GENERAL CHARACTERISTICS OF RUBBER COMPOUNDS

TRADE NAME	INTERN. CODE	VT CODE	POSITIVE CHARACTERISTICS	NEGATIVE CHARACTERISTICS	COLOUR	TEMPERATURE OF USE	HARDNESS	CHEMICAL RESISTANCE	FOOD STANDARDS	USE
NITRILE OR OIL-RESISTANT RUBBER	NBR	A	Highly resistant to oil, heat and ageing. Low permanent deformation and low gas permeability.	Limited ozone resistance, if untreated. Low dielectric strength, Low resilience.	Black	From -40 to + 130°C	60 - 70 Sh.A	Resistance to mineral oils, hydrocarbons, water, vapour, gas and vegetable oils.	Not recommended	The excellent mechanical characteristics of this compound allow the vacuum cups to withstand heavy-duty work such as tears, crushing, bumps, etc. They are suitable for gripping metal plates, glass and loads with a smooth surface.
BENZ RUBBER	HNBR	B	Excellent resistance to wear, ageing, chlorine-containing oils, grease and petrol. Low permanent deformation. Does not leave marks on the gripping surfaces of the vacuum cups.	Low dielectric strength, Low resilience.	Black Red	From -40 to + 170°C	60 - 75 Sh.A	Resistance to chlorine-containing mineral oils, hydrocarbons, water, vapour, gas and vegetable oils.	Not recommended	The vacuum cups produced with this compound are able to withstand heavy-duty work such as tears, crushing, bumps, etc. They are suitable for gripping metal plates, glass and loads with a smooth surface. Especially recommended for the AUTOMOTIVE sector.
BIOND NON-MARKING RUBBER	----	BA	Biond compound with good elastic yield and resistance to wear, cutting and tearing. Has the property of not leaving stains, marks or prints on the gripping surfaces.	Poor resistance to oils and heat.	Light blue	From -30 to + 80°C	45 - 60 Sh.A	Fair resistance to sea water, acids and medium concentration alkalis.	Not recommended	Vacuum cups produced with this compound are suitable for gripping marble, wood, glass, metal sheets, etc., without leaving marks or prints on the gripping surfaces.
ANTI-STATIC NITRILE RUBBER	NBR-AS	AS	Highly resistant to oil, heat and ageing. Low permanent deformation. Highly conductive and anti-static compound.	Limited ozone resistance if untreated. Low resilience.	Black	From -40 to + 130°C	60 - 70 Sh.A	Excellent resistance to mineral oils, hydrocarbons, water, vapour, gas and vegetable oils.	Not recommended	In addition to the normal use of the NBR compound, the vacuum cups made with this compound can be used in all those cases where it is necessary to dissipate electrostatic charges accumulated on the gripping surfaces.
PARA RUBBER	NR	N	Excellent elastic yield and resistance to wear, cutting and tearing. Exceptional elongation at break.	Poor resistance to oils and heat.	Black	From -70 to + 80°C	45 - 50 Sh.A	Fair resistance to sea water, acids and medium concentration alkalis.	Not recommended	The flexibility of the compound allows these vacuum cups to grip on rough and irregular surfaces. They are suitable for wood, cardboard, marble, bricks, glass and plastic.
SYNTHETIC PARA RUBBER	IR	N	Good elasticity, excellent fatigue resistance, good mechanical properties, better purity than NR.	Poor resistance to UV rays, ozone and oxidising agents in general, poor resistance to mineral oils.	Black	From -50 to + 90°C	35-45 Sh.A	Good resistance to seawater and diluted acids, alcohols, saline solutions.	Not recommended	The flexibility of the compound allows these vacuum cups to grip on rough and irregular surfaces. They are suitable for wood, cardboard, marble, bricks, glass and plastic.

