

FAQs on XR-Mariner® by Seaman

by technicalcoatedfabrics.com

January 2008



What is Elvaloy?

Content:

1. **What is Elvaloy?**
2. **Who is Seaman Corporation?**
3. How XR-Mariner does compares with other coated fabrics?
4. What is the cost of XR-Mariner?
5. Do you offer special conditions for samples and trial orders?
6. Do you give payment terms?
7. Is there a minimum order?
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9. Does Seaman offer any lighter or heavier fabrics?
10. Can XR-Mariner be welded?
11. Is it possible to use cold gluing in production?

Elvaloy® is a high-molecular-weight polymer classified as an Ethylene Interpolymer alloy. It acts as a toughener and a flexibilizer when compounded into other polymers.

Unlike conventional plasticizers used in PVC coated fabrics, Elvaloy doesn't migrate to the surface and therefore is not lost through evaporation or extraction.

The result is an outstanding coating that fights weathering and chemical attacks. It will maintain its soft touch feeling and its permanent flexibility. Its abrasion resistance is very high.

Elvaloy® is the principal component of XR-Mariner™.

This formulation groups together in **XR-Mariner™** several characteristics that were, until now, incompatible:

- As this coating is plastic-based, you will be able to weld it by Hot air or High Frequency. It can also be glued. With all assembly processes, you will experience very high adhesion levels.
- Because the coating is not subject to plasticizer migration, there will be no noticeable loss over time of flexibility, air tightness or degradation in the mechanical properties. Colors will NOT degrade or fade.
- Elvaloy® blended coatings are even superior to Hypalon compounds in their resistance to hydrocarbons and prolonged exposure to heat, UV and salt water.

Who is Seaman Corporation?

SEAMAN Corporation, USA, is a world class manufacturer and sole producer of the **XR-Mariner™** and other XR blends in collaboration with Dupont™. They have tested this family of products for more than 20 years. **SEAMAN Corporation**, in addition to coating, is also a weaver of fabrics. As such, they have specially designed a base cloth that is noticeably superior in its mechanical properties compared to the standard 1100 dtx Polyester fabric HYPALON® common in the inflatable boat market (much higher tear and abrasion resistances).

Please, visit www.seamancorp.com



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How XR-Mariner does compares with other coated fabrics?

Seaman Corporation is also a major producer of PVC and PU coated fabrics; their extensive research has concluded the following:

PVC fabrics: They contain liquid plasticizers that will migrate and evaporate, rendering the fabric brittle and discoloured. PVC fabrics are not suitable for manufacturing high quality inflatable boats.

The 1st picture shows a red boat manufactured in 1997. It has been exposed all year long to the Florida sun for a period of 10 years. The red seam tape was made of PVC (color matching the tube) and has faded out. The tube is made of Seaman Elvaloy and still shows a perfectly new appearance.

The 2nd picture shows a yellow boat manufactured in 1998. It has been exposed all year long to the Florida sun for 10 years. The inside floor was made of PVC (color matching the tube); the color has significantly deteriorated (brownish yellow). The tube is made of Seaman Elvaloy and still shows a perfectly new appearance.

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PU fabrics: They have excellent mechanical properties; however, their lack of suppleness is a major handicap especially for foldable boats and renders them more difficult to process. PU fabrics are expensive but they are well adapted for demanding applications requiring very high abrasion resistance.

