Paper, Cork & Rubber

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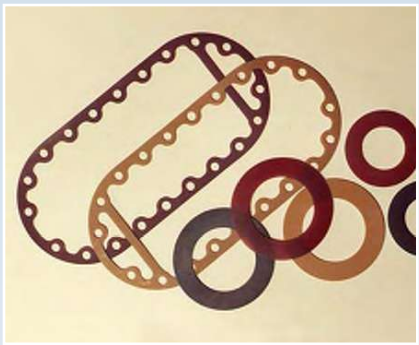

Rubber, cork and paper-based gasket materials offer a low cost sealing solution for applications where the additional strength offered by composite materials with fibre reinforcements such as aramid, glass or carbon is not a requirement.

Paper, rubber and paper-based materials are often used in low temperature and low pressure applications.

Rubber materials

- Economical
- Easy to use
- A wide range of materials available to meet the requirements for many chemically aggressive applications.
- Seals at very low bolt loads
- Can be used with plastic and rubber lined pipework

Cork materials

A range of materials manufactured from the highest quality cork oak bonded with a synthetic rubber. These materials combine the natural compressibility of cork with the resilience of rubber, producing a material high mechanical strength and high compressibility.

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Impregnated Paper

Applications:

- Extensively used in the automotive industry
- Low pressure applications with oil and fuel

Properties:

- Impregnated paper gasket providing reliable sealing at low cost
- Available in sheet form and as cut gaskets

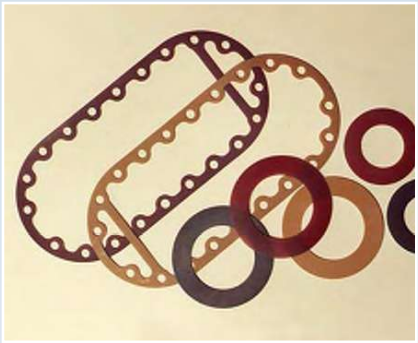
Typical Specifications:

Colour :	Buff both sides
Compressibility (ASTM F36J) :	12-16%
Recovery (ASTM F36J) :	25-40%
Maximum continuous service temperature:	120°C
Maximum pressure:	8bar
Minimum tensile strength (ASTM F152):	>13N/mm^2
Thickness increase after immersion in:	
Oil IRM 903, 5h/150°C	<5%
Fuel B, 5h/23°C	<5%
Water, 5h/23°C	<30%
Weight increase after immersion in:	
Oil IRM 903, 5h/150°C	<15%
Fuel B, 5h/23°C	<15%
Water, 5h/23°C	<90%
Density:	0.7 g/cm^3
(Based on 0.8mm thick sample)	

Availability:

- Thickness (mm) : 0.15, 0.2, 0.25, 0.4, 0.5, 0.8, 1.0, 1.6, 3.2
- Sheeting (m) : 1.0 x 1.0
- Also available in rolls :

Thickness (mm)	0.15	0.2	0.25	0.4	0.5	0.8	1.0	1.6	3.2
Roll Length (m)	100	100	100	100	100	100	50	50	25



Nitrile rubber bonded cork

Applications:

- Extensively used in the automotive industry
- Low pressure applications with oil and fuel

Properties:

- High quality nitrile bonded cork
- Excellent resistance to oils, fuels, hydrocarbons and water
- Good sealing properties at low bolt loads
- Available in sheet form and as cut gaskets

Typical Specifications:

Compressibility (at 400psi) :	25-35%
Recovery :	80%
Hardness (Shore A) :	70-80
Maximum service temperature:	120°C
Minimum tensile strength (ASTM F152):	>1.7N/mm^2
Thickness increase after immersion in:	
ASTM Oil I	-5 to +10%
Oil IRM 903	0 to 15%
Fuel A,	-2 to +10%
Density:	0.7-0.75 g/cm^3

Tests and Certifications:

- BS F66

Availability:

- Thickness (mm) : 1.0, 1.5, 2.0, 2.4, 3.0, 4.5, 6.0
- Sheeting (m) : 1.0 x 1.0

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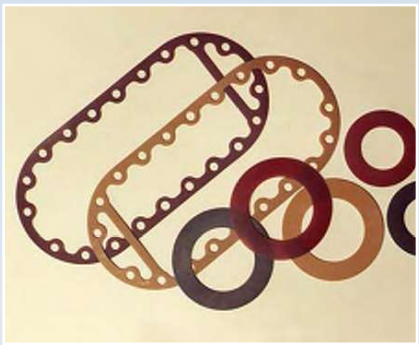
Nitrile rubber bonded cork



