage.

¹ Dyneema® is a registered trademark of DSM

Fast sailing



More about the product

Hull

- The boat's hull is made of composite laminates.
- Composite is a construction material just like steel, aluminum, plastic, wood and concrete and yields a huge weight saving in the end product.
- The composite used is a product of the knowledge gained in the development of longer and stronger blades for large wind turbines.
- The composite is a unique blend of extreme toughness and extraordinary flexibility and is resistant to many chemicals. It is not affected by rust or other types of corrosion, for instance caused by wind, water or sun.
- The composite is composed of:
 - Liquid polyester resin for (more complex) end product shapes. DSM has developed an even better polyester resin for this boat, resulting in better resin adhesion to the sizing, a special coating applied to the glass fibers, and thus in better interaction with the glass.
 - Glass or carbon fibers for reinforcement of the end product. The use of thinner glass fibers in the boat increases the contact area between glass and composite material, resulting in higher stiffness.

Dyneema®

- Dyneema® is also used in other sports applications besides sailing lines. The strings of hand bows, for instance, are also made of Dyneema®.
- All fencing suits used at the Olympics contain Dyneema® to make sure they meet the stringent demands of the fencing association.
- Dyneema® is also used in safety gloves for the metal-working industry, in fine yarns for use in sports articles and in the medical sector, and in ropes, cables and nets for the fishing, shipping and offshore industries.

Case

The new Olympic 470 boat of sailors Marcelien de Koning and Lobke Berkhout has been developed in close cooperation with the Dutch sailing team. The sailors subjected the boat to months of testing before deciding to use it in their Olympic efforts. The boat's design, the materials used and relevant measurement data have been registered with the International Sailing Federation (ISAF). According to the ISAF, all athletes must have the same materials at their disposal. It is, therefore, possible for other sailors to also order this boat; however, a sailing team will think twice before switching to a new boat in the run-up to or during the Olympics.

Who will be using the new boat?

- The new boat will be used by 470 sailors Marcelien de Koning and Lobke Berkhout.
- The specially developed lines with Dyneema® will be used in all Dutch Olympic boats.

Athlete's experience

Marcelien de Koning: *"This boat is eminently suited to the conditions in which we will be sailing in China. The Olympic boat combines the best of two worlds: a perfectly molded shape with exactly the right stiffness, which can bring speed benefits. This combination was previously not available."*

Sven Coster: *"In sailing at the highest Olympic level, the smallest details may mean the difference between winning and losing. DSM Dyneema has developed special lines for us that exactly meet our demands. They are incredibly strong, have no elongation and are very easy to use. And moreover their color of course is very attractive! We are convinced that these are the best lines currently available and that they will give us the confidence needed to win that gold medal."*