



SOLVAY

asking more from chemistry®



RESIST



THERMAL
MANAGEMENT
by **TECHNYL**



THERMAL MANAGEMENT by **TECHNYL**[®]

RESISTING THE HEAT

Temperature conditions in some applications vary as greatly as the form and function of the parts being used. Excessive heat is inefficient, damaging, and potentially even dangerous in engine systems, making component design and performance a particularly critical factor.

For the past twenty years, Solvay Engineering Plastics has focused on designing materials and solutions to build components for water- and air-cooled engine systems, notably in vehicles.

From mechanical functionality and chemical composition, to simulation, processing and testing, our wide range of Technyl[®] materials and state-of-the-art research laboratories offer solutions that major car manufacturers around the world have come to trust.

KEEPING COOL WITH EXPERTISE

Effective thermal control is an essential feature of engine systems, particularly with respect to the need to sustainably reduce emissions such as CO₂, NO_x, and particulates, and to reduce fuel consumption.

Our mutual challenge is to keep all engine components and liquids operating at the optimal temperature, regardless of engine load. Technyl[®] materials enable manufacturers to produce parts that perform efficiently from warm-up to shutdown.

Solvay Engineering Plastics provides solutions for cooling system designs to control heat dissipation in today's increasingly complex engines, helping manufacturers reduce weight, size, energy, and cost to remain competitive.

FOUR STEPS FOR SUCCESS

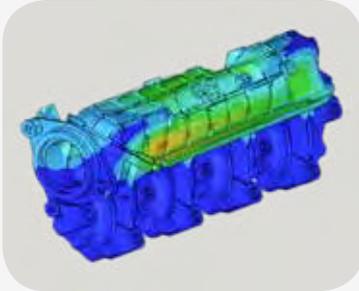
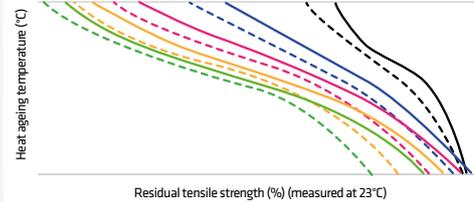
PRELIMINARY MATERIALS SELECTION

01

Our technical teams will assist you in developing the best solution, giving you the benefit of our:

- Extensive materials expertise and database
- Detailed knowledge of thermal degradation (leveraging development of an innovative thermal protection system)

TECHNYL® MECHANICAL PERFORMANCE FOR VARIOUS TEMPERATURES AND TIMES OF HEAT AGEING



Our thorough understanding of materials enables:

- Optimized parts design (fiber orientation, functional integration, etc.)
- In-depth analysis of mechanical properties
- Cost-optimization
- Quantified environmental benefits (3E expertise*)

*3E = Eco-Efficiency Evaluation

DESIGN SIMULATION

02

PROTOTYPING

03

- Our Technyl Innovation Center offers expertise in transformation processes for injection, blow molding and extrusion.
- In addition, Sinterline™ Technyl® Powders for your 3D prototyping needs achieve cost efficiency and optimizes development time.



Our application laboratory validates customer requirements through a series of mechanical tests:

- Glycol bench (high temperature & pressure)
- Air pressure pulsating bench (up to 230° C)
- Temperature test chambers
- Dynamic burst pressure test with high-speed camera
- Tiers & OEM laboratory certifications
- Dynamic shaker system with temperature chamber

