Powered by imagination
High-performance fluoropolymers
for the automotive industry
When the designs are demanding, demand Dyneon

Dyneon is the combination of the fluoropolymer business of 3M and the PTFE and fluorothermoplastic business of Hoechst AG. Quite simply, Dyneon is the one name you need to know for high-performance fluoropolymers. Our broad range of general and specialty fluoropolymers experience plus our full range of fluoropolymer products for the automotive industry provide the flexible solutions that today’s–and tomorrow’s–design engineers require.

With over 40 years of experience behind us, you can be sure that Dyneon will provide you with the know-how, dependable service and technical support to solve your toughest problems. And we’re not slowing down, either. We’re always looking at new ways to apply advanced fluoropolymer technology to help design engineers in their quest for greater reliability and safety, lower emissions and most important, a longer service life. Of course, it’s the kind of commitment that you would expect from an industry leader.
Fluorotechnology at work

Hotter running engines. New aggressive oils, lubricants and transmission fluids. Reformulated gasoline. Longer warranties. Stricter safety standards. The need for fluoropolymers in automotive sealing applications has increased dramatically in recent years and presents new design challenges. Dyneon has responded to these challenges, offering new fluoroelastomers, fluorothermoplastics and PTFEs that can take the punishment of today’s heating and cooling systems, fuel and emission systems, powertrain and suspension systems. All designed with one goal in mind—to keep today’s vehicles on the road longer.

When you need solutions, turn to Dyneon

At Dyneon, you can count on us to help you select and specify fluoropolymers to meet your operating conditions and design requirements. And, since we’re continually introducing new products and new product formulations—backed by an extensive database of technical information—you can be assured that Dyneon products will get the job done, mile after mile.
Automotive applications using Dyneon Fluoropolymers

**Body/Chassis/Suspension**
- Strut Piston Seals
- Gas Spring Components
- Power Steering Assembly
- Sensor Assemblies
- Seatbelt guides
- Brake Assemblies
- Tubing for Push/Pull Cables
- Sliding Elements for Shock Absorbers
- Sliding Elements for Door Hinges

**Fuel/Emission System**
- Filler Neck Hose/Vent Tube
- Fill Feed and Return Line
- Vapor Tubing
- Fuel Pump Seals
- Fuel Pump Isolator Bushings
- In-Tank Connector Tube/Coupling
- Fuel pump Connector Bushing
- Tank Flange Seals
- Fuel Filter Flange Seals
- Injector O-rings
- Quick Connect O-rings
- Roll Over Valves
- Running Loss System Components
- Fuel Pressure Regulator Diaphragms
- Check Valves
- Gas Cap Vent Seals
- Fuel Tank Pressure Relief Valves
- Vapor Canister Seals
- Fuel Sender Unit
- Fuel Rail Seals
- Wire and Cable Insulation for Lambda Probe

**Heat/Cooling System Management**
- Water Pump Seals
- Vacuum Pump Diaphragms
- Cruise Control Valve Top
- Vacuum Tubing
- Wire and Cable Insulation/Jacketing
- Electrical Connectors
- Air Conditioning Compressor Seals

**Powertrain**
- Valve Stem Seals
- Crankshaft Seals
- Lip Seals
- System O-rings
- Wire and Cable Insulation/Jacketing
- Electrical Connectors
- Gaskets
  - Valve Cover
  - Oil Pan
  - Transmission
- Output Shaft Seals
- Input Shaft Seals
- Oil Filter Bushing Seal
- Ball Shuttle Valves
- Front Pump Clutch Seals
- Speedometer Pinion Seals
- Transaxle Transfer Shaft Seals
- Transmission Throttle Shaft Seal
- Pinion Seals
- Axle Seals
- Cylinder Liner Seals
- Cylinder Head Seals
- Transmission Valve Body Seals
- Piston Seals
- Piston Rings
- Compression Piston
- Transmission Gear Seals
Dyneon™ Fluoroelastomers offer a unique balance of properties unmatched by other elastomers, allowing you to use them in a wider variety of automotive designs. What’s more, they can be compounded to meet the unique sealing performance characteristics required by today’s cars and trucks.

Manage your fuel system by design

Dyneon fluoroelastomers offer significant advantages over hydrocarbon elastomers in liquid fuel applications. For example, Dyneon fluoroelastomers resist attack and excessive swelling caused by reformulated or peroxidized gasoline. Plus, they offer the widest service temperature range and best long-term retention of sealing properties. For many sealing applications, they are the most cost-effective material available because their excellent compression set resistance, chemical resistance and high-temperature resistance significantly increase the time between part replