V1238-95

Explosive Decompression And Extrusion Resistant Fluorocarbon Elastomer

Sealing for high pressure, high temperature environments:

Deeper drilling in the Energy, Oil and Gas (EOG) market has continued to increase the demands for high pressure, high temperature sealing materials. Parker's V1238-95 material allows customers to meet and exceed these harsh demands.

V1238-95 is a 95 Shore A durometer fluorocarbon material developed to help protect critical applications from the detrimental effects of explosive decompression (ED) and extrusion typically found in the EOG market. This fluorocarbon material has a unique combination of superior physical and chemical properties, as well as excellent

Features:

- Extrusion resistant
- Explosive decompression (ED) resistant
- True 95 durometer material
- Approved to NORSOK M-710 (refer to ORD 5754 for test data) and rapid gas decompression
- Passed API 6A, appendix F requirements (specification for wellhead and Christmas tree equipment)
- Available in AS568 (AN) and class II dimensions and tolerances

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compression set resistance. With these superior internal properties, V1238-95 has passed some of the most stringent test requirements found in the EOG market. This includes passing NORSOK M-710 and API 6A requirements, among others.

Mechanics of Explosive Decompression (ED)

When a system is decompressed rapidly, explosive decompression (ED) can occur. This is due to gas permeating or dissolving into the seal material. When the system pressure decays quickly, the entrapped gas expands, rupturing the O-ring.

Mechanics of Extrusion

Extrusion occurs when a gas or liquid at high pressure forces the seal material into the clearance gap between the mating surfaces. The larger the diametrical clearance, the more likely extrusion will occur. V1238-95 was developed with a high modulus to provide excellent extrusion resistance.

Extrusion test conditions Test samples: V1238-95 AS568-227 O-rings	
Typical physical properties	
Hardness, Shore A	94
Tensile strength, psi	2402
Elongation, %	75
50% Modulus, psi	1632
Compression set (70 hrs @ 392°F)	20.6%
PI Extrustion test, 302°F, 0.0626" gap	
Failure pressure, psi	510
Visual appearance or degradation	Light extrusion

Explosive decompression test conditions (Test samples: V1238-95 AS568-227 O-rings)	
Typical physical properties	
Hardness, Shore A	94
Tensile strength, psi	2610
Elongation, %	70
50% Modulus, psi	1710
Compression set (70 hrs @ 392°F)	23.5%
Test 1 (75°F, 1000 ml CO2, 820 psig, 120 hrs)	
Hardness change, Shore M, pts.	-3
Volume change, %	+24
Weight change, %	+9
Tensile strength change, %	-57
Elongation change, %	-12
50% Modulus change, %	-53
20 Second decay (820 to 0 psig)	Good, medium swell
Visual appearance	No damage
Test 2 (250°F, 1000 ml CO2, 1000 psig, 72 hrs)	
Hardness change, Shore M, pts.	-2
Volume change, %	+3
Weight change, %	+2
Tensile strength change, %	-36
Elongation change, %	-13
50% Modulus change, %	-34
20 Second decay (820 to 0 psig)	Excellent, low swell
Visual appearance	No damage
Test 3 (75°F, 1000 ml CO2, 1000 psig, 72 hrs)	
Hardness change, Shore M, pts.	-3
Volume change, %	+3
Weight change, %	+2
Tensile strength change, %	-59
Elongation change, %	-32
50% Modulus change, %	-41
20 Second decay (820 to 0 psig)	Good, low swell
Visual Appearance	No damage

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