PART TESTING

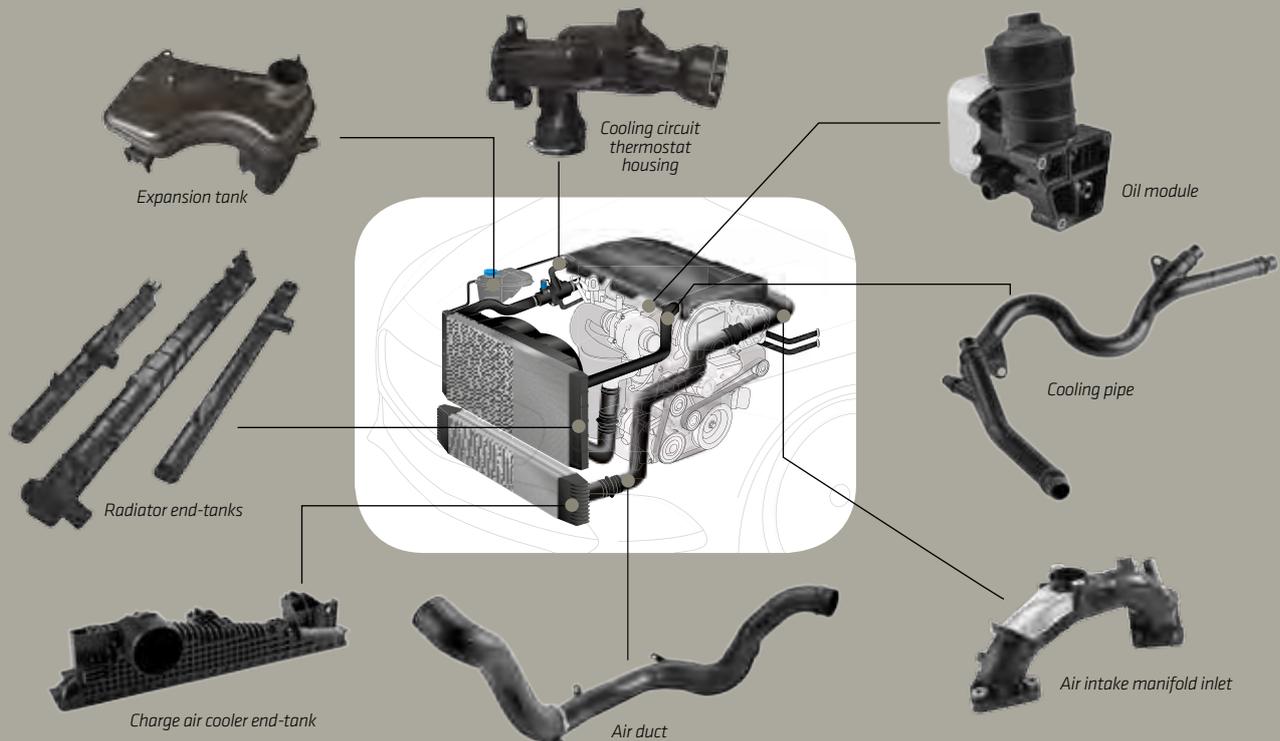
04

WARMLY RECEIVED BY THE INDUSTRY

A LEADER IN AUTOMOTIVE SOLUTIONS FOR THERMAL MANAGEMENT

Solvay Engineering Plastics offers a complete array of hydrolysis-resistant Technyl® grades for the most demanding appliances delivering multiple benefits:

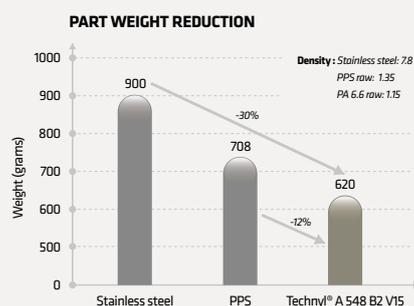
- Extensive product portfolio referenced by global and regional OEMs.
- Easy processing and compatibility with numerous production techniques, including injection, welding blow-molding, overmolding, and more.
- Optimization of parts design and functional integration, as well as potential for weight reduction.
- Worldwide availability of Technyl® products customer support.



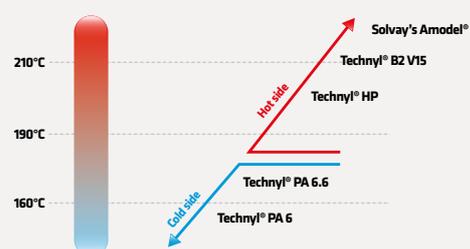
A DEDICATED OFFER FOR TURBO CHARGING

To meet growing demand for downsized engines that continue to offer lightweight high performance and power output, Solvay Engineering Plastics offers a specially designed range of heat performance materials:

- **Technyl® B2 V15** is the new generation for 2D and 3D blow-molding, providing complex tubular parts able to resist temperatures up to 210°C.
- **Technyl® Heat Performance (HP)**, a product range for injection-molded applications, providing continuous 200°C temperature resistance.



A HIGH TEMPERATURE RESISTANCE



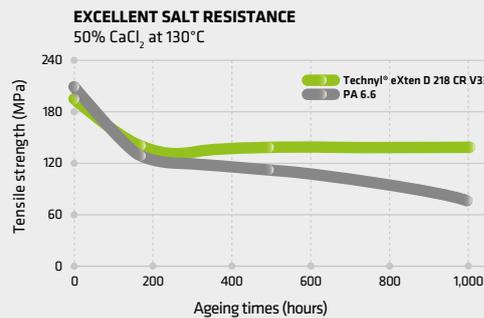
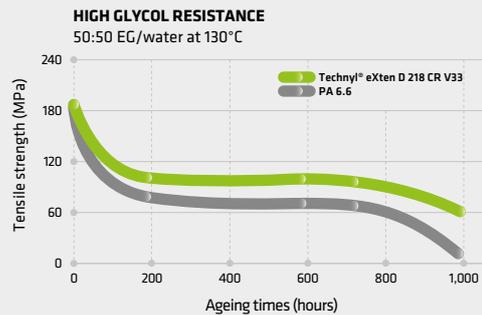
INNOVATION IN ACTION



