MATERIAL RESEARCH

Vidhi Dhanuka
Garima Grover

CORK

The **cork** oak is the world's only cork oak species producing such thick bark of uniform structure, which spontaneously grows as covering over dying tissue .Cork's extraordinary properties derive from its distinctive cellular structure. A one inch cube of natural cork contains more than 200 million tiny air-filled pockets. Some 50% of cork is captive air, which results in excellent buoyancy, compressibility, elasticity, a high degree of imperviousness to both air and water penetration and low thermal conductivity.

Cork is noted for the following properties:

- Lightness & Low Density – The cellular structure of cork makes it very lightweight, resulting in cork's celebrated buoyancy.
- Impermeability – Cork is impermeable to both liquids and gases, giving it superior sealing capabilities.
- Elasticity – Cork is pliable and rebounds well to original size and shape
- Low conductivity – Cork has one of the best insulating values of any natural material, with very low conductivity of heat, sound or vibrations.
- Durability – A high friction coefficient means cork will wear and wear.
- Fire resistance – Cork has shown a remarkably high tolerance to heat. Respect for the environment. Cork is a material originating from self-regenerating trees, and so its use does not damage the environment.

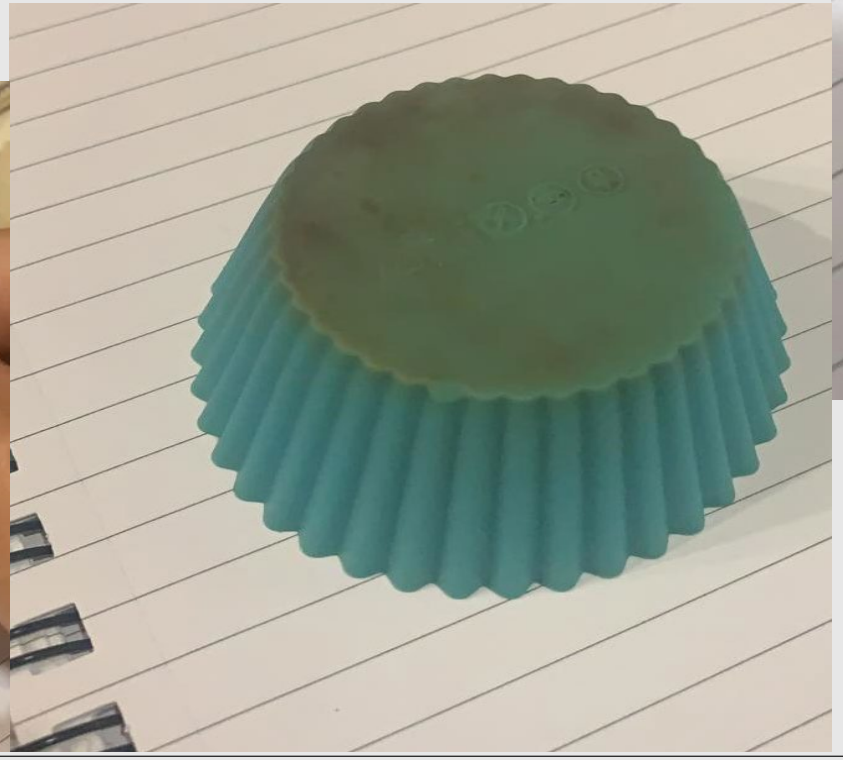
SILICONE RUBBER

Silicone rubber is a durable & highly-resistant elastomer (rubber-like material) composed of silicone (polymer) containing silicon together with other molecule like carbon, hydrogen and oxygen. Its structure always comprises siloxane backbone (silicon-oxygen chain) and an organic moiety bound to the silicon.

- Silicone rubber has higher heat resistance and chemical stability that help it in providing better electrical insulation.
- It has high elasticity and compressibility as well as excellent resistance to cold temperatures.

- Silicone rubber has outstanding oil resistance at high temperatures. From among other common types of synthetic rubbers, nitrile rubber and chloroprene rubber have somewhat higher oil resistance at temperatures lower than 100°C but at higher temperatures, silicone rubber is superior to all other rubber types.
- Heat resistance
- Chemical stability
- Electrical insulation
- Abrasion resistance
- Weatherability as well as Ozone resistance

SILICONE MOULDS (BURNT)



ILLUSTRATIONS OF IDEAS

Small Utensil cap

Hand Massager

IDEAS

- **Hand massager** – for students or person with a lot of manual work .
- **Cap of small utensils**- being heat resistant can be a good cap to cover small utensils