General

HPU orange is a hydrolysis–resistant (H-PU), casted Polyurethane, based on MDI, Polycarbonate Polyol and certain additives. Due to the excellent stability of the physical properties at higher temperatures and outstanding thermal ageing resistance, compared to other Polyurethanes it is recommended for applications where temperature and mechanical stress of the material reach the limits of standard Polyurethanes. HPU orange has been optimized to withstand the risk of rapid gas decompression (RGD) or explosive decompression (ED) which is an essential demand in the oil and gas industry.

Physical properties

Density:	DIN 53479	g/cm³	1,09 ±0,03
Hardness at 23°C:	DIN 53505	Shore A	96 ±2
Hardness at +100°C:	DIN 53505	Shore A	93 ±2
100% Modulus:	DIN 53504	N/mm²	≥ 10
300% Modulus:	DIN 53504	N/mm²	≥ 25
Tensile strength:	DIN 53504	N/mm²	≥ 45
Elongation at break:	DIN 53504	%	≥ 350
Tear strength:	DIN 53515	kN/m	≥ 110
Compression set, 24h, 70°C, 25%:	DIN 53517	%	≤ 25
Compression set, 24h, 100°C, 25%:	DIN 53517	%	≤ 30
Compression set, 24h, 125°C, 25%:	DIN 53517	%	≤ 65

Temperature range: **-30°C to 135°C**

Chemical resistance

Resistant to:	Water up to 90°C, Sea Water, Mineral Oils, Vegetable Oils, Silicone Oils, Ozone, Oxygen (cold), HFA fluids, HFB fluids, diluted Acids and Lyes
Not Resistant to:	Steam, conc. Acids and Lyes, conc. Alcohols, Solvents, HFD fluids

Main application

Static and dynamic applications, mostly used for U-seals, wipers, packings and oil seals up to 400 bar pressure in various applications. Especially in those where the combination of temperature, pressure and wear resistance of rubber and other polyurethane materials reach their limits, but also where heat generation because of friction is expected.

Rapid Gas Decompression (RGD) validation:

The compound has passed the RGD test at Element UK with the highest possible rating of **0000.**
Test conditions, according Norsok M-710, were 8 decompressions cycles with 90% Methane + 10% Carbon dioxide gas at 100° C and 150 bar test pressure.

Analysis and Evaluation

Values mentioned above are based on several tests performed during development and production of the material. Tests have been performed on standard test pieces specified within the relevant standard within the laboratory. Tests performed on any other pieces which are not related to the corresponding standard or made out of any (semi)finished part or any other part deviating in production process, dimension or age of the material from above may result in different values. The data represent our present empirical values and do not disengage the processor or user from his obligation to examine the usage of the material for his specific application.

 V2.0