



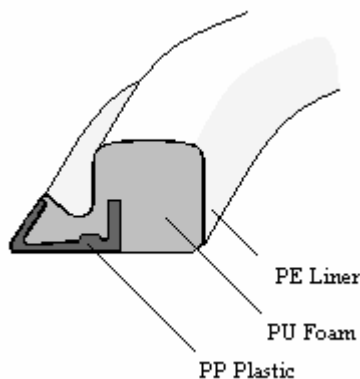
## SCHLEGEL UK

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### Overview of Schlegel Seals

Aquamacs and Q-Ions are manufactured with the following components

Exterior Liner	=	Poly-ethylene
Hard Foot / insert	=	Poly-propylene
Foam Core	=	H/R Poly-Urethane



### Re: Brief description of a typical Schlegel Weather seal

Schlegel's Weather seals are a composite product made of a flexible polyether/polyurethane (PU) foam core, a polypropylene (PP) insert feature and a polyethylene (PE) outer liner. See diagram below.

The description represents a typical Weather seal; details may vary depending on application. If further information is required please contact me.

For non inserted profiles the poly-prop is replaced with Glass Fiber cord for low stretch performance

The compression set performance of the foam should be less than 20% 'set' after 50% compression for 24hours at 70°C

## BBA Test Requirements

The B.B.A. chose to assess Q-Lon against the following criteria:

Tensile Strength.  
 Compression Deflection (Compression force)  
 Compression Set  
 Dimensional Stability.  
 Migration.

Subsequently BS 7412 1991 was published and it included requirements for seals and gaskets for use in P.V.C. windows and doors. Unfortunately it simply replicated the existing limitations and adopted test methods that could only be carried out, in the main, to assess raw materials. Schlegel continued to use the B.B.A. assessment.

The subsequent revision of BS 7412 2002 and it's adoption of the B.P.F. 345/1 document pretty much leaves the situation unchanged as the obligatory test methods are still those intended for raw materials only. There are some test methods for use on seals but these are "voluntary" and therefore still not part of the requirement.

If we compare the requirements of B.P.F. 345/1 (after referring to the corrections and clarifications in the enclosed letter from the B.P.F.) you can see that the B.B.A. assessment is still relevant and in some cases adopts more demanding tests.

<b>CRITERIA</b>	<b>B.B.A. 345/1 1993</b>	<b>B.B.A. Report 1990</b>	<b>Comments</b>
TENSILE STRENGTH AFTER AGEING	< 25% REDUCTION AFTER 10 DAYS AT 70 <sup>0</sup> C	0% REDUCTION AFTER 28 DAYS	Q-Lon Exceeds the requirement
ELONGATION AT BREAK AFTER AGEING.	< 25% REDUCTION	> 5% REDUCTION AFTER 28 DAYS.	Q-Lon Exceeds the requirement
HARDNESS CHANGE AFTER AGEING	< 25% REDUCTION AFTER 10 DAYS AT 70 <sup>0</sup> C	COMPRESSION FORCE CHANGED BY 5% AFTER 28 DAYS	Q-Lon Exceeds the requirement
TEAR RESISTANCE	RAW MATERIAL TEST ONLY	NO ASSESSMENT	
DEFLECTION RECOVERY 24HRS @ 23 <sup>0</sup> C	> 75% RECOVERY	91.67% RECOVERY @ 70 <sup>0</sup> C	Q-Lon Exceeds the requirement
24hrs @ -15 <sup>0</sup> C	> 75% RECOVERY (LESS THAN 25% SET	100% RECOVERY	
14DAYS @ 55 <sup>0</sup> C	>25% RECOVERY	NOT ASSESSED	
OZONE RESISTANCE		NOT ASSESSED & NOT AFFECTED BY OZONE	This criteria is a limitation of Rubber / E.P.D.M.
DIMENSIONAL STABILITY	HEAT REVERSION < 2%	DIMENSIONAL STABILITY 0.01%	Q-Lon Exceeds the requirement

The B.P.F. have reviewed the 345/1 document and are shortly to publish a revision. The revisions take account of current European draft standards for seals and will most likely include the following changes.

1. Test methods will not be limited to raw material assessment.
2. The test methods will allow the seal performance to be graded as opposed to minimum levels being specified. The system is intended to allow an appropriate seal to be specified for an application. Minimum performances are still assessed via the functionality tests of the complete window / door unit.

Yours Sincerely.

Sam Speirs.