MATERIAL DATA SHEET MDS P21 Rev. 3

TYPE OF MATERIAL: PEEK (Poly-ether-ether-ketone)

PRODUCT	Back-up rings and seat inserts	***TEMPERATURE RANGE***	-100°C to 200°C

1. SCOPE	This MDS specifies the technical requirements for the PEEK material.
2. PURCHASE INFORMATION	The purchase order shall contain the following information: Product type, size, grade designation and/or referenced drawing.
3. CHEMICAL COMPOSITION	Poly-ether-ether-ketone polymer with necessary stabilisers and processing aids.
4. QUALIFICATION TEST REQUIREMENTS	The material shall satisfy the following minimum requirements. The qualification shall be repeated if there are changes in the production route, manufacturing procedures, specified composition or properties of the product which exceeds the limits defined from qualification testing:

Mechanical properties:	*Test standard*	*Virgin*	*Glass filled*
- Tensile strength	ASTM D 638	95 MPa	> 150 MPa
- Tensile modulus	ASTM D 638	> 3000MPa	> 3500MPa
- Compressive strength	ASTM D 695	> 110 MPa	> 150 MPa
- HDT @ 1,81 MPa	ASTM D 648	150 °C	300 °C
- Impact strength (notched)	ASTM D 256	> 70 J/m	> 70 J/m
- Ultimate elongation	ASTM D 638	> 55 %	> 2 %
Physical properties:			
- Specific gravity	ASTM D 792	1.3 - 1.4 g/cm^3	1.4 - 1.6 g/cm^3
- Melting point	ASTM D 3418	340 °C	340 °C
- Water absorption (24 hrs.)	ASTM D 570	0.15 %	0.15 %
Properties at elevated temp.:			
The following properties shall be documented at 150 ºC and 200ºC:			
- Tensile strength	ASTM D 638	Manufacturer requirements	Manufacturer requirements
- Ultimate elongation	ASTM D 638		

5. DIMENSIONS	According to manufacturers written specification.
6. PRODUCTION TEST REQUIREMENTS	The production testing shall be performed according to the requirements in ISO 10423, quality level PSL3, and satisfy requirement for hardness as stated above and for the other parameters as stated in ISO 10423.
7. MARKING & PACKAGING	Components shall be supplied in suitable packaging as to protect the items from physical damage prior to installation. Markings on the packaging shall clearly indicate material batch number, and such markings shall ensure traceability through the manufacturers' QC-system to raw materials, formulation and manufacturing details.
8. CERTIFICATION	The material manufacturer shall have a quality system certified in accordance with ISO 9001 and the system shall have undergone a specific assessment for the relevant materials. Inspection certificate shall be to the requirements in ISO 10423, quality level PSL3.