



VICTREX® PEEK Polymer Automotive Advantage

The fuel efficiency challenge

Transport consumes approximately 27% (Key World Energy Statistics, 2011, International Energy Agency) of all energy today, a figure that is set to increase as emerging economies grow and access to a car becomes the norm in developing regions.

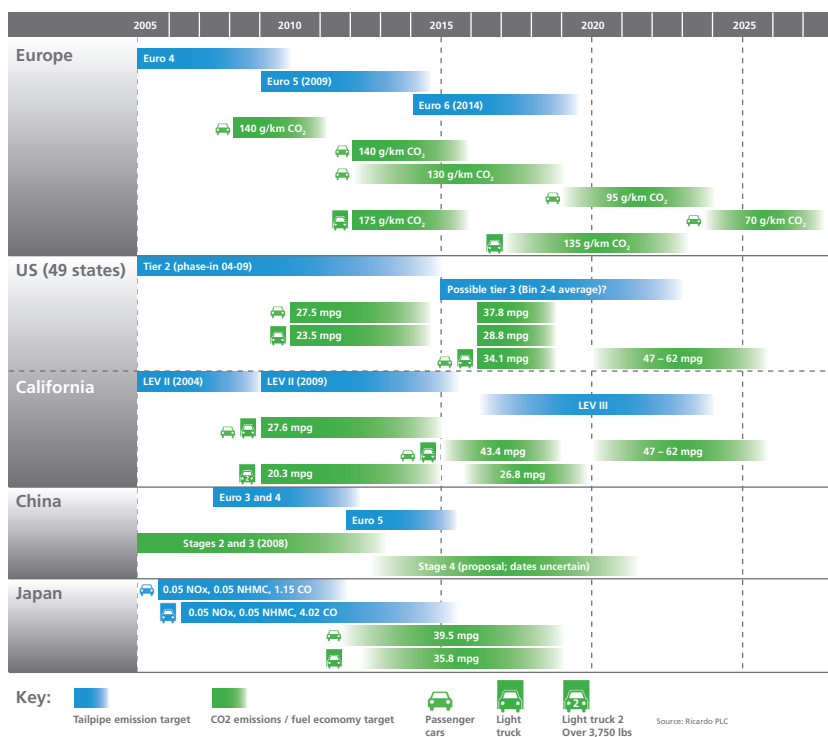
Governments are under emissions constraints and consumers are feeling the pain of rising fuel prices. As a consequence the global automotive industry is challenged with improving environmental and safety standards, increasing reliability and lowering costs of production.



Consumer and regulatory trends are driving fuel efficiency, safety and reliability improvement

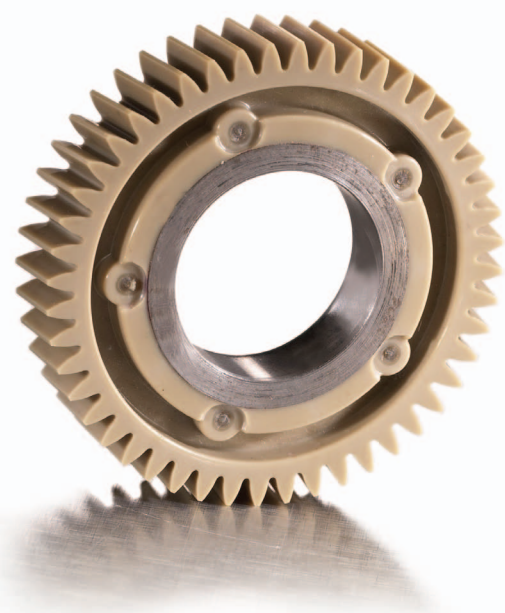
The reduction of the vehicle weight, driven by the desire for lower CO₂ emissions and improved mileage, results in the miniaturisation of components and functional integration which are at the forefront of the automotive industries efforts. Strict legislation, tight tolerances and rising overall costs are pushing OEMs to identify materials that provide higher performance with lower weight and lower costs.

The demand for smaller, lighter more reliable components made from high temperature materials which have excellent strength and flow characteristics has increased. VICTREX PEEK Polymer is central to achieving these aims and is a real alternative to metals, particularly in dynamically loaded, high temperature applications.



