

DuPont™ Zalak® 5300

For Photovoltaic Manufacturing Processes

Technical Information — Rev. 3, July 2010

Product Description

DuPont™ Zalak® 5300 high performance seals are a beige translucent product that has been specially formulated for use in plasma environments, e.g., ARC coating in crystalline silicon cell manufacturing, TCO sputtering deposition and selective a-Si PECVD applications in thin film cell manufacturing. The low erosion rate of Zalak® 5300 in different plasma environments enables the PV cell manufacturing equipment to operate longer with reduced maintenance, effectively reducing the cost of equipment ownership.

DuPont™ Zalak® 5300 bridges the performance/cost gap between standard fluoroelastomers (FKM) and perfluoroelastomers (FFKM) seals. It also exhibits low “stiction” (sticking), good resistance to “dry” process chemistry and has excellent compression set properties. It has good mechanical strength properties and is well-suited for static and low stress/low sealing force applications. A maximum continuous service temperature of 200°C is suggested.

Features/Benefits

- Excellent resistance to plasma environments
- Very low particle generation & metals content, i.e., less risk of process contamination
- Good resistance to “dry” process chemistry
- Excellent (low) compression set properties
- Low “stiction” (sticking) properties

Suggested Applications

- Static and low stress/low sealing force applications e.g. chamber lid seals and gas inlet seals.

Typical Physical Properties¹

	Beige Translucent
Color	Beige Translucent
Hardness, Shore A (Plied Slab) ²	57
Hardness, Shore M (O-ring) ³	65
100% Modulus ⁴ , MPa	1.27
Tensile Strength @ Break ⁴ , MPa	10.34
Elongation @ Break ⁴ , %	340
Compression Set ⁵ , %	
70 Hrs. @ 204°C	35
Max. Continuous Service Temperature ⁶ , °C	200

¹Not to be used for specification purposes

²ASTM D2240 (Plied slab test specimens)

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

⁴ASTM D412 & D1414 (AS 568 O-ring test specimens)

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

⁶DuPont proprietary test method



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Figure 1: Effect of Plasma Attack on Different Elastomeric Materials

6 Hrs @ 200W, 0.5 Torr, Downstream Reactor

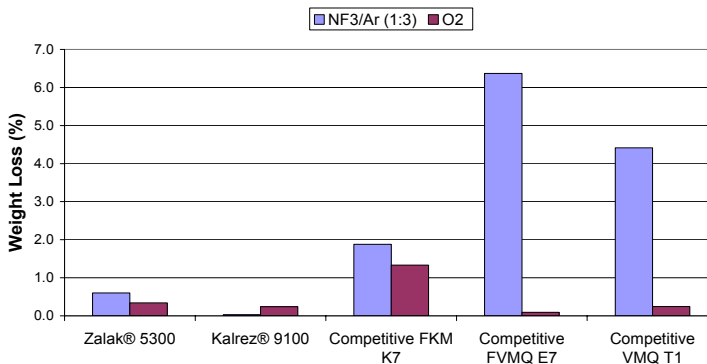
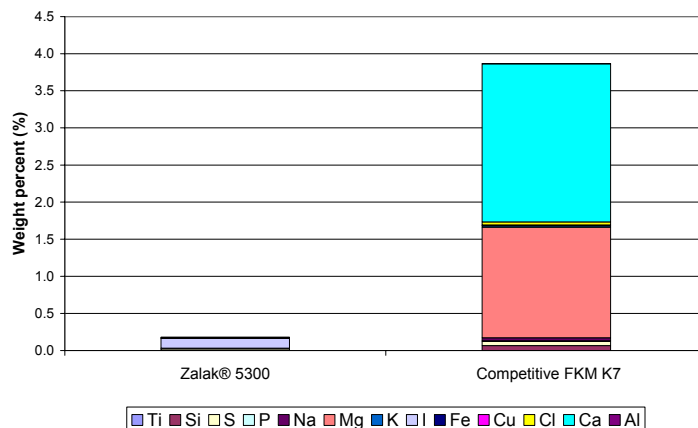


Figure 2: Quantitative XRF (Bulk Element) Test Data* – Zalak® 5300 Versus Competitive FKM K7 (Black)

*Test performed on an AS568 K214 O-ring per DuPont Performance Elastomers proprietary test method

Test Data Expressed As Weight %



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