# Oil and Gas

*Plastics are playing a key role in the energy boom, making it easier to reach previously untapped sources of oil and gas to fuel the economy.*

## Applications

- Piston, chevron and gland seals
- Anti-extrusion rings and back-up rings
- Valve seats
- Packings
- Bushings, bearings
- Lantern rings
- Fracballs
- Labyrinth seals
- Down-hole electrical insulators
- Gaskets
- Lifting systems components (sheaves, rollers, guides)
- Shrouds
- Sight glasses
- Pipe and pipe support systems (saddles, carrier rings) grating/stairs

## Advantages May Include

- Reduced weight and lower cost than traditional materials (specialty metals)
- Better sealing performance
- Greater design flexibility (most engineering plastics are readily modified for specific applications)
- Handles harsh environments (from downhole heat to Arctic conditions to subsea systems)
- Corrosion resistanct
- Improved efficiencies (better sealing properties, lower coefficient of friction)
- Easier to machine, ship and install
- Reduce/eliminate lubrication dependency
- Excellent electrical insulation properties
- Static dissipative and conductive grades available
- Less wear on mating parts

## Materials

- Acrylonitrile butadiene styrene (ABS)
- Chlorinated Polyvinyl Chloride (CPVC)
- Nylon (PA)
- Other flouorpolymer compounds
- Polyetheretherketone (PEEK)
- Polyethylene (PE)
- Polytetrafluoroethylene (PTFE)
- Polyphenylene sulfide (PPS)
- Poly Amide-Imide (PAI)
- Polyimide (PI)
- Thermoset composites (phenolics)

## Did you know?

Even small percentage efficiencies gained by replacing metallic labyrinth turbocompressor seals with abradable or wear resistant polymeric seals can result in hundreds of thousands of dollars in increased production.

## Environmental and Safety

Considering the total carbon footprint, including costs of raw materials, manufacture, transport, fabricate, install, maintain, plastics compare favorably with more traditional materials. Also, plastics are safer to handle and install. When you consider that most plastics are readily recyclable, they can become the most environmentally responsible and safest choice for many demanding oil and gas applications.