

TECHSEAL



AMORIM  
CORK COMPOSITES

# Reinventing sealing technology

Automotive  
and multipurpose  
seals and gaskets





## Seals and Gaskets

# Cork, an exceptional raw material

Cork is the outer bark of the cork oak tree (*Quercus Suber L.*), the 100% natural plant tissue covering the trunk and branches.

It consists of a honeycomb-like structure of microscopic cells filled with an air-like gas and coated mainly with suberin and lignin. One cubic centimetre of cork contains about 40 million cells.

Cork is also known as “nature's foam” due to its alveolar cellular structure. It has a closed-cell structure making it lightweight, airtight and watertight, resistant to acids, fuels and oils, and impervious to rot.

It is sustainably harvested by specialised professionals without damaging the trunk, thus enabling the tree to grow another layer of outer bark that, in time, will be re-harvested. Over the course of the cork oak tree's life, that lasts 200 years on average, the cork may be stripped around 17 times. This means that cork is not only a natural raw material, it is also renewable and recyclable.



Cork cell microscopic view.



Thermal resistance



Impermeable to liquids



Controlled side flow  
- less extrusion,  
good conformability



Chemical resistance



Elasticity  
- good load transfer



Performance



Impermeable to gases



Sustainable

# Techseal

## solutions for the best sealing performance

Amorim Cork Composites has many years of experience in providing sealing solutions to numerous industries, supplying engineering support during product development, giving a global advantage when it comes to designing sealing systems, allowing an overall optimised sealing solution for our clients.

### Materials & Applications



#### Automotive

Automotive seals and gaskets  
Powertrain sealing materials



#### Multipurpose Seals and Gaskets

Gasket materials for applications that include electric & electronic enclosures, natural gas & LPG, heavy duty diesel, industrial and small gasoline engines



## Main Advantages

### Temperature

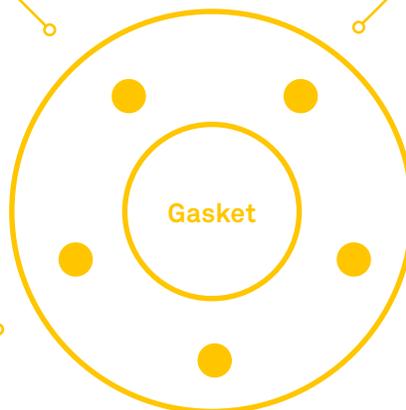
Wide range of thermoset polymers and blends are used ranging from SBR, NBR, EVA, ECO, ACM and VMQ to obtain specific temperature resistance.

### Flange

Material's tolerance to extreme surface finishings, such as "as cast", or high out-of-flatness flanges, such as stamped steel and plastic covers.

### Fastener

Fewer and lower grade fasteners allow for lower bolt torques due to material's low load to seal.



### Sealing area

Stress ranges and reduced side flow allow choice of materials to customize sealing areas.

### Medium

Designed to resist oils, fuels, gases and other lubricants as well as coolants.

# Product Range

| Material              | Type   | Density<br>(lb/ft <sup>3</sup> )<br>(kg/m <sup>3</sup> ) | Hardness<br>(pts)<br>Shore A | Compressibility<br>(%)<br>(400 psi) | Tensile strength (min)<br>(psi)<br>(Mpa) |
|-----------------------|--|--|------------------------------|-------------------------------------|--|
| TS1028<br>(2) (3) (4) | Cork/Nitrile blend, medium loading material, used for natural gas and LPG applications   | 43–56<br>700–900   | 65*                          | 25–40                               | 145<br>1,0                               |
| TS1400                | Cork/Nitrile blend, high performance, high loading material, suitable for fuels, bio-fuels, oils and coolants.   | 69*<br>1100*   | 75–90                        | 10–22                               | 508<br>3,5                               |
| TS1521                | Cork/SBR blend, with outstanding low sealing stress for low loading applications. Suitable for most lubrication fluids.  | 35–47<br>550–750   | 50–70                        | 35–50                               | 116<br>0,8                               |
| TS1800                | Cork/Nitrile blend, medium loading material, suitable for fuels, bio-fuels, oils and coolants.   | 52–65<br>832–1088  | 65–86                        | 15–30                               | 246<br>1,7                               |
| TS5600                | Cork/SBR blend, medium loading material. Suitable for most lubrication fluids.   | >45<br>>720  | 70*                          | 20–40                               | 145<br>1,0                               |
| TS7000                | Cork/Silicone blend, medium loading material used for very high and low temperature resistance, exceptional resistance to coolants and acceptable resistance to most lubricants. | 69*<br>1100*   | 65–80                        | 10–30                               | 247<br>1,7                               |
| TS7090<br>(3) (5)     | Cork/NBR blend, medium low loading material used for natural gas and LPG applications.   | 41*<br>650*  | 50–70                        | 30–50                               | 290*<br>2,0*                             |
| TS7100<br>(1)         | Cork/Nitrile blend, medium loading material, suitable for fuels, bio-fuels, and oils.  | 56*<br>900*  | 60–75                        | 20–45                               | 362*<br>2,5*                             |
| TS7110<br>(1)         | Cork/Epichlorohydrin blend, medium to high loading material, exceptionally suited for fuels, bio-fuels, as well as oils and coolants.  | 69*<br>1100*   | 70–85                        | 15–30                               | 653*<br>4,5*                             |
| TS7330                | Cork/Nitrile blend, high loading material, suitable for most lubricants.   | 61*<br>980*  | 70–90                        | 10–30                               | 435*<br>3,0*                             |

\* Typical value

#### Certifications and Approvals

- |     |                                   |  |
|-----|-----------------------------------|--|
| (1) | UL157 Listed                      | Gaskets and Seals - requirements cover test procedures and performance criteria for the evaluation of nonmetallic gasket and seal materials for specific end products. |
| (2) | DVGW Approved                     | Rubber/Cork and rubber/cork synthetic fibre based gasket materials for use with gas valves, gas appliances and gas pipe work.  |
| (3) | NP4464 Compliant                  | Cork/Rubber materials for tightness joints used in gas appliances, valves, devices and gas installation.   |
| (4) | EN 30.1.1, part 6.1.1.2 Compliant | Domestic Cooking Appliances Burning Gas, Durability of Sealing Materials.  |
| (5) | JIA C001 Compliant                | Japanese gas appliance inspection association.   |

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