

## **GASKET MATERIALS**

### **FIBOX ENCLOSURE GASKETS OFFER THE BEST PROTECTION**

Gasketing plays an essential role in enclosure protection. In the long run, the IP rating and its reliability depend mainly on the properties of the gasket used in the enclosure. Key performance factors of a gasket are its compression set and proper fit in the gasket groove. The best general purpose gasket material is polyurethane which has an exceptionally low compression set. When accurately injection foamed, the polyurethane gaskets stay tightly in the right place. And EPDM material provides the best protection against the most popular industrial chemicals. However, it is wise to check the effect of a chemical on each gasket material since the chemical resistance of gasket materials varies greatly.

In some cases the performance of an enclosure can be modified by changing its gasket. The degree of protection depends on the material and the cross-section profile of the gasket. When choosing gasket material, compare the elasticity properties of different materials and how these properties are affected by cold and heat, or by contact with various chemicals. An important factor is that both the enclosure and gasket must withstand the same chemicals in order to reach a safe resistivity.

### **FIBOX ENCLOSURES ARE WELL DESIGNED**

The degree of ingress protection (IP) of an enclosure is mainly dependent on the properties of its gasket. Nevertheless, the gasket must also properly fit the enclosure. In addition to the cross-section profile of the gasket, there is the cross section of the gasket's contact with the surfaces of the enclosure bases and covers. If the cross-section structures and manufacturing accuracy of an enclosure are not top quality, the IP rating will remain low even when equipped with a good gasket. Naturally, all FIBOX enclosures are carefully designed, and precision made. Using FIBOX enclosures, you only need to focus on the variances in gasket materials.

FIBOX enclosure gaskets are made of PUR, EPDM, neoprene and silicon materials. Table 1 includes some commonly used physical properties of the gaskets. Note that the chemical resistances in the box and in Table 2 are only rough generalizations to give you some clues to gasket material behaviour. The resistance of each chemical should be checked separately. For additional information, please contact Fibox.

**Table 1: Gasket materials: physical properties comparison**

Property	Unit	TPE	PUR	EPDM	Neoprene	Silicon
Temperature range	°C	-40 - +120	-50 - +130	-50 - +120	-40 - +100	-60 - +170
Tensile strength	Mpa	5	0,4	13,0	8,0	9,4
Elongation at break	%	700	110	300	250	540
Hardness	Shore A	30	12	65	66	52
Density	g/cm3	1,13	0,33	1,12	1,6	1,15
Compression set	%	17	5	20	35	14

**Table 2: Gasket materials: physical properties comparison**

Chemical Performance	TPE	PUR	EPDM	Neoprene	Silicon
Neutral salts	****	****	****	****	****
Acids, low concentrations	****	***	****	***	***
Acids, high concentrations	***	*	***	*	*
Alkalis, low concentrations	****	***	****	****	***
Alkalis, high concentrations	***	*	****	***	*
Petroleums	*	*	*	***	*
Hydraulic oils	*	****	*	***	*
Alcohols	**	***	****	****	****
Cooling fluids	***	***	****	***	****