



ESP International  
5920 Dry Creek Ln NE  
Cedar Rapids, IA 52402  
[www.espint.com](http://www.espint.com)

# N8018

Revision: A

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**MATERIAL:** NBR  
**COMPOUND:** N8018  
**SPECIFICATION:** ASTM D2000 M2BG710 A14 B14 B34 EA14 EF21 EO14 EO34 F17  
**COLOR:** Black  
**CERTIFICATIONS:** FDA CFR 21 177.2600, 3A Sanitary Standard Class II  
**ADDITIONAL NOTES:** -

<b>Spec</b>	<b><u>Original Physical and Mechanical Properties</u></b>	<b><u>Requirements</u></b>	<b><u>Result</u></b>
	Hardness, Shore A Pts, ASTM D 2240	70±5	71
	Tensile Strength, MPa (psi) min., ASTM D 412	10.0 (1450)	18.1 (2617)
	Ultimate Elongation, % min., ASTM D412	250	316
	Modulus @ 100%, MPa (psi), ASTM D 412	-	5.0 (725)
	Density, (Mg/m <sup>3</sup> )	-	1.25
<b>A14</b>	<b><u>Heat Resistance (ASTM D 573) 70 h @ 100°C</u></b>	<b><u>Requirements</u></b>	<b><u>Result</u></b>
	Change in Hardness, Pts	±15	3
	Change in Tensile, %	±30	-10
	Change in Elongation, % max.	-50	-36
	Change in Weight, % max.	-	-0.7
<b>B14</b>	<b><u>Compression Set (ASTM D 395, Method B) 22 h @ 100°C</u></b>	<b><u>Requirements</u></b>	<b><u>Result</u></b>
	% of Original Deflection, max.	25	8.0
<b>B34</b>	<b><u>Compression Set (ASTM D 395, Method B) 22 h @ 100°C</u></b>	<b><u>Requirements</u></b>	<b><u>Result</u></b>
	% of Original Deflection, max.	25	18.1
<b>EA14</b>	<b><u>Water resistance (ASTM D471) 70 h @ 100°C</u></b>	<b><u>Requirements</u></b>	<b><u>Result</u></b>
	Change in Hardness, Pts	±10	-3
	Change in Tensile, %	-	-16
	Change in Elongation, %	-	-28
	Change in Volume, %	±15	5.4

Note: the values listed above are only valid for material samples prepared for laboratory test purposes as documented in the standards listed above



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		<b>Requirements</b>	<b>Result</b>
<b>EF21</b>	<b><u>Fluid Resistance (ASTM D 471) 70 h in ASTM Fuel B @ 23°C</u></b>		
	Change in Hardness, Pts	-30~0	-11
	Change in Tensile, % max.	-60	-38
	Change in Elongation, % max.	-60	-39
	Change in Volume, %	0~+40	19.4
<b>EO14</b>	<b><u>Fluid Resistance (ASTM D 471) 70 h in IRM901 Oil @ 100°C</u></b>		
	Change in Hardness, Pts	-5~+10	7
	Change in Tensile, % max.	-25	1
	Change in Elongation, % max.	-45	-21
	Change in Volume, %	-10~+5	-7.8
<b>EO34</b>	<b><u>Fluid Resistance (ASTM D 471) 70 h in IRM903 Oil @ 100°C</u></b>		
	Change in Hardness, Pts	-10~+5	-1
	Change in Tensile, % max.	-45	-7
	Change in Elongation, % max.	-45	-28
	Change in Volume, %	0~+25	2.4
<b>F17</b>	<b><u>Low- Temperature Resistance (ASTM D2137, Method C) 3 m @ -40°C</u></b>		
	Nonbrittle	Pass	Pass
<b>C2.1.1</b>	<b><u>Low Fat Tolerance Absorption (ASTM D 471) 22 h @ 70°C</u></b>		
	Change in Hardness, Pts	±15	-2
	Change in Tensile, %	-	-3
	Change in Elongation, %	-	-4
	Change in Weight, %	±25	1.1
	Change in Volume, %	±25	1.4
	Change in Visual Appearance	-	Pass
<b>C2.2.1</b>	<b><u>Milk Fat Absorption (ASTM D 471) 22 h @ 70°C</u></b>		
	Change in Hardness, Pts	±5	-2
	Change in Tensile, %	-	3

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Change in Elongation, %	-	-4
Change in Weight, %	±10	0.3
Change in Volume, %	±10	0.4
Change in Visual Appearance	-	Pass

<b>C2.2.2</b>	<b><u>Distilled Water Absorption (ASTM D 471) 22 h @ 70°C</u></b>	<b><u>Requirements</u></b>	<b><u>Result</u></b>
	Change in Hardness, Pts	±5	-4
	Change in Tensile, %	-	1
	Change in Elongation, %	-	-1
	Change in Weight, %	±10	2.6
	Change in Volume, %	±10	2.8
	Change in Visual Appearance	-	Pass

<b>C2.2.3</b>	<b><u>Air Aging Stability (ASTM D 573) 166 h @ 100°C</u></b>	<b><u>Requirements</u></b>	<b><u>Result</u></b>
	Change in Hardness, Pts	±10	7
	Change in Tensile, %	-	7
	Change in Elongation, %	-	-35
	Change in Weight, %	-	-1.5
	Change in Visual Appearance	-	Pass

<b>D4.6</b>	<b><u>Fluid Resistance (ASTM D471) 22 h in Nitric Acid @ 82°C</u></b>	<b><u>Requirements</u></b>	<b><u>Result</u></b>
	Change in Hardness, Pts	±10	-8
	Change in Tensile, %	-	-23
	Change in Elongation, %	-	-28
	Change in Weight, %	±15	10.7
	Change in Volume, %	±15	11.8
	Change in Visual Appearance	-	Pass

<b>D4.7</b>	<b><u>Fluid Resistance (ASTM D471) 22 h in Phosphoric Acid @ 82°C</u></b>	<b><u>Requirements</u></b>	<b><u>Result</u></b>
	Change in Hardness, Pts	-	-3
	Change in Tensile, %	-	-2
	Change in Elongation, %	-	-5
	Change in Weight, %	-	2.6
	Change in Volume, %	-	3.0

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Change in Visual Appearance - Pass

<b>D4.8</b>	<b><u>Fluid Resistance (ASTM D471) 22 h in Alkaline Cleaner @ 82°C</u></b>	<b><u>Requirements</u></b>	<b><u>Result</u></b>
	Change in Hardness, Pts	±10	-4
	Change in Tensile, %	-	-5
	Change in Elongation, %	-	-10
	Change in Weight, %	±10	2.9
	Change in Volume, %	±10	3.6
	Change in Visual Appearance	-	Pass

<b>D4.9</b>	<b><u>Fluid Resistance (ASTM D 471) 22 h in Chlorine Sanitizer @ 21°C</u></b>	<b><u>Requirements</u></b>	<b><u>Result</u></b>
	Change in Hardness, Pts	±5	-1
	Change in Tensile, %	-	5
	Change in Elongation, %	-	10
	Change in Weight, %	±10	0.5
	Change in Volume, %	±10	0.6
	Change in Visual Appearance	-	Pass

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