

DuPont™ Kalrez® W240UP Perfluoroelastomer Parts

For Semiconductor Wet Applications

Technical Information

DuPont™ Kalrez® W240UP perfluoroelastomer parts are designed for semiconductor wet processes, such as Wafer cleaning tools, Wet etch tools, Coater developer tools, and Filters/pumps/valves. Kalrez® W240UP can help increase process reliability and meet market needs in demanding wet applications.

Kalrez® W240UP continues the DuPont tradition of providing high value in use perfluoroelastomer parts to extend equipment Mean Time Between Repair (MTBR), while offering an excellent combination of properties, including:

- Resistance to acids and bases at maximum service temperatures up to 230 °C (446 °F).
- Low metal extractables

It is an effective alternative to other typical perfluoroelastomer parts used in semiconductor wet processes.

Performance comparison between DuPont™ Kalrez® W240UP and DuPont™ Kalrez® 6375UP perfluoroelastomer parts

Physical and Thermal Properties

Kalrez® W240UP parts and Kalrez® 6375UP parts have comparable physical properties.

Kalrez® W240UP parts can be a suitable alternative to Kalrez® 6375UP parts in applications with operating temperatures up to 230 °C.

Typical Physical Properties ¹	Kalrez® 6375UP Parts	Kalrez® W240UP Parts
Color	Black	Black
Hardness ² , Shore A	75	76
100% Modulus ³ , Mpa	9.1	6.9
Tensile Strength at Break ³ , MPa	15.2	15.9
Elongation at Break ³ , %	160	158
Compression Set ⁴ , 70 hr @ 204 °C, %	25	26
Maximum Service Temperature ⁵ , °C	275	230

¹ Not to be used for specification purposes

² ASTM D2240 (plied slab test specimens)

³ ASTM D2240 & D1414 (AS568 K214 O-ring test specimens)

⁴ ASTM D412 (dumbbell test specimens)

⁵ ASTM D395B & D1414 (AS568 K214 O-ring test specimens)

⁶ DuPont proprietary test method



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Chemical Resistance

Chemical immersion tests performed in our laboratories did not highlight significant difference in terms of chemical resistance between Kalrez® W240UP parts and Kalrez® 6375UP parts.

Immersion Chemistry (Concentration)	Exposure Conditions	% Volume Change*	
		Kalrez® W240UP	Kalrez® 6375UP
dHCl (3.5%)	23 deg.C, 672 hours	< 0.1	< 0.1
HF (49%)		2.3	1.7
HNO ₃ (70%)		0.6	0.6
PGMEA (> 99.5%)		0.1	0.1
NH ₄ OH (29%)		< 0.1	< 0.1
Methoxy-methylbutyl Acetate (> 98 %)		< 0.1	< 0.1
H ₂ SO ₄ (98%)	90 deg.C, 672 hours	0.6	0.7
IPA (99.9 %)	80 deg.C, 672 hours	2.4	2.5
H ₃ PO ₄ (85%)		< 0.1	< 0.1

Best

Suitable

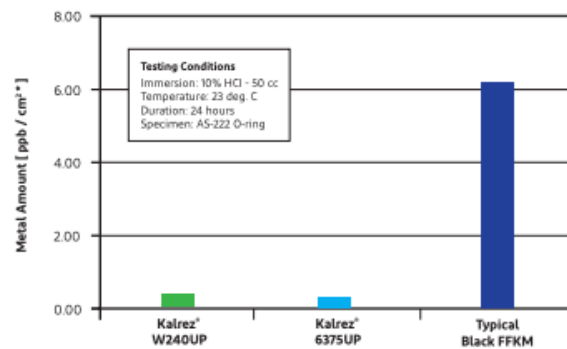
Fair

Not Recommended

*Test Method: ASTM D471 and D1414 (AS568 K214 O-ring test specimens)

Metal Extractables per O-ring Surface Area

Kalrez® W240UP has comparable metal extractable performance to Kalrez® 6375UP, and very low metal extractables compared to typical FFKM used in the industry.



*Amount of metal extractable was analyzed by ICP-MS

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