Geared up for the future

- 70% reduction of gear inertia
- 69% weight reduction per gear
- 30% reduction of total system inertia
- 3-9% reduction in power consumption
- 3db noise, vibration and harshness advantage
- Up to 70% reduction in lead time
- Lower capital investment
- Benefits validated for 4 cylinder gasoline engines



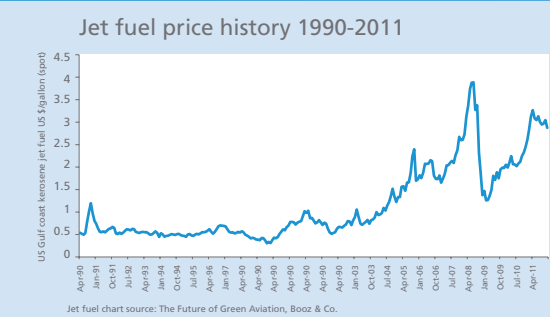


VICTREX® PEEK Polymer Aerospace Advantage

Aerospace industry strategic imperative #1

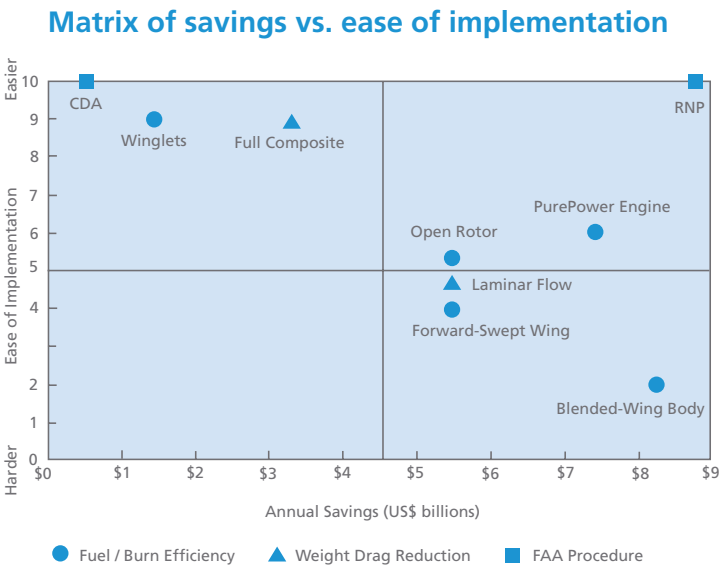
Booz & Company state that the number one strategic imperative for the future of the airline industry is *“Invest in upgraded equipment and processes that increase fuel efficiency or reduce fuel consumption...”*

The rationale is easy to understand when you consider the step change in fuel cost to the airline industry (see chart below).



High performance VICTREX PEEK polymers meet the demands for weight reduction and system cost savings to replace metals in aerospace applications

Aerospace engineers continually strive to identify materials which provide processing flexibility, reduce manufacturing costs and increase durability in harsh environments. The industry is migrating towards higher percentage of non-metallic components in the quest for fuel and cost savings. The Boeing 787 is a very public example of this with composites accounting for >50% of the total weight. The switch to non-metallic components is considered to be the next logical step to significant cost savings in the airline industry (see adjacent chart).



Lightweight Pipes for the Aerospace Industry

VICTREX Pipes™ are an innovative, next generation solution for modern aircraft design, offering significant weight saving potential while satisfying the most stringent safety, quality and performance regulations within the industry.



Advantages Versus Metals

- Lighter part weight
- Smooth interior surface
- Lower noise transmission
- Lower thermal conductivity
- Vibration dampening
- Insensitive to corrosion

Application Areas

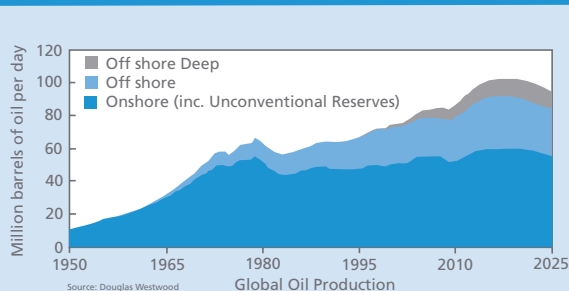
- Drainage lines
- Waste water lines
- Portable water supply
- Fluid handling systems
- High voltage cable ducting
- High performance sheathing



VICTREX® PEEK Polymer Oil & Gas Advantage

Deepwater and Pre-salt on the rise

Global energy consumption continues to rise. Oil and gas are destined to be the top two energy sources through to and beyond 2040, supplying over 60% of total energy demand. Today, shallow-water offshore fields are experiencing increased depletion, driving the industry towards deepwater developments. Subsea systems to produce oil and gas reservoirs are being extended into increasingly extreme environments; higher temperatures, higher pressures and extreme water depths. Deep offshore is the only sector expected to demonstrate continued growth after 2015.



