Product Selector Guide

# DuPont™ Kalrez® Perfluoroelastomer Parts

in Life Sciences

DuPont™ Kalrez® Perfluoroelastomer (FFKM) parts provide best-in-class chemical resistance, outstanding thermal and steam resistance and low contamination from extractables for demanding applications in pharmaceutical, life sciences and food handling where FDA compliance is required.

Kalrez® parts deliver longer seal life versus lower performing elastomers thereby improving productivity, efficiency and cleanliness. They also help to create a safer environment for medical packaging, disposable device handling and in the day to day running of pharmaceutical manufacturing facilities.

## Product Selector*

The following guide provides a selection of suitable Kalrez® products for the Life Sciences Industry.

| | Kalrez® 6230 | Kalrez® 6221 | Kalrez® LS205 | Kalrez® LS222 |
|---|---|---|---|---|
| Available geometries | O-rings & Specialty Shapes | O-rings | Specialty Shapes | High Volume Shapes |
| Color | Black | White | White | Black |
| **Applications** | | | | |
| Rotating equipment (mixers, pumps, centrifuges, etc.) | ● | ● | ● | |
| Filtration and Drying | ● | ● | ● | |
| Flow regulation (valves) | | | | ● |
| WFI (water for injection) | ● | ● | ● | |
| Medical packaging | | | | ● |
| **Standards compliance and certifications** | | | | |
| US FDA / FCN# | ● / 101 | ● / 101 | ● / 1116 | ● / 1116 |
| USP <87> & <88> Class VI @ 121 °C | ● | ● | ● | ● |
| 3-A * | ● | ● | ● | |
| Japan Pharmacopeia edition 17 section 7.03 ** | | ● | ● | |
| EC 1935/2004 | Please Contact DuPont for Additional Information | | | |

* 3-A compliant parts may be available on request.
** Kalrez® LS205 and 6221 have been tested in accordance with Japan Pharmacopeia edition 17 requirements for section 7.03 “Test for Rubber Closure for Aqueous Infusion”

## Typical Physical Properties[1]

| | Kalrez® 6230 | Kalrez® 6221 | Kalrez® LS205 | Kalrez® LS222 |
|---|---|---|---|---|
| Maximum Service Temperature[2],°C (°F) | 260 (500) | 260 (500) | 225 (437) | 225 (437) |
| Hardness[3], Shore A | 75 | 70 | 74 | 75 |
| 100% Modulus[4], MPa (psi) | 9.6 (1390) | 7.2 (1050) | 6.4 (930) | 7.0 (1010) |
| Tensile Strength @ Break[4], MPa (psi) | 16.5 (2390) | 15.2 (2200) | 20.3 (2950) | 17.4 (2520) |
| Elongation @ Break[4], % | 170 | 150 | 185 | 170 |
| Compression Set[5], Pellet, 70 hrs. @ 204 °C, % | 25 | 27 | 20 | 21 |

[1] Not to be used for specification purposes
[2] DuPont proprietary test method
[3] ASTM D2240 (pellet test specimens)
[4] ASTM D412 (dumbbell test specimens)
[5] ASTM D395B (pellet test specimens unless otherwise noted)

## Product Description

### Kalrez® 6230

DuPont™ Kalrez® 6230 perfluoroelastomer parts are compliant with the United States' Food and Drug Administration's regulations for repeated use in contact with food as described by Food Contact Notification 101. Kalrez® parts made from compound 6230 shall meet the total extractive limitations described in 21CFR177.2600(e)(f). It has been tested in accordance with the United States Pharmacopoeia Class VI (USP Class VI) testing protocol and meets the test requirements of a USP Class VI polymer. This is a black product that offers excellent steam cycling resistance and reduces extractables from sealing materials to trace levels.

### Kalrez® 6221

DuPont™ Kalrez® 6221 perfluoroelastomer parts are compliant with the United States' Food and Drug Administration's regulations for repeated use in contact with food as described by and Food Contact Notification 101. Kalrez® parts made from compound 6221 shall meet the total extractive limitations described in 21CFR177.2600(e)(f). It has been tested in accordance with the United States Pharmacopoeia Class VI (USP Class VI) testing protocol and meets the test requirements of a USP Class VI polymer. This is a white product that offers excellent steam cycling resistance and reduces extractables from sealing materials to trace levels. It is only available in O-ring form; custom geometries are not available.

### Kalrez® LS205

DuPont™ Kalrez® LS205 perfluoroelastomer parts are a white product for use in food handling and pharmaceutical applications where FDA and/or USP <87> and <88> Class VI @ 121 °C compliance is required. Kalrez® LS205 parts provide superior chemical resistance and low extractables in demanding applications. This product is well suited for custom parts and other non-O-ring applications.

### Kalrez® LS222

DuPont™ Kalrez® LS222 perfluoroelastomer O-rings and custom parts provide the cleanliness necessary for pharmaceutical and food handling applications where FDA and USP <87> and <88> Class VI compliance are required. Kalrez® LS222 delivers the chemical resistance to steam and cleaning agents used in sterilization and clean in place processes. Kalrez® LS222 is designed for applications requiring high quantities of small parts, such as medical packaging, where reliable sealing and cleanliness are critical for safety and extended shelf life.

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