



materials engineering research  
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## TEST CERTIFICATE

This document certifies that  
Kalrez(r) 0090 – K312 “A” O-rings from  
**DuPont Performance Elastomers**

meet the requirements of

**NORSOK M710 [Rev. 2, October 2001] in respect of rapid  
gas decompression resistance in 10% carbon dioxide at  
150 bar and 100°C**

Test gas: 90/10 mol% CH<sub>4</sub>/ CO<sub>2</sub>  
Test temperature: 100 °C  
Test pressure: 150 bar  
Decompression rate: 20 bar/minute

Passed by : Dr Sabine Munch   
Date: 15/10/2009

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MERL verify that O-rings manufactured by DuPont Performance Elastomers from Kalrez(r) 0090 – K312 “A”, have been subjected to a multi-cycle RGD test under the conditions detailed below.

### **Seal Conditions**

O-rings details:- Compounds	Kalrez(r) 0090 – K312 “A”
Size	BS 1806 size 312
Section diameter	5.33 mm, nominal
Groove fill	67%, nominal

### **Test Gas**

10% CO<sub>2</sub> in methane; certified.

### **Procedure and Test Conditions**

For each test cycle the following procedure and conditions applied:

- 1) the assembly was heated to 100°C and this temperature maintained throughout
- 2) a pressure of 150 bar, using the test gas, was applied
- 3) this pressure was maintained for 72 hours minimum initially
- 4) a rapid decompression in 7.5 minutes from 150 bar to ambient was performed
- 5) ambient pressure was maintained for one hour and pressure cycled every 24 hours.

After 10 cycles, each O-rings was quartered and the exposed surfaces rated according to the standard (Table B.2).

#### **NORSOK Ratings for DuPont Performance Elastomers test seals**

<b>Compound</b>	<b>Summary rating (average of three)</b>	<b>PASS/FAIL</b>
Kalrez(r) 0090 – K312 “A”	0000	<b>PASS</b>

### **Summary**

The Kalrez(r) 0090 – K312 “A” O-rings meet the RGD acceptance requirements given in the NORSOK M-710 standard [Rev. 2, October 2001]. This acceptance applies at all pressure and temperature combinations up to the test limits, but only for the groove geometry employed in testing.