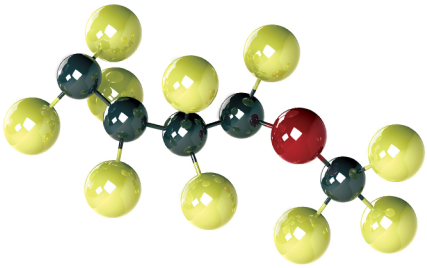
Technical Information

Kalrez®

A Product of DuPont Dow Elastomers

(colour: white)



General Description

Kalrez® *F* is a white filled compound which is well suited for selected applications in the pharmaceutical, semiconductor and other markets which demand high purity elastomers. Compound *F* has similar chemical resistance to compound *E* and exhibits low swell in organic acids, inorganic acids, esters, ketones and aldehydes. It also offers excellent resistance to plasmas used in semiconductor manufacturing.

The maximum recommended continuous operating temperature of compound *F* is 210°C. It should not be used in applications at temperatures above 220°C.

The physical properties and chemical resistance of compound *F* are as follows:

Physical Properties[1]

Hardness[2]	Shore A ± 5	79
100% Modulus[3]	MPa psi	6,2 900
TS at break[3]	MPa psi	16,9 2450
Elongation at break[3]	%	200
Compression set[4], 70 h at 204°C	%	27

[1] Not to be used for specifications
[2] ASTM D2240
[3] ASTM D412, 500 mm/min (20 in/min)
[4] ASTM D395 B, pellets

Chemical Resistance

Material Compound	Kalrez *F*
Chemical resistance to:	
Aromatic / Aliphatic Oils	+++
Acids	+++
Alkalis	+++
Alcohols	+++
Aldehydes	+++
Amines	+
Ethers	+++
Esters	+++
Ketones	+++
Steam / Hot Water	+++
Strong Oxidizers	+++*
Ethylene / Propylene Oxide	– –

+++ = excellent
++ = very good
+ = good
0 = marginal
– = poor
–– = not recommended
* = recommended compound for this chemical

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Miscellaneous Properties

Many miscellaneous properties are of interest for specific applications. Some of these are unaffected by compound choice while others vary with hardness or extensibility. As an example, coefficient of friction typically increases as hardness decreases.

In general, miscellaneous physical properties are similar to those of Viton® fluoroelastomer.

The following are some of the properties for Kalrez®:

Physical Properties

Specific gravity, g/cm^3	1,90 – 2,00

Miscellaneous

Oxygen – Autogenous Ignition Temperature	
Compound 1050 LF	313°C
Compound 1045	370°C

Thermal Properties

Linear coefficient of thermal expansion (25 – 250°C)

$L = L_0 (1 + a\Delta T)$

$a = 2,3 \times 10^{-4}/°C$

Specific heat

at 50°C = 0,945 J/g (0,226 cal/g)

at 100°C = 0,974 J/g (0,233 cal/g)

at 150°C = 1,053 J/g (0,252 cal/g)

Permeation Rates of Gases

Gas	Nitrogen	Oxygen	Helium	Hydrogen	Argon	Krypton	Xenon
Temperature,°C	RT	RT	RT	93	93	93	93
Rate**	0,05	0,09	2,5	113	6,1	9,9	19,9

$$\frac{**\times 10^{-9}\ cm^3 \cdot cm}{s - cm^2 - cm\ Hg\ \Delta P}$$