



Compound 3018 (colour: black)

General Description

Kalrez® 3018 is a carbon black filled compound with a high hardness and a high modulus. This compound offers the best resistance to hot water, steam and amines. Compound 3018 has a maximum service temperature of 280°C. The high hardness and modulus give it excellent resistance to extrusion under high pressure. This combination of chemical resistance and mechanical properties make compound 3018 ideal for use in the oil field and process industries.

Compound 3018 is not recommended for use in stronger acid media at higher temperatures (organic or inorganic), and is not recommended for applications involving rapid thermal cycling.

The physical properties of compound 3018 are as follows:

Physical Properties ¹

Property	Unit	Value
Hardness ²	Shore A ± 5	91
100% Modulus ³	MPa	16,9
	psi	2450
TS at break	MPa	21,7
	psi	3150
Elongation at break	%	125
Compression set ⁴ , 70 h at 204°C	%	35

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 3018
<i>Chemical resistance to:</i>	
Aromatic / Aliphatic Oils	+++
Acids	++
Alkalis	+++
Alcohols	+++
Aldehydes	+++
Amines	+++
Ethers	+++
Esters	+++
Ketones	+++
Steam / Hot Water	+++
Strong Oxidizers	0
Ethylene / Propylene Oxide	0

+++ = excellent

++ = very good

+ = good

0 = marginal

- = poor

-- = not recommended

* = recommended compound for this chemical

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.

Physical properties

Specific gravity 1,90 – 2,00

Thermal properties

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

$$L = L_0 (1 + a\Delta T)$$
$$a = 2,3 \times 10^{-4}/^{\circ}\text{C}$$
$$= 1,3 \times 10^{-4}/^{\circ}\text{F}$$

Specific Heat

at 50°C (122°F) = 0,945 J/g (0,226 cal/g)
at 100°C (212°F) = 0,974 J/g (0,233 cal/g)
at 150°C (302°F) = 1,053 J/g (0,252 cal/g)

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®:

Miscellaneous

Oxygen – Autogenous Ignition Temperature
Compound 1050 LF 313°C (595°F)
Compound 1045 370°C (698°F)

Permeation rates of gases

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

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

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