



Material Overview

Standards and cleanliness are paramount

The sealing environment within food, beverage and pharmaceutical processing is perhaps the most demanding of all. Seal failure can lead to potential contamination or line stoppages. Materials, whether elastomer or plastics, have to cope with a broad variety of process media along with CIP (Cleaning In Place) and SIP (Sterilization In Place). They must also comply with an increasing number of national and international regulations such as FDA, 3-A, NSF and USP standards.

Materials developed for demanding applications

Based on decades of experience, working with leading equipment manufacturers and end users around the globe, we have developed a tailor-made portfolio of materials for this sector. To ensure extended sealing performance, Trelleborg Sealing Solutions has invested heavily in research to identify the optimum compound for each application. The resulting materials range from standard elastomers to the proprietary FFKM Isolast® and Turcon®, our range of PTFE based compounds. These are discussed in detail in the following section.

Compliance to all major standards

Most importantly, materials from Trelleborg Sealing Solutions are available across each compound type, which comply with all major standards including FDA 21 CFR 177.1550 for fluorocarbon plastics, FDA 21 CFR 177.2600 for elastomers, 3-A, USP Class VI, NSF, and Cytotoxicity (USP 87). On page 6 we give details of these standards.

Animal Derived Ingredients Free

Animal Derived Ingredients (ADI) can cause the disease BSE and should therefore be avoided in products that may come into contact with products that are intended for human consumption. Sealing material ingredients and process aids can contain ADI. Trelleborg Sealing Solutions has therefore checked the compound portfolio and can now offer a broad selection of ADI free materials.

Elastomers

Material	TSS Compound	Shore A	Type	Colour
EPDM	E7502	70	Elastomer	Black
EPDM	E7518	70	Elastomer	Black
EPDM	E8502	80	Elastomer	Black
FKM	V8605	80	Elastomer	Black
FKM	V8T41	80	Elastomer	Black
Resifluor™ 500	VCT90	75	Elastomer	Black
Isolast®	J9515	75	Elastomer	Black
Isolast®	J9516	75	Elastomer	White
Isolast®	J9503	75	Elastomer	Black
Isolast®	J9509	90	Elastomer	Black
Isolast®	J9505	70	Elastomer	White
Isolast®	J9501	80	Elastomer	White
Isolast®	J8325	75	Elastomer	Black
Isolast®	J9512	75	Elastomer	Black
Silicon	SC6L1	75	Elastomer	Blue
Silicon	S70R8	70	Elastomer	Red
NBR	N7027	70	Elastomer	Black
NBR	N7007	70	Elastomer	Black
NBR	N8604	80	Elastomer	Black

Plastic

Material	TSS Compound	Specific Gravity	Type	Colour
Turcon®	MF1	2.16 g/cm ³	Plastic	Off White
Turcon®	MF2	2.17 g/cm ³	Plastic	Off White
Turcon®	MF3	2.17 g/cm ³	Plastic	Off White
Turcon®	MF4	2.06 g/cm ³	Plastic	Grey
Turcon®	MF5	2.19 g/cm ³	Plastic	Off White
Turcon®	MF6	1.93 g/cm ³	Plastic	Brown
Turcon®	T05	2.17 g/cm ³	Plastic	Turquoise
Turcon®	T46	3.07 g/cm ³	Plastic	Brown
Turcon®	T19	2.31 g/cm ³	Plastic	Grey
Zurcon®	Z80	0.93 g/cm ³	Plastic	Translucent
Zurcon®	Z2221	1.16 g/cm ³	PUR	White

The indicated material properties are average values determined with standard test finished parts. The end user is responsible for ensuring that the selected material is



Min. Temp °C/°F	Max. Temp °C/°F Air	Max. H ₂ O °C/°F Steam	Tensile Strength MPa	Elongation at break %	Compression Set % °C/°F	FDA	USP	3-A
-45°C/49°F	160°C/320°F	160°C/320°F	16,4	216	18% at 72h/150°C/302°F	•	•	•
-45°C/49°F	150°C/302°F	150°C/302°F	15,9	171	10% at 24h/150°C/302°F	•	•	
-45°C/49°F	160°C/320°F	160°C/320°F	15,9	125	11% at 24h/150°C/302°F	•	•	•
-18°C/0°F	200°C/392°F	130°C/266°F	14,2	197	13% at 24h/175°C/347°F	•	•	•
-20°C/-4°F	200°C/392°F	170°C/338°F	12	340	14% at 24h/175°C/347°F	•	•	•
-20°C/-4°F	220°C/338°F	170°C/338°F	15,2	210	18% at 70h/150 C/302°F	•	•	•
-10°C/14°F	250°C/482°F	250°C/482°F	11,7	182	16% at 72h/200°C/392°F	•	•	•
-10°C/14°F	250°C/482°F	250°C/482°F	11,9	228	35% at 72h/200°C/392°F	•	•	
-25°C/-13°F	240°C/464°F	240°C/464°F	12,6	124	16% at 72h/200°C/392°F			
-25°C/-13°F	240°C/464°F	240°C/464°F	12,1	70	48% at 72h/200°C/392°F			
-20°C/-4°F	240°C/464°F	240°C/464°F	8,6	172	23% at 72h/200°C/392°F			
-20°C/-4°F	240°C/464°F	240°C/464°F	10,8	147	27% at 72h/200°C/392°F			
-15°C/5°F	325°C/617°F	-	16,9	205	19% at 72h/200°C/392°F			
-5°C/23°F	260°C/500°F	260°C/500°F	13,1	191	14% at 72h/200°C/392°F			
-60°C/-76°F	200°C/392°F	100°C/212°F	9,9	400	20% at 72h/175°C/347°F	•		•
-60°C/-76°F	200°C/392°F	100°C/212°F	8,1	234	24% at 24h/175°C/347°F	•		
-30°C/-22°F	100°C/212°F	100°C/212°F	17,9	330	9% at 24h/100°C/212°F	•		
-30°C/-22°F	100°C/212°F	100°C/212°F	19,8	225	15% at 24h/100°C/212°F	•		
-30°C/-22°F	100°C/212°F	100°C/212°F	18,3	128	14% at 24h/100°C/212°F	•		

Min. Temp °C/°F	Max. Temp °C/°F	Max. H ₂ O °C/°F	Tensile Strength MPa	Tensile Elongation at break %	Creep %	FDA	USP	3-A
-253°C/-423°F	260°C/500°F	260°C/500°F	36 MPa	330	5,5	•	•	•
-200°C/-328°F	260°C/500°F	260°C/500°F	35 MPa	506	2,2	•		
-200°C/-328°F	260°C/500°F	260°C/500°F	29 MPa	320		•		
-200°C/-328°F	260°C/500°F	260°C/500°F	26 MPa	280	3,3	•	•	
-200°C/-328°F	260°C/500°F	260°C/500°F	28 MPa	311	6,4	•		
-200°C/-328°F	260°C/500°F	260°C/500°F	22 MPa	235		•	•	•
-200°C/-328°F	260°C/500°F	260°C/500°F	40 MPa	430	5,6			
-200°C/-328°F	260°C/500°F	260°C/500°F	29 MPa	280	3,7			
-200°C/-328°F	260°C/500°F	260°C/500°F	23 MPa	230	2,7			
-200°C/-328°F	125°C/257°F	100°C/212°F	51 MPa	260	5,5	•		
-45°C/49°F	110°C/230°F	60°C/140°F	57 Mpa	560		•		

slabs according to the corresponding specification. These values cannot be used as specification values and may be different from the material properties of suited to their specific application.