



Kalrez® perfluoroelastomer parts

From DuPont Performance Elastomers

Kalrez® PV8050 for Photovoltaic Processing

Product Description

Kalrez® PV8050 is a white product for PV cell manufacturing processes requiring resistance to “dry” process chemistry including TCS-based thermal CVD for poly-silicon feedstock production, plasma edge isolation and silicon nitride ARC deposition. It exhibits very low weight loss in oxygen and fluorine-based plasma. It also offers excellent resistance to chlorine gas and has excellent (low) compression set and outgassing properties. Kalrez® PV8050 perfluoroelastomer parts have good mechanical strength properties and are well suited for both static and dynamic sealing applications. A maximum continuous service temperature of 300°C is suggested.

Features/Benefits

- Very low weight loss in oxygen and fluorine-based plasma
- Excellent thermal stability
- Excellent resistance to dry process chemistry
- Excellent (low) compression set and outgassing properties

Suggested Applications

- Chamber lid seals
- Slit valve door seals
- Gas inlet/orifice seals
- Quartz window seals
- Substrate handling pads

Plasma Resistance

Plasma can be a very aggressive media depending upon the power and chemistry employed. If not selected properly, elastomers can be eroded at an astonishing rate in plasma, leading to problems during pump-down or causing toxic gases to be released into the atmosphere. Figure 1 shows the % weight loss (erosion) properties of Kalrez® PV8050 versus a typical fluoroelastomer (competitive FKM K7), fluorosilicone (competitive FVMQ E7) and silicone (competitive VMQ T1) product after direct exposure to 100% oxygen and NF₃/Ar (1:3) plasma for 6 hours. Kalrez® PV8050 exhibited very low weight loss in both plasma types.

Typical Physical Properties ¹	Kalrez® PV8050
Color	White
Hardness ² , Shore M (O-ring)	72
Maximum Continuous Service Temperature ³ , °C	300
Compression Set, ⁴ % 70 Hrs. @ 204°C	17

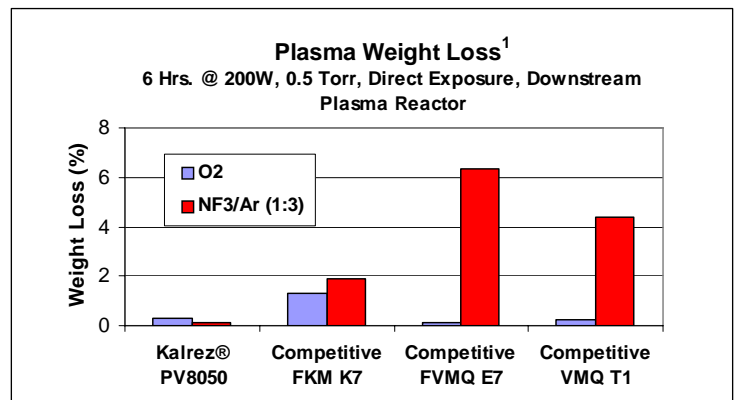
¹ Not to be used for specification purposes

² ASTM D2240 And ASTM D1414 (AS568 K214 O-ring test specimens)

³ DuPont Performance Elastomers proprietary test method

⁴ ASTM D395B & D1414 (AS568 K214 O-ring test specimens)

Figure 1

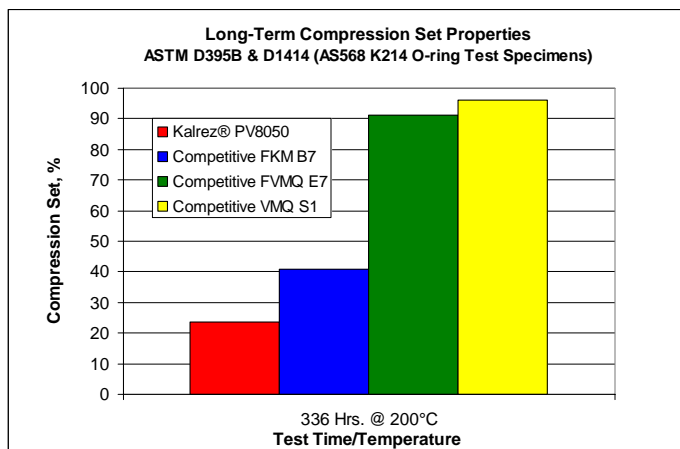


¹ DuPont Performance Elastomers proprietary test method

Compression Set

Compression set is routinely used to compare relative sealing performance, particularly at elevated temperatures. However, in many cases, short-term (70 hour) test data is used which is not indicative of long-term sealing performance. Figure 2 illustrates the long-term compression set properties of Kalrez® PV8050 versus a typical fluoroelastomer (competitive FKM B7), fluorosilicone (competitive FVMQ E7) and silicone (competitive VMQ S1) product after 336 hours @ 200°C. Kalrez® PV8050 exhibited excellent (low) compression set properties.

Figure 2



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