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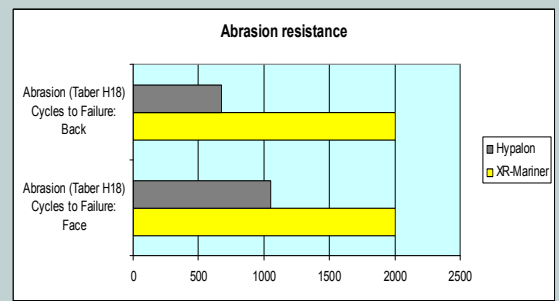
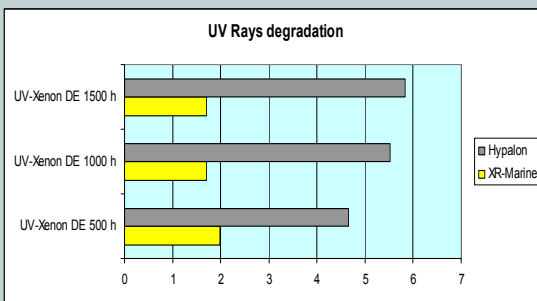
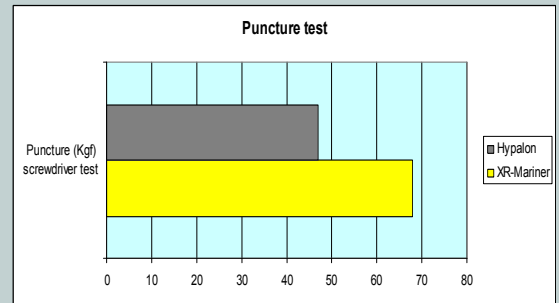
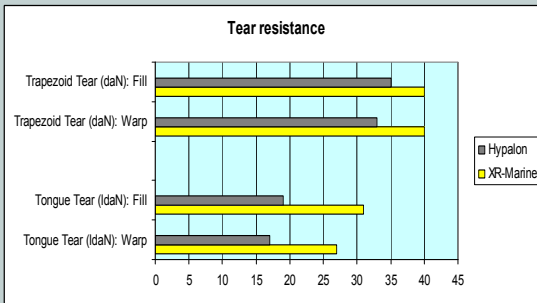
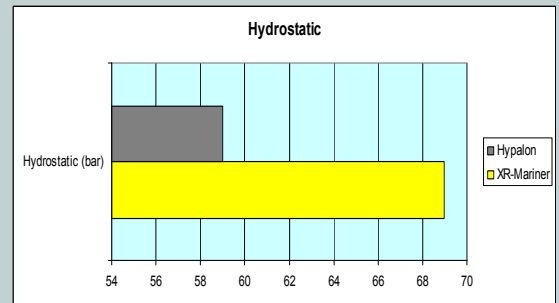
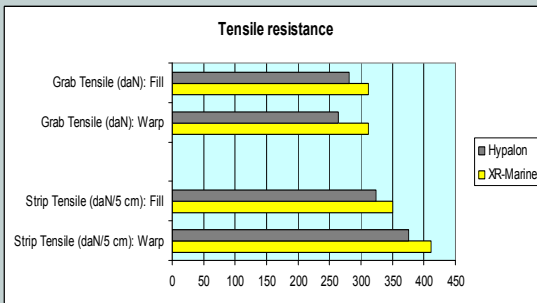
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Hypalon fabrics: XR-Mariner compares very favourably to Hypalon fabrics as it has been specifically developed to surpass their performance characteristics.

Report comparing the 38 oz. XR-Mariner with a leading 1300 gr Hypalon:

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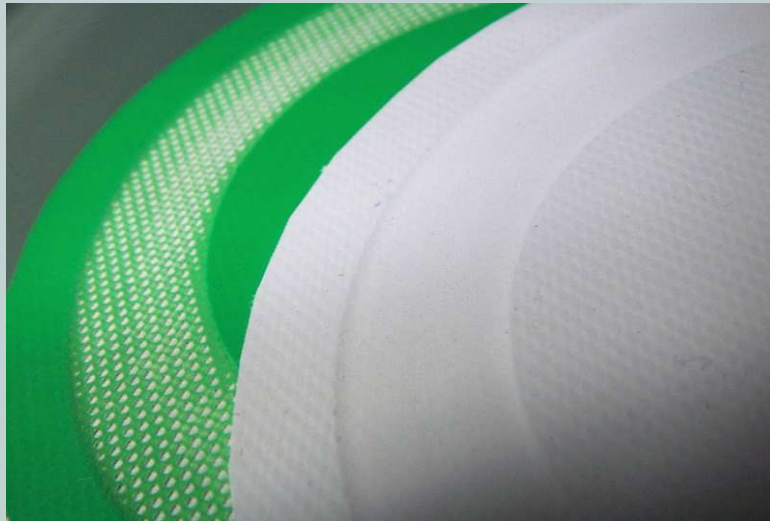
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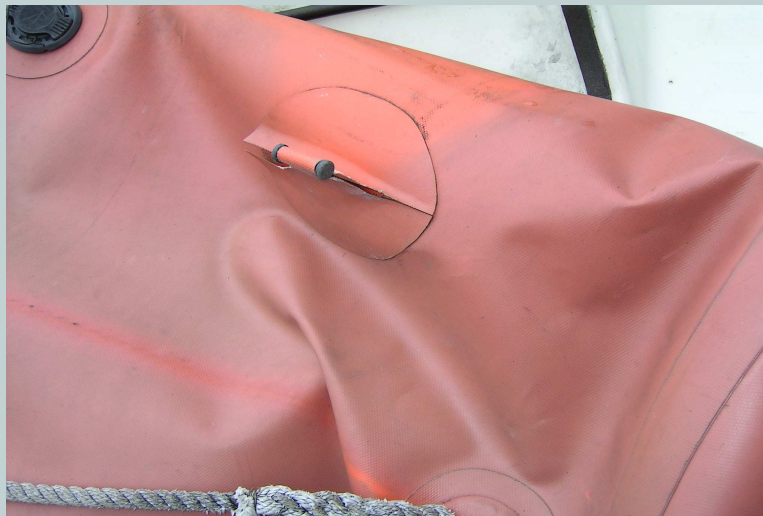
This picture shows the better abrasion resistance of the Elvaloy, in grey, compared to the Hypalon, in green (quickly abraded to the weave).