Applications:

- Extensively used in the automotive industry
- Low pressure applications with oil and fuel

Properties:

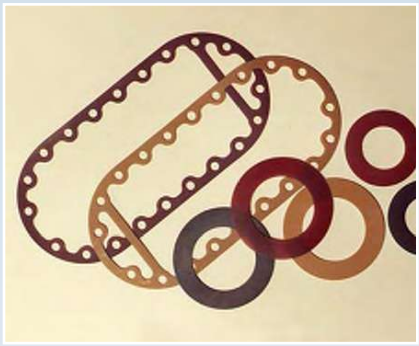
- Medium quality nitrile bonded cork
- Excellent resistance to oils, fuels, hydrocarbons and water
- Good sealing properties at low bolt loads
- Available in sheet form and as cut gaskets

Typical Specifications:

Compressibility (at 400psi) :	3550%
Recovery :	80%
Hardness (Shore A) :	55-65
Maximum service temperature:	120°C
Minimum tensile strength (ASTM F152):	>1.0N/mm^2
Thickness increase after immersion in:	
ASTM Oil I	-5 to +5%
Oil IRM 903	15 to 50%
Fuel A,	0 to +10%
Density:	0.55-0.6 g/cm^3

Availability:

- Thickness (mm) : 1.0, 1.5, 2.0, 2.4, 3.0, 4.5, 6.0
- Sheeting (m) : 1.0 x 1.0



Neoprene rubber bonded cork

Applications:

- Extensively used in the automotive industry
- Low pressure applications with oil and fuel

Properties:

- Medium-quality Neoprene bonded cork
- Good resistance to oils, hydrocarbons and water
- Good sealing properties at low bolt loads
- Available in sheet form and as cut gaskets

Typical Specifications:

Compressibility (at 400psi) :	25-35%
Recovery :	80%
Hardness (Shore A) :	55-65
Maximum service temperature:	110°C
Minimum tensile strength (ASTM F152):	>1.1N/mm^2
Thickness increase after immersion in:	
ASTM Oil I	-2 to +10%
Oil IRM 903	0 to 30%
Fuel A,	0 to +10%
Density:	0.6-0.7 g/cm^3

Availability:

- Thickness (mm) : 1.0, 1.5, 2.0, 2.4, 3.0, 4.5, 6.0
- Sheeting (m) : 1.0 x 1.0

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SBR Rubber

Applications:

- Water, weak organic acids and moderate chemicals

Properties:

- The general purpose, synthetic equivalent to natural rubber, offering similar mechanical properties but better high temperature performance, flexibility and a greater resistance to attack from animal and vegetable oils

Typical Specifications:

Colour :	Black
Density :	1.5 g/cm^3
Hardness (Shore A) :	70º
Tensile strength :	4 N/mm^2
Elongation :	200%
Temperature range :	-10ºC to +90ºC

Neoprene (CR) Rubber

Applications:

- Oils, fuels and moderate acids and alkalis
- Resistant to weathering and ozone

Properties:

- A good general purpose polychloroprene sheet
- Recommended for use in less demanding situations with air, water, non-oxidising acid and aliphatic hydrocarbons or where extra resistance to heat, ozone or weathering is required

Typical Specifications:

Colour :	Black
Density :	1.4 g/cm^3
Hardness (Shore A) :	65º
Tensile strength :	6 N/mm^2
Elongation :	300%
Temperature range :	-10ºC to +90ºC

Nitrile (NBR) Rubber

Applications:

- Oils and solvents, aromatic and aliphatic hydrocarbons and alcohols and animal fats

Properties:

- A universal, oil resistant rubber
- A good quality general purpose nitrile sheet
- Recommended where added resistance to mineral oils, alcohols and petroleum is required especially under hot conditions
- It is not recommended for use in sunlight, or near sparking electrical apparatus

Typical Specifications:

Colour :	Black
Density :	1.5 g/cm^3
Hardness (Shore A) :	65^o
Tensile strength :	6 N/mm^2
Elongation :	250%
Temperature range :	-40^{o}C to +100^{o}C

EPDM Rubber

Applications:

- Acid, alkalis and hot water.
- It is especially suited to hot water, strong alkali applications and KOH

Properties:

- This material has good mechanical properties and is resistant to ageing, weathering, ozone, oxygen, steam and water
- Recommended for use where resistance to sunlight, weather, steam and ozone attack is important
- Suitable for use with phosphate ester-based hydraulic fluids and many mineral acids
- Not suitable for use with petroleum based oils or fluids
- WRc approved grade is available

