# 9. AUXILIARY PROPERTIES

## ●Radiation resistance

AFLAS is stable against γ-rays of up to 2000 KGy.

**γ-rays of up to 2000 KGy.**

| γ-ray (KGy) | 0 | 200 | 500 | 1000 | 2000 |
|---|---|---|---|---|---|
| AFLAS | | | | | |
| Tensile strength (MPa) | 18 | 19 | 18 | 18 | 18 |
| Elongation (%) | 208 | 250 | 130 | 100 | 50 |
| Vinylidenfluoride-type fluororubber | | | | | |
| Tensile strength (MPa) | 16 | 12 | 12 | 14 | 17 |
| Elongation (%) | 440 | 170 | 110 | 60* | 20* |
| PTFE resin | | | | | |
| Tensile strength (MPa) | 30 | Brittle | — | — | — |
| Elongation (%) | 320 | 〃 | — | — | — |

* Sticky

## ●Gas permeability

Gas permeability

| | Nitrogen | Oxygen | Carbonic acid gas |
|---|---|---|---|
| AFLAS | 7 | 23 | 29 |
| $CH_2CF_2$-$C_3F_6$ fluororubber | 4 | 15 | 78 |
| Epichlorohydrine rubber | | 5 | |
| Butyl rubber | 3 | 10 | 39 |
| CSM rubber (chlorosulfonated polyethylene rubber) | 12 | 28 | 210 |
| Chloroprene rubber | 9 | 30 | 200 |
| Styrene butadiene rubber | 50 | 130 | 940 |
| Natural rubber | 60 | 180 | 1,000 |
| Ethylene propylene rubber | 60 | 190 | 820 |
| Silicone rubber | 2,000 | 4,000 | 16,000 |

Pure gum compound (cc·mm/cm·sec·cmHg)×$10^{-10}$ R.T.

### Flame resistance

It is combustible in flame. But it stops burning without the flame.

### Weatherability

The properties of AFLAS show almost no change after one-year exposure test.

### Ozone resistance

No property change after one-month exposure in 50ppm of ozone at 40℃.

## ●Low temperature flexibility

| | AFLAS SP | AFLAS MZ201 | AFLAS 150P | AFLAS 100S | FKM (VdF/HFP) |
|---|---|---|---|---|---|
| Tg (℃) | -3 | -13 | -3 | -3 | -22 |
| TR-10 (℃) | 0 | -8 | 3 | 3 | -17 |

The lower limit of dipolymer for retaining elasticity is nearly 0 ˚C and that of terpolymer is nearly -10 ˚C in terms of compression set, rigidity modulus and TR-10 value. However, since those brittle points are -40 ˚C, Aflas is usable even at low temperatures, depending upon application method and purpose.