



HIGH PERFORMANCE PEEK POLYMERS

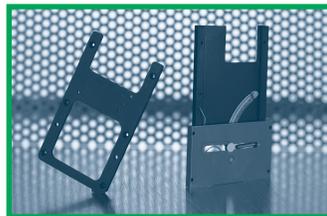
VICTREX® PEEK is being used in mobile handset parts by numerous prominent manufacturers worldwide. It offers numerous mechanical benefits traditionally associated with metal parts, but with a dramatic advantage: it can be formed through injection molding.

This is why VICTREX PEEK is rapidly increasing its foothold in the mobile handset industry, that leads to ultimate manufacturing cost reduction and more innovative designs.

The strength of VICTREX PEEK lies in its ability to be injection-molded while maintaining its mechanical property. VICTREX PEEK can be formed into an infinite number of complex and intricate designs, and even processed into a plate which is only 0.7mm thick. It is the perfect material for accommodating the broad range of designs demanded by the tastes of the modern consumer.

HINGES IN VARIOUS DESIGNS

When metal is used to make a hinge, the cost of the material itself is relatively low. Unfortunately, the complicated processing that the metal undergoes during manufacturing ends up in boosting the unit cost of the finished product. Another shortcoming of metal is that once a hinge is deformed through impact, the mobile phone itself ceases to work. To overcome these drawbacks, a number of mobile handset manufacturers have begun to replace metal hinges with VICTREX PEEK hinges formed through injection molding.



Material	Cycles	Torque Loss (%)
Metal Power Injection Molding	100K	40%
Magnesium Injection Molding	100K	20%
POM 500P	100K	20~30%
VICTREX PEEK 450G	100K	15%

VICTREX PEEK 450G performs better than metal in terms of torque retention performance while providing cost advantages. VICTREX PEEK 450G also delivers superior mechanical performance than POM for various types of hinges.

Replacing metal with VICTREX PEEK also provides weight reduction benefits, which is critical for the latest fashionable phones. In addition, VICTREX PEEK that enables mass production of hinges with various shapes and designs does not only help manufacturers meet the demand of the market but also enhances the efficiency of the manufacturing cost, a fact that is fueling the number of manufacturers who are turning to VICTREX PEEK. High performance polymers for Mobile phone parts VICTREX.

LCD FRAMES

Because of the prevailing need to produce mobile phone parts of high mechanical strength, metal has so far been the material of choice. However, the complicated manufacturing processes involved in producing metal parts and the impossibility of creating diverse designs make the search for an alternative material an urgent priority.

High Performance Polymers for Mobile Phone Parts

Metal parts also have one fatal shortcoming: once deformed by stress or a fall, metal LCD frames and sliding parts cannot be restored to their original forms. To overcome this weakness, there have been various efforts to find a material that has the ability to recover its original form after being damaged through external impact, as well as possessing a mechanical property similar to aluminum, bronze, or magnesium. VICTREX PEEK can be the perfect solution. It is not only able to maintain its mechanical property, but can also be mass-produced in a multiplicity of shapes and thicknesses using the method of injection molding.

GASKETS FOR SECONDARY BATTERIES OR CAPACITORS

The coin-look alike secondary battery, as small as a dot on a fingertip, provides a power backup for the time function inside the phones. Depending on a customer's need, there are two types available for the battery to be used, a regular battery or a capacitor. And for this secondary battery, VICTREX PEEK is utilized as a gasket or a sealing material. Some of the features required for a gasket include:

- Chemical resistance for an electrolyte
- Toughness to the battery when applied
- High temperature for reflow.

VICTREX PEEK satisfies all of the above requirements, in particular, high temperature for reflow, which is outstanding, and is widely adopted as the gasket for reflow-corresponding batteries and capacitor.

Starting from July 1, 2006, the use of lead is no longer permitted by the European Union's Restriction of Hazardous Substances (RoHS) directive. Due to this directive restricting the application of leaded solders popular with electronic devices, now unleaded

solders are about to be introduced to the market by manufacturers of electrical as well as electronic equipment.

Unleaded solders have a melting point that is 15 ~ 20°C higher than that of leaded solders, which accounts for the increase in the maximum temperature during reflow. Under certain circumstances, this property will call for a temperature of 260°C or above. In such high-temperature, very few gaskets are available, whereas the gaskets made of VICTREX PEEK are proved to be free from deformation.

MICROPHONE SPACER FILMS

Today's microphones are produced using Surface Mounted Device (SMD) methods where they are attached to a board while going



through reflow. In this process, they must withstand reflow high temperatures. However, Polyethylene Terephthalate (PET), the former spacer material, has low heat resistance, causing the microphones to melt or be deformed. Therefore, there

was an urgent need for manufacturers to find alternative materials.

The thickness of a spacer between a diaphragm and a fixed electrode is 25 microns which creates an insulating space among components inside microphone circuits where the spacer is used. This distance determines the capacitance between the diaphragm and the fixed electrode. Within all the process, VICTREX PEEK is the only material which can be formed into a spacer film as thin as 25 micron while meeting high heat requirements with electrical reliability, chemical resistance and outstanding physical properties at the same time.

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