Solvay Engineering Plastics continually evolves the Technyl® offering to meet new requirements for engine components. Our innovative Technyl® eXten D 218CR V33 provides a well-balanced combination of hydrolysis and road salt resistance. This partially bio-based grade was developed specifically to provide chemical resistance to calcium chloride, the preferred road salt used in countries with lower freezing temperatures.



Glycol cooling module



STRENGTH FROM THE INSIDE

PRODUCT NAME	DESCRIPTION	KEY FEATURES	RECOMMENDED TYPICAL APPLICATIONS
HYDROLYSIS RESISTANT MATERIALS			
TECHNYL A 218 V30 BLACK 34 NG	PA 6.6, 30% glass reinforced, heat stabilized, hydrolysis resistant	General purpose	Radiator end-tank, Coolant hoses
TECHNYL A 218 V35 BLACK 34 NG	PA 6.6, 35% glass reinforced, heat stabilized, hydrolysis resistant	General purpose	Radiator end-tank, Coolant hoses
TECHNYL A 218G1 V25 BLACK 34 N	PA 6.6, 25% glass reinforced, heat stabilized, hydrolysis resistant	Low density	Radiator end-tank
TECHNYL A 218G2 V30 BLACK 34 N	PA 6.6, 30% glass reinforced, heat stabilized, highly hydrolysis resistant	Superior hydrolysis resistance	Radiator end-tank, Coolant hoses, Oil module
TECHNYL A 218 V50 BLACK 34 NG	PA 6.6, 50% glass reinforced, heat stabilized, highly hydrolysis resistant	Superior hydrolysis resistance and high mechanical performance	Thermostat, Oil module
TECHNYL eXten D 218CR V33 BLACK	PA 6.10, 33% glass reinforced, heat stabilized, highly hydrolysis resistant	High resistance to road salts (Calcium Chloride)	Radiator end-tank
TECHNYL A 218G V30 NATURAL	PA 6.6, 30% glass reinforced, heat stabilized, hydrolysis resistant	Translucent	Expansion tank, Coolant hoses
TECHNYL A 218Z V30 BLACK 34N	PA 6.6, 30% glass reinforced, heat stabilized, hydrolysis resistant	Adapted to water injection technology process	Coolant hoses (water injection technology)
TECHNYL A 218 V30 BLACK 34 NG-K	PA 6.6, 30% glass reinforced, heat stabilized, hydrolysis resistant	Very high surface quality	Radiator end-tank, Coolant hoses
TECHNYL A 218G V33 BLACK 34N	PA 6.6, 33% glass reinforced, heat stabilized, hydrolysis resistant	General purpose	Radiator end-tank, Coolant hoses
TECHNYL A 218G V33 BLACK 41N	PA 6.6, 33% glass reinforced, heat stabilized, hydrolysis resistant	Very high surface quality	Radiator end-tank, Coolant hoses
HOT AIR RESISTANT MATERIALS			
TECHNYL A 218 V35 BLACK 21N	PA 6.6, 35% glass reinforced, heat stabilized	General purpose, long-term stability up to 170°C in air	Charge air cooler end-tank (170°C), Air duct (injection, 170°C)
TECHNYL A 218HP V35 BLACK 21N	PA 6.6, 35% glass reinforced, highly heat stabilized	Long-term stability up to 190°C in air	Charge air cooler end-tank (190°C), Air duct (injection, 190°C)
TECHNYL A 218HP V50 BLACK 21 N	PA 6.6, 50% glass reinforced, highly heat stabilized	Long-term stability up to 190°C in air	Charge air cooler end-tank (190°C)
TECHNYL A 548B V15 BLACK 23 N	PA 6.6, 15% glass reinforced, heat stabilised.	Long-term stability up to 190°C in air, blow molding grade with high melt strength	Air duct (blow-molding, 190°C)
TECHNYL A 548B2 V15 BLACK 23 N	PA 6.6, 15% glass reinforced, heat stabilised	Long-term stability up to 210°C in air, blow molding grade with very high melt strength	Air duct (blow-molding, 210°C)





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