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NATURAL RUBBER	NR	NG	The same compound described above, untreated.	Poor resistance to ageing, oils and heat.	Yellow	From -50 to + 70°C	40 - 45 Sh.A	As NR described above.	Not recommended	The higher flexibility of the compound allows these vacuum cups to grip on very rough and irregular surfaces. The vacuum cups made with this compound are recommended for gripping paper, cardboard, plastic, plastic film for packaging, etc.
GERANIUM FOAM RUBBER	NR	OF	Excellent elastic yield and resistance to tearing. Exceptional elongation at break.	Poor resistance to ageing, oils and heat.	Orange	From -40 to + 80°C	25 - 30 Sh.A	Fair resistance to sea water, acids and medium concentration alkalis.	Not recommended	The softness of the foam rubber makes it possible to create vacuum cups for gripping loads with raw or very rough surfaces.
SILICONE	VMQ	S	Perfect performance at high and low temperatures. Conductive compound.	Modest mechanical properties. Can leave marks on the gripping surfaces of vacuum cups.	Neutral White Red	From -50 to +300°C	40 - 45 Sh.A	Excellent resistance to chlorinates, solvents, ozone, oxygen and U.V.	It is possible to produce vacuum cups according to FDA, BGA, TSCA, etc. food standards.	Silicone vacuum cups are used in the food and electronics industry, in packaging and in all those cases where the contact surface has very high or very low temperatures.
ANTI-STATIC SILICONE	VMQ-AS	SAS	Perfect performance at low and high temperatures. Highly conductive and anti-static compound.	Modest mechanical properties. Can leave marks on the gripping surfaces of vacuum cups.	Black	From -50 to + 200°C	40 - 45 Sh.A	Similar to VMQ silicone compound.	Compound not recommended for food use.	Anti-static silicone vacuum cups are used in the electronics, the recording industry and in all those cases where it is necessary to dissipate electrostatic charges from the gripping surface.
STABILISED SILICONE	VMQ-SS	SS	Perfect performance at high and low temperatures. Conductive and non-marking compound. Does not leave marks or prints on the gripping surfaces.	Modest mechanical properties.	Neutral White	From -50 to + 300°C	40 - 45 Sh.A	Similar to VMQ silicone compound.	It is possible to produce vacuum cups for food use.	The stabilised silicone vacuum cups are widely used in the ceramic industry and in all those cases where, in addition to withstanding high temperatures, marks or prints must not be left on the gripping surfaces.
MAGNETIC SILICONE	----	SMG	Perfect performance at high and low temperatures. Highly conductive, magnetically detectable compound.	Modest mechanical properties. Can leave marks on the gripping surfaces of vacuum cups if not stabilised.	Black	From -50 to + 250°C	45 - 50 Sh.A	Excellent resistance to chlorinates, solvents, ozone, oxygen and U.V.	The chemical composition of the compound contains exclusively substances authorised by regulation FDA CFR 21: 177-2600 " METAL DETECTABLE COMPOUND - HEAT CONDUCTIVITY COMPOUND "	Magnetic silicone vacuum cups are used in the food industry and have the characteristic of being easily detectable by metal detectors used for food protection in case of breakage or accidental detachment.

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VITON®	FKM	V	Excellent resistance to chemical deterioration; perfect for lubricants and heat. Good compression performance and elastic yield. Does not leave marks.	Poor resistance to alkalis and ketones.	Green Brown	From -20 to + 300°C	50 - 60 Sh.A	Excellent resistance to sunlight, flame and high temperatures, to aromatic and aliphatic hydrocarbons, to chemical agents and chlorinated solvents.	Not recommended	This compound is used to produce vacuum cups that are highly qualified for the mechanical, oil, chemical, pharmaceutical, aeronautical and nuclear industries.
VULKOLLAN® POLYURE-THANE	AU-EU	PU	Very high resistance to abrasion, traction, bending and oils. Does not leave marks.	Poor resistance to water, alkalis and acids.	Ivory Blue	From -30 to + 100°C	60 - 70 Sh.A	Excellent resistance to petroleum products.	Not recommended	Suitable for producing vacuum cups subjected to heavy-duty, intense and continuous use.
DUTRAL®	EPDM	EPDM	Excellent resistance to heat, atmospheric agents and ageing. Excellent resistance to low temperatures.	Poor elasticity.	Black	From -60 to + 150°C	50 - 70 Sh.A	Good resistance to aggressive chemicals and oxygen.	Not recommended	EPDM vacuum cups are recommended for machines operating outdoors, in contact with atmospheric agents and sea water. Excellent performance in contact with printing inks and solvents.
NEOPRENE®	CR	NE	Fair resistance to oils. Excellent resistance to ozone, sea water and ageing. Good resistance to cutting, abrasion and combustion.	Poor elastic yield. Risk of permanent deformation over time.	Black	From -20 to + 120°C	50 - 70 Sh.A	Excellent resistance to petroleum products, sunlight, atmospheric agents, ozone and flames.	Not recommended	Vacuum cups made with this compound are used in the electrical industry and on handling systems that operate outside, in contact with atmospheric agents.
NEOPRENE® FOAM RUBBER	CR	NF	Fair resistance to oils. Excellent resistance to ozone, sea water and ageing. Good resistance to cutting, abrasion and combustion.	Poor elasticity. Tendency to deform over time.	Black	From -20 to + 80°C	30 - 35 Sh.A	Excellent resistance to oil products, sunlight, atmospheric agents, and ozone.	Not recommended	The softness that characterises this foam rubber allows for the use of vacuum cups for gripping coarse or very rough surfaces operating outside in contact with atmospheric agents.
EXTRA SOFT FOAM RUBBER	EPDM	SB	Excellent resistance to heat, atmospheric agents, low temperatures and ageing.	Low resistance to oils and modest mechanical properties.	Black	From -40 to + 130°C	8 ÷ 10 Sh.A	Good resistance to aggressive chemicals and oxygen.	Not recommended	The softness of this rubber foam makes it suitable for use on grip surfaces for loads with coarse or very rough surfaces.