

## Technical Information — April 2012

### Product Description

DuPont™ Kalrez® perfluoroelastomer parts are the material of choice for mechanical seals, valves, flanges and other demanding chemical and hydrocarbon processing applications.

Kalrez® Spectrum™ 7075 is positioned in the Kalrez® Spectrum™ family of products which are designed for the chemical processing industry. Compound 7075 offers enhanced physical performance properties including very low compression set (Figure 1).

#### Typical Physical Properties<sup>1</sup>

Color	Black
Hardness <sup>2</sup> , Shore A	75
100% Modulus <sup>3</sup> , MPa (psi)	7.58 (1100)
Tensile at Break <sup>3</sup> , MPa (psi)	17.91 (2600)
Elongation at Break <sup>3</sup> , %	160
Compression Set, %	
70 hr at 204 °C (400 °F) <sup>4</sup>	12
70 hr at 204 °C (400 °F) <sup>5</sup>	15
Maximum Service Temperature <sup>6</sup> , °C (°F)	327 (620)

<sup>1</sup> Not to be used for specifications

<sup>2</sup> ASTM D2240 (pellet test specimens)

<sup>3</sup> ASTM D412 (dumbbell test specimens)

<sup>4</sup> ASTM D395B, (pellet test specimens)

<sup>5</sup> ASTM D395 (AS568 K214 O-ring test specimens)

<sup>6</sup> DuPont proprietary test method

#### Thermal, Chemical, and Mechanical Performance

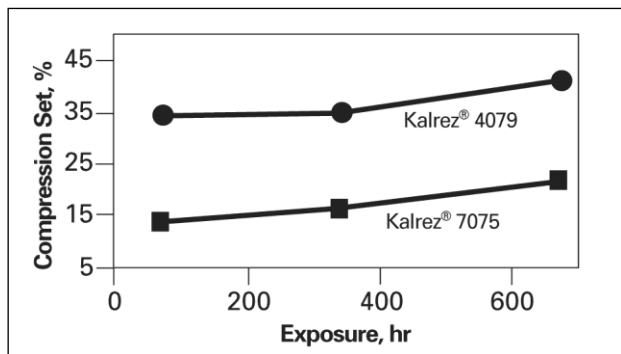
Kalrez® Spectrum™ 7075 is designed for general-purpose use as O-rings or custom sealing components in the chemical and hydrocarbon processing industries. It is a carbon black-filled compound with mechanical properties designed for improved sealing performance in temperature cycling applications. 7075 has improved thermal resistance that extends maximum service temperature to 327 °C (620 °F). It is not suggested for use in severe aqueous and amine applications where Kalrez® Spectrum™ 6375 remains the preferred compound. As always, we recommend the specific chemicals, service temperature and pressure be reviewed for the optimal compound selection in each application.

Kalrez® Spectrum™ 7075 offers very low compression set as measured by ASTM D395 to predict heat resistance. DuPont compression set testing extends the standard ASTM 70 hour protocol to include 336 and 672-hour compression set testing, which better predicts long-term O-ring performance. Lower compression set results in improved sealing and longer service life.

#### Applications

DuPont™ Kalrez® Spectrum™ 7075, with its low compression set, is a great choice for today's

Figure 1. Compression Set at 204 °C



smaller and lighter mechanical seals, which are expected to perform as efficiently as larger mechanical seals. The smaller mechanical seal designs, with reduced spring force retention, put additional demands on elastomeric O-rings with reduced cross sections. The smaller cross section O-rings are more prone to



The miracles of science™

compression set which can reduce their functional effectiveness, thereby reducing the operability of the mechanical seal.

Quick connector couplings also benefit from the outstanding compression set of Kalrez<sup>®</sup> Spectrum<sup>™</sup> 7075 and its enhanced temperature cycling capabilities. Combined with low swell in a wide range of chemicals, this compound ensures reliable performance of modern fluids handling systems.

<b>Chemical Resistance to:</b>	<b>DuPont<sup>™</sup> Kalrez<sup>®</sup> Spectrum<sup>™</sup> 7075</b>	<b>DuPont<sup>™</sup> Kalrez<sup>®</sup> Spectrum<sup>™</sup> 4079</b>	<b>DuPont<sup>™</sup> Kalrez<sup>®</sup> Spectrum<sup>™</sup> 6375</b>
Aromatic/Aliphatic Oils	++++	++++	++++
Acids	++++	++++	++++
Bases	+++	+++	++++
Alcohols	++++	++++	++++
Aldehydes	++++	+++	+++
Amines	++	+	++++
Ethers	++++	++++	++++
Esters	++++	++++	++++
Ketones	++++	++++	++++
Steam/Hot Water	++	+	++++
Strong Oxidizers	++	++	++
Ethylene Oxide	+++	X	++++
Hot Air	++++	++++	+++

++++ = Excellent      +++ = Very Good      ++ = Good      + = Fair      X = Not Recommended

Visit us at [kalrez.dupont.com](http://kalrez.dupont.com) or [vespel.dupont.com](http://vespel.dupont.com)

Contact DuPont at the following regional locations:

**North America**  
800-222-8377

**Latin America**  
+0800 17 17 15

**Europe, Middle East, Africa**  
+41 22 717 51 11

**Greater China**  
+86-400-8851-888

**ASEAN**  
+65-6586-3688

**Japan**  
+81-3-5521-8484

The information set forth herein is furnished free of charge and is based on technical data that DuPont believes to be reliable and falls within the normal range of properties. It is intended for use by persons having technical skill, at their own discretion and risk. This data should not be used to establish specification limits nor used alone as the basis of design. Handling precaution information is given with the understanding that those using it will satisfy themselves that their particular conditions of use present no health or safety hazards. Since conditions of product use and disposal are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information. As with any product, evaluation under end-use conditions prior to specification is essential. Nothing herein is to be taken as a license to operate or a recommendation to infringe on patents.

**Caution:** Do not use in medical applications involving permanent implantation in the human body. For other medical applications, discuss with your DuPont customer service representative and read Medical Caution Statement H-50103-3.

Copyright © 2010 DuPont. The DuPont Oval Logo, DuPont<sup>™</sup>, The miracles of science<sup>™</sup>, Kalrez<sup>®</sup>, Kalrez<sup>®</sup> Spectrum<sup>™</sup>, and Vespel<sup>®</sup> are trademarks or registered trademarks of E.I. du Pont de Nemours and Company or its affiliates. All rights reserved.

(06/05) Reference No. KZE-H90161-00-G0412



*The miracles of science<sup>™</sup>*