VICTREX PEEK; the link to future energy reserves



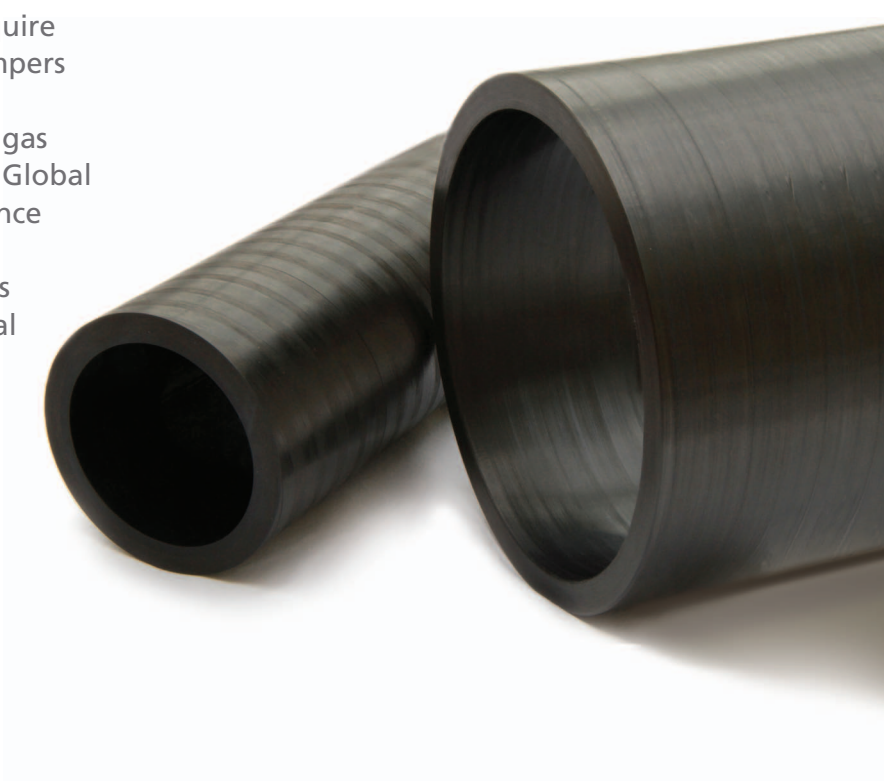
Key Properties for Oil & Gas

Victrex high performance materials are increasingly being chosen for a wide array of oil and gas applications both on and off shore due to their unique combination of properties.

- High temperature resistance
- Radiation resistance
- Hydrolysis resistance
- Lubricity
- Chemical resistance
- Electrical properties
- Wear resistance

Simple design, simpler installation, longer service life

Deepwater and Pre-salt deposits will require new material solutions for risers and jumpers to meet the challenge of safe, reliable commercialisation of tomorrow's oil and gas reserves. VICTREX PEEK polymer used in Global Magma's m-pipe™, is the ideal performance material to address and overcome these challenges. Jumpers and risers represents approximately 40% of the \$139Bn capital expenditure in deepwater and Pre-salt exploration.

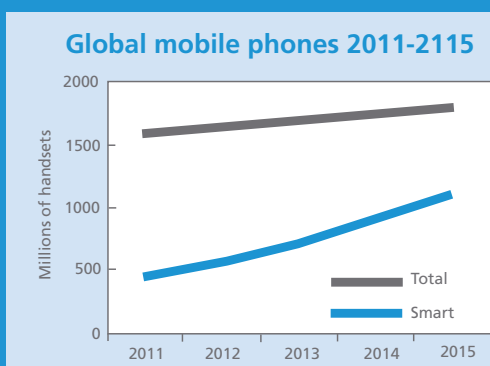




VICTREX® PEEK Polymer Electronics Advantage

Rise of the smartphone

The smartphone is evolving rapidly to become the users hub device, projected growth in sales and functionality suggest that they become the majority handset by 2015 (25% CAGR). Their use as a portable entertainment platform is stretching acoustic performance needs beyond the capability of traditional materials.