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This picture shows the typical degradation of PVC fabric over time (discoloration along with loss of suppleness and mechanical properties)



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INFLATABLE BOAT FABRIC ASTM Test Method Seaman XR-Mariner™ 4138 (38oz) vs. Leading Hypalon (38oz)

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	<u>Imperial</u>		<u>Metric</u>		Interpretation
	<u>Seaman</u>	Hypalon	<u>Seaman</u>	Hypalon	
Fabric Type	4138	Hypalon	4138	Hypalon	
Fabric Weight - oz./sq yd. gr/m2	38.3	38.9	1300	1320	
Peel Adhesion (face / back)	NP/NP	9/NP	NP/NP	4daN/NP	Seaman pass both sides, Hypalon failed face side
Tongue Tear					
Warp	56 Lbf	39 Lbf	25 daN	17 daN	Seaman 44% superior tear
Fill	69 Lbf	42 Lbf	31 daN	19 daN	Seaman 64% superior tear
Trapezoid Tear-lbs					
Warp	90 Lbf	74 Lbf	40 daN	33 daN	Seaman 22% superior tear
Fill	89 Lbf	78 Lbf	39.6 daN	35 daN	Seaman 14% superior tear
Strip Tensile - (lbs/in, daN/ 5 cm)					
Warp	465 Lbf	429 Lbf	414 daN	380 daN	Hypalon 8% superior tensile
Fill	404 Lbf	370 Lbf	360daN	328 daN	Hypalon 9% superior tensile
Grab Tensile - (lbs, daN)					
Warp	704 Lbf	593 Lbf	313 daN	263 daN	Seaman 19% superior tensile
Fill	705 Lbf	632 Lbf	314 daN	264 daN	Seaman 12% superior tensile
Hydrostatic -psi	1046 psi	850 psi	72	58 bar	Seaman 23% superior hydrostatic
Tabor Abrasion -H18					
Cycles to Failure					
Face	1917	1050	1917	1050	Seaman 83% superior abrasion
Back	2000	675	2000	675	Seaman 196% superior abrasion
Puncture -lbs					
Screwdriver	149 lbs	104 lbs	68 kgf	47 kgf	Seaman 43% superior puncture
UV-Xenon					
DE at 500 hrs.	1.98	4.66	1.98	4.66	Seaman superior UV (white)
DE at 1000 hrs.	1.70	5.53	1.70	5.53	Seaman superior UV (white)
DE at 1500 hrs.	1.70	5.84	1.70	5.84	Seaman superior UV (white)

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<u>Fabric Type</u>	<u>Seaman 4138</u>	<u>Leading Hypalon</u>	<u>Seaman 4138</u>	<u>Leading Hypalon</u>	<u>Interpretation</u>
Biaxial Stretch at 2 hr. Stress Duration					
at 15lb. Load (= 6.8 kgf)					
Warp - % Stretch	0.69	0.78	0.69	0.78	Comparable
Fill - % Stretch	1.90	2.08	1.90	2.08	
at 30lb. Load (=13.6 kgf)					
Warp - % Stretch	1.21	1.04	1.21	1.04	Comparable
Fill - % Stretch	3.12	3.12	3.12	3.12	
at 45lb. Load (= 20.4 kgf)					
Warp - % Stretch	1.21	1.56	1.21	1.56	Comparable
Fill - % Stretch	4.16	4.16	4.16	4.16	
at 60lb. Load (= 27.2 kgf)					
Warp - % Stretch	1.56	2.08	1.56	2.08	Comparable
Fill - % Stretch	4.50	5.20	4.50	5.20	
at 75lb. Load (= 34 kgf)					
Warp - % Stretch	2.77	2.08	2.77	2.08	Comparable
Fill - % Stretch	5.89	6.06	5.89	6.06	
Note: Three random samples of Seaman Fabric and one random Hypalon sample were tested.					

