

PVC vs ORCA® CSM (HYPALON)

IMPORTANT TECHNICAL INFORMATION

Almost all inflatable craft are constructed with either PVC or CSM/Hypalon fabric. Hypalon was discontinued by its manufacturer (DuPont) and is now sold under its slightly different formula and new name "CSM" or Chlorosulfonated Polyethylene Rubber.

Coastal craft are generally made with either PVC (Mehler-Valmex® PVC from Germany & Korean PVC) or Orca® CSM (Hypalon) from France. Each fabric has their advantages and disadvantages. Both fabrics should be considered when making your selection. Also there are a number of cheaper PVC fabric options available which are inexpensive, however are extremely inconsistent with respect to performance and durability.

PVC fabric is known to be significantly less expensive than CSM. PVC is quite strong and can come in different thicknesses such as 0.09mm & 1.2mm, but this still does not change the fact that it does not repel sunlight as great as CSM. It can definitely be kept in great shape and last just as long if well maintained. It is proven that PVC materials are prone to cracking and becoming stiff and brittle in cold temperatures, which can significantly affect the lifespan of the product.

CSM (Hypalon) on the other hand is more expensive overall but will last longer and is excellent against sun exposure & tolerant on fuel spills or fumes. CSM is simply longer lasting, more expensive and has a high tolerance through a variety of environments or different weather, both excessive heat and cold temperatures.

PVC PROS & CONS

Pros: Significantly less expensive

Cons: Not as UV resistant

Not as resistant to chemicals, gas, oil, and abrasion

Prone to cracking in extreme cold temperatures

Shorter life cycle: Average life cycle 5 - 10 years

CSM (HYPALON) PROS & CONS

Pros: Excellent chemical resistance and stability against UV-rays

Expands and flexes with heat, shock and impact

Longer life cycle 15-20 yrs.

Cons: More expensive than PVC (100% to 150% more expensive)



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In general PVC fabric won't last as long as CSM fabric if the product is subjected to prolonged periods of direct sunlight and no measures have been taken to protect the PVC fabric from the sun. In many ways these fabrics are very similar: modern technology and improvements of PVC are minimizing the difference.

The most important differences between PVC and CSM (Hypalon) fabric are:

- 1. TEMPERATURE RESISTANCE**
- 2. CHEMICAL RESISTANCE**
- 3. ABRASION RESISTANCE**

These are the main reasons why CSM (Hypalon) is used for the professional rescue sector.

It also makes CSM (Hypalon) very preferable in extreme hot and cold climate conditions, where UV or cracking can be a significant problem. In medium and cold climate areas this difference is minimal, however PVC is more sensitive to UV radiation than CSM, but now the special chemical additives in PVC have reduced the problem. With regard to chemical resistance, CSM (Hypalon) has superior chemical resistance than PVC, which is another point to consider when selecting products which are going to be used in extreme conditions.

PROCUREMENT DUE DILIGENCE

The process of procuring rescue equipment or personal protective equipment presents many challenges, with none so important as purchasing equipment that is fit for purpose. With the recognition that we are seeing a reduction in equipment budgets, often the decision is made to buy cheaper, but often inferior product or equipment, which in fact in the long run actually costs more due to the fact that it isn't fit for purpose.

Another point to consider is with regard to product/equipment warranties, which should be considered as part of the procurement process.

Rescue operations present many challenges and potentially significant risk to both the rescuer and casualties, it is therefore surely good practice to ensure that only the most suitable equipment is used to minimise the risk and ensure the safety of both rescuer and casualty.

THE RESCUE BOAT CODE

The above referenced document is available for download from the Maritime & Coastguard website, which provides comprehensive information relating to inflatable & rigid inflatable craft, used for rescue operations. This document will provide a wealth of useful information and technical detail that should form part of any procurement of craft and associated equipment.

“Compromise is not an option where lives are at risk”

The IONIC logo is displayed in a bold, sans-serif font. The letters 'I', 'O', and 'N' are connected, and the 'I' and 'O' are significantly larger than the 'N'. A registered trademark symbol (®) is located to the upper right of the 'C'.

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