Typical Specifications:

Colour :	Black
Density :	1.3 g/cm^3
Hardness (Shore A) :	70^o
Tensile strength :	3 N/mm^2
Elongation :	200%
Temperature range :	-40^{o}C to +140^{o}C

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Hypalon (CSM) Rubber

Applications:

- Acids, oils and non-aromatic benzenes

Properties:

- Excellent resistance to ozone and good resistance to mineral oils, weather and acids
- Possesses excellent resistance to ozone and good resistance to flame, mineral oil, heat, weather and acid, making it ideal for use outdoors or near sparking electrical equipment

Typical Specifications:

Colour :	Black
Density :	1.5 g/cm^3
Hardness (Shore A) :	70^o
Tensile strength :	7 N/mm^2
Elongation :	200%
Temperature range :	-20^{o}C to +120^{o}C

Viton (FKM) Rubber

Applications:

- Many acids and alkalis, aliphatic hydrocarbons, oils and ozone

Properties:

- High temperature rubber material with resistance to a wide range of chemicals
- A high quality fluorocarbon rubber which exhibits a wide range of chemical resistance
- Extremely resistant to the effects of oxygen and ozone
- Retains excellent mechanical properties even when subjected to high temperatures for long periods of time

Typical Specifications:

Colour :	Black
Density :	2.0 g/cm^3
Hardness (Shore A) :	75^o
Tensile strength :	10 N/mm^2
Elongation :	200%
Temperature range :	-20^{o}C to +200^{o}C

Butyl (IIR) Rubber

Applications:

- Requiring excellent gas tightness.
- Good general chemical stability including resistance to mineral acids

Properties:

- This material is resistant to phosphate ester based hydraulic fluids and mineral oils
- It is highly impermeable to gas and moisture but is not recommended for petroleum oils and fluids
- Good resistance to phosphate ester based hydraulic fluids and mineral oils
- It is highly impermeable to gas and moisture and has good general chemical resistance including mineral acids
- Resistance to petroleum oils and fuels is low

Typical Specifications:

Colour :	Black
Density :	1.2 g/cm^3
Hardness (Shore A) :	60^o
Tensile strength :	13 N/mm^2
Elongation :	600%
Temperature range :	-40^{o}C to +120^{o}C

Natural (NR) Rubber

Applications:

- Oils, fuels and moderate acids and alkalis
- This rubber is weather and ozone resistant

Properties:

- A good general purpose polychloroprene sheet
- Recommended for use in less demanding situations with air, water, non-oxidising acid and aliphatic hydrocarbons or where extra resistance to heat, ozone or weathering is required
- A medium quality commercial grade which exhibits the qualities required for a good gasket
- Suitable for gaskets and packing where no particularly high resistance to heat, oils or solvents is required e.g. cold water, sewage pipes, etc.

Typical Specifications:

Colour :	Black
Density :	1.0 g/cm^3
Hardness (Shore A) :	40^o
Tensile strength :	18 N/mm^2
Elongation :	600%
Temperature range :	-40^{o}C to +80^{o}C

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Silicone (VMQ) Rubber

Applications:

- Vegetable fats and oils, water and where ozone resistance is required
- This material offers excellent high and low temperature properties and can be used in contact with foodstuffs

Properties:

- A high quality silicone rubber with excellent resistance to temperature extremes
- Good weathering properties and can be used in contact with foodstuffs and a white silicone rubber is also available

Typical Specifications:

Colour :	Translucent
Density :	1.2 g/cm^3
Hardness (Shore A) :	60º
Tensile strength :	7 N/mm^2
Elongation :	400%
Temperature range :	-60ºC to +200ºC (peak 250ºC)

Polyurethane (PU) Rubber

Applications:

- Oils, benzene and ozone.
- An oil resistant rubber with excellent mechanical properties at low temperature.

Properties:

- Excellent resistance to oils, solvents, fats, grease, petrol, ozone, sunlight and weather
- The mechanical properties are low but care should be taken at high temperatures
- Polyurethanes are particularly susceptible to hydrolysis and should not be used with hot water or acid

Typical Specifications:

Colour :	Brown
Density :	1.26 g/cm^3
Hardness (Shore A) :	70º to 90º
Tensile strength :	25-30 N/mm^2
Elongation :	500-600%
Temperature range :	-40ºC to +80ºC (peak 130ºC)

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