APTIV® film technology for advanced design and high performance in electronics

The unique combination of excellent acoustics and durability makes APTIV film the enabling technology for today's smartphone speaker diaphragms. APTIV film has been selected by numerous leading mobile phone companies for their highest performance speaker diaphragms. APTIV film, produced from VICTREX® PEEK polymer, is well suited for use in acoustic film applications and presents numerous opportunities for OEMs, designers and processors in the manufacture of leading edge, high performance speaker systems and acoustics related components. APTIV film out performs the competition (PI, PEI, PPS, PAR and PEN) in mobile phone speakers when it comes to:

- Overall acoustic performance
- Total harmonic distortion (THD)
- Very small, thin format power handling
- High reliability in extreme temperatures
- Thermoforming (low temperature and short cycle times)

***Victrex APTIV film;
The Answer for
“High Quality Sound
in Small Spaces.”***

APTIV film Key Properties

- High heat resistance
- Excellent wear resistance
- Low moisture absorption
- Purity
- Broad chemical resistance
- Environmentally friendly
- High strength and toughness
- Electrical stability
- Radiation resistance
- Halogen free, low smoke and toxicity
- Excellent barrier properties



Cell phone speaker diaphragms.

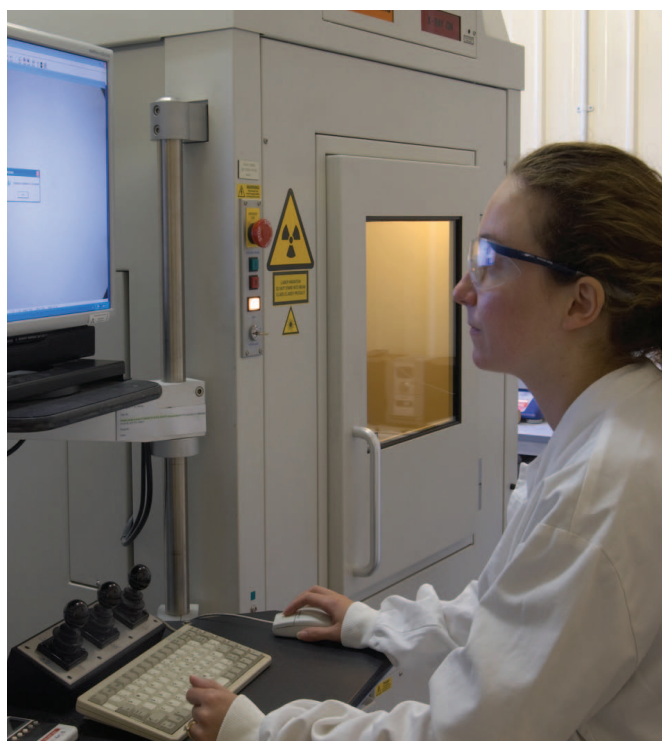


The VICTREX Advantage

Focus

Our commercial and technical focus on polyketones enables us to maximise the range of services we offer to our customers and end users aimed at optimising their processing techniques and overcoming their design challenges to provide competitive advantage.

Increasingly we are focusing resources to specific industries and markets to ensure we understand the trends which are driving innovation and where our products provide solutions with a sustainable value proposition.



Technical Leadership

Technical leadership underpins the value we bring to customers and end users and is critical for our future growth. We have recently invested in a new Victrex Japan Technical Center in Tokyo to strengthen our local customer support capability and are in the process of investing to expand our core and applied technical capability at our UK Hillhouse site. These investments complement our existing capability in the UK and China together with a team of highly knowledgeable professionals, who provide continual assistance and support in process troubleshooting, moulds validation and prototyping, on-site customer trials and technical seminars. Our team includes organic and polymer chemists, physicists and material scientists, as well as process, mechanical and design engineers.

Security of Supply

Our manufacturing expertise resides in the UK where we operate three manufacturing sites. We are the only vertically integrated aromatic polyketone supplier in the world. This affords us control over key raw materials and the ability to offer security of supply and product quality for our customers.

Our products are often used in critical applications and require processing to tight tolerances. We recognise that product quality and consistency is of significant value to our customers and therefore operate to high standards of quality control and assurance.

