OVERVIEW OF MATERIALS | Order logic

Overview of vacuum cup materials

Short designation	Material code	Hardness [Shore A ± 5°]	Commercial designation	Commercial name (example)	Short-term working temperature [°C]	Short-term working temperature [°F]	Abrasion resistance	Flexibility	Oil-resistance	Fuel resistance	Ozone and weathering resistance	Acid resis-tance	Leaching resistance
CR	9	50 - 60	Chloroprene	Neoprene®	-40 / +110	-40 / +230	+	+	++	o	++	+	+
EPDM	15	50		Vistalon®	-40 / +130	-40 / +266	+	++	o	o	++++	+++	+++
FKM	7	65	Fluor rubber (FPM)	Viton®	-10 / +230	+14 / +446	o	o	++++	++++	++++	+++	+++
Foam rubber	12							++++					
HNBR	14	55	Hydrogenated acrylonitrile-butadiene rubber	Therban®	-30 / +160	-22 / +320	++	+	++++	++	+++	+	+
Monoflex	22	50	Polyurethane		10 / +50	+50 / +122	+++	++++	+++	+++	++	o	+++
NBR	1	50 - 60	Nitrile rubber	Perbunan®	-30 / +90	-22 / +194	+	+	+++	+	o	o	o
NBR-AS	1AS	50 - 70	Nitrile rubber, anti-static		-30 / +90	-22 / +194	+	+	+++	++	o	o	+
NR	4	35 - 45	Natural rubber	SMR	-40 / +80	-40 / +176	++	++++	o	o	o	+	++
NR	3	50 - 65	Natural rubber	SMR	-40 / +80	-40 / +176	++	+++	o	o	o	+	++
PU	5	50 - 65	Polyurethane (EU/AU)	Urepan®	-20 / +80	-4 / +176	++	+	+++	++	+	o	o
SBR	13	50 - 60	Styrene-butadiene-rubber (SBR)	Buna®	-30 / +80	-22/ +176	+++	++	o	o	+	+	+
SI	8; 8-LE*	35 - 45	Silicone rubber	Elastosil®	-40 / +200	-40 / +392	o	++++	o	o	+++	o	o
SI	2; 2-LE*	50 - 70	Silicone rubber	Elastosil®	-40 / +200	-40 / +392	o	+++	o	o	+++	o	o
SI-AS	2AS	50 - 70	Silicone rubber anti-static	Elastosil®	-40 / +200	-40 / +392	o	+++	o	o	+++	o	o
Tepuflex®	17	50	Thermoplastic elastomer		0 / +60	+32 / +140	+++	++	o	o	+++	o	o
Thermalon®	19	60			0 / +160	+32 / +320	++	+	+++	++	o	+	+
TPU	18	60 - 75	Thermoplastic elastomer	Elastollan®	0 / +65	+32 / +149	+++	o	+++	++	+++	o	+
Varioflex®	16	30/60	Polyurethane (2 Shore Hardnesses)		+10 / +50	+50 / +122	+++	++++	+++	+++	++	o	+++
Vinyl	V	50 - 55	PVC (soft)		0 / +60	+32 / +140	+++	++	+	+	++	++	++
Vulkollan®	11	75		Vulkollan®	-40 / +80	-40 / +176	++++	+	+++	++	+++	+	+

++++ = Excellent +++ = Very good ++ = Good + = Fair 0 = Low to satisfactory

Ordering example: Flat vacuum cup made of silicone 50° Shore A

Item No.		
102.030.222._*	> Add material code >	102.030.222.2

NOTE!

> Depending on the application, vacuum cups are subject to mechanical and chemical stresses. The data serve therefore only as guidelines.
> Special vacuum cups fitted with felt linings are extremely low-marking and can be deployed at temperatures up to a max. of 500 °C (932 °F)
> Material colors may change, but the quality remains unaffected.
> Material colors: bg = beige, bl = blue, br = brown, g = green, ge = yellow, gr = gray, or = orange, r = red, sw = black, tr = transparent, w = white
> *Silicone vacuum cups with marking „-LE“: suitable for direct contact with food (compliant to EU regulation 1935/2004 and FDA § 177.2600 e and f)

PROPER STORAGE OF ELASTOMERS

Some elastomer parts are stored for long periods. This can affect product quality. Changes are the result of individual or combined influences of special factors, such as deformation, oxygen, ozone, light, heat, moisture, oils and solvents. For this reason, precautions must be taken to ensure that the service life will not be considerably shortened by incorrect storage. Storage and the recording of time in storage is governed by ISO 2230 and DIN 7716.

HEAT

> Storage temperature of elastomers should preferably be between +5 °C and +25 °C.
> Direct contact with heat sources (such as radiators) or direct sunlight should be avoided.
> Storage at low temperatures can cause elastomers to harden. In this temperature range, therefore, moulded parts must be handled with great care to avoid deformations.

MOISTURE

> Relative humidity in storage areas should be below 70 %. Avoid extremely wet or dry conditions. No condensation should be present.

LIGHT, OZONE

> Elastomer parts should be stored away from light sources and ozone. In particular, direct sunlight or strong artificial light containing an ultraviolet band should be avoided. The use of individual containers, especially plastic bags, is preferred, provided they are UV-protected.

DEFORMATION

> Elastomer components should be stored free of compressions or deformations and in an unbent state. Items delivered in an unbent state should be kept in their original packaging.

CONTACT WITH LIQUIDS OR GREASE

> Moulded elastomer parts should not come into contact during storage with solvents, oils or grease, if not already so packed by the manufacturer.

CONTACT WITH METAL AND NON-FERROUS METALS

> Direct contact with certain metals such as manganese, iron, copper and its alloys, e.g. brass, damages some elastomers and should be avoided during storage.
> Due to the potential for plasticiser migration or migration of other components, elastomers should not be stored in contact with PVCs.

FIPA GmbH Headquarters | Germany | Phone: +49 89 962489-0 | www.fipa.com | info@fipa.com
FIPA Inc. | USA | Phone: +1 919 6519888 | www.fipa.com | sales.us@fipa.com

IMPORTANT INFORMATION

LENGTH OF STORAGE AND INSPECTION (EMPIRICAL VALUES)

The useful life of elastomeric products depends to a considerable degree on the type of elastomer. If the above-mentioned recommendations for storage are observed, the various elastomers can be stored for the times given below:

AU, EU, BR, SBR, NR, thermoplastics	4 years	After the specified time, moulded elastomer parts should be inspected. An extension of shelf life is then possible. Elastomer parts and components less than 1.5 mm thick are more susceptible to attack by oxidation, even when stored under ideal conditions as recommended. The inspection interval should therefore be shorter than indicated above.
NBR, HNBR, CR	6 years	
EPDM	8 years	
FKM, SI, SI-FS	10 years	

IMPORTANT INFORMATION ON THE STORAGE OF POLYURETHANE (AU/EU)

PE bags are used exclusively for safe transport and not for permanent storage.

Polyurethane products must not be stored in sealed PE bags (hydrolysis aging). Polyurethane articles are best stored unpacked.

When storing in cartons or other containers, ensure adequate ventilation (normal air circulation in the storage room is sufficient).

Polyurethane can be stored in PE bags only if the bag is not sealed. When stored in sealed PE bags, the polyurethane is destroyed by hydrolysis.

Optimal storage conditions:

Temperature:	room temperature (+5 to +25 °C)
Humidity:	ca. 30 % to 70 %
Air exchange:	air circulation at the storage place is necessary