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What is the cost of XR-Mariner?

At the present time (2008) the official pricing for the XR-Mariner is *approximately US\$ 30/ linear meter* (145 cm width). Of course, we will be able to give you firm pricing when we receive your quantities and delivery schedule.

Our prices include the **freight to your Port of Entry** but exclude customs clearance, taxes and duties. For your information, the **harmonized tariff code** is: 3921-90

Do you offer special conditions for samples and trial orders?

Samples: Each account can receive 5 free meters, shipped by ground / ocean.

Trial orders: Each account can receive 1 trial, PAID order of 50 meters minimum, we'll split freight cost.

Do you give payment terms?

Yes, we offer up to **60-day terms** on approved accounts.

We also accept payments by **credit cards**.

Is there a minimum order?

Our minimum is **300 meters per delivery** (for deliveries under 300 m, the client will have to pay the transport from the USA).

What colours are available?

We offer **WHITE** and **LIGHT GREY** in 1300 gr/m2 as standard products.

However, you can order any color given minimum quantity requirements and several months notice. Also, please note that any PVC fabric will bond to Elvaloy® allowing the manufacturer to use such fabrics for graphics, designs, accessories etc. Seaman supplies PVC compatible fabrics in various colours for this purpose.

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Does Seaman offer any lighter or heavier fabrics?

At the present time, XR-Mariner™ is offered exclusively in 1300 gr/m². We are working on a lighter fabric and will inform you when it will be available, probably in late 2008.

We do not have any immediate plans to launch a heavier version given that the performances of our standard version surpass most of the specifications of heavy weights (1500+gr) fabrics made of PVC or Hypalon. Of course, we will consider all requests for special developments given minimum quantities.

Finally, it is important to note that Seaman is a renowned producer of PU coated fabrics.

Seaman's PU fabrics can be considered for professional and military applications.

Can XR-Mariner be welded?

The XR-Mariner can be easily welded with both high frequency and hot air welders.

As it doesn't contain any liquid plasticizers, the weld is a perfect melt with no emanation of fumes.

Do not hesitate to contact us if you need assistance in equipping your production facility with welding equipment.

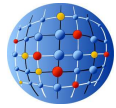
Is it possible to use cold gluing in production?

Yes, cold gluing is a perfectly acceptable process for Elvaloy® fabrics as long as an **Elvaloy® based adhesive is used**. The procedure is simple and no mechanical pre-sanding is required. The adhesion levels are very high and last over time.

XR-Mariner™ can be glued onto itself, most PVC and PU **fabrics** and **accessories** (handles, rubstrake etc.), aluminum and fibreglass. Adhesion levels with rubbers are lower but could be acceptable in some cases.

We recommend and can supply you with the **Clifton UR 5208 Elvaloy adhesive**. This proven adhesive has a 1-year shelf life and costs approximately US\$ 10 /litre.

Note: We strongly suggest that you test all your processes over a 3-month period before introducing them into your manufacturing operations.



technicalcoatedfabrics.com

technicalcoatedfabrics.com is a company that offers a vast array of fabrics coated with synthetic rubber, polyurethane, advanced PVC and Elvaloy® to manufacturers around the globe.

We have established worldwide notoriety for products of excellent quality at highly competitive prices.

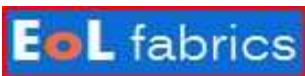
Our plants, located in Europe, North America and Asia, are equipped to perform all major transformation processes of thermoplastics and rubbers: knife coating, lamination, calendaring and extrusion.

After years of development, we are proud to offer the most complete selection of coated fabrics (PVC, Hypalon®, PU & Elvaloy®) and adhesives destined to inflatable boat manufacturers.

Please visit our specialised web site:

www.inflatableboatfabrics.com

This document expresses the opinions of TechnicalCoatedFabrics and not those of companies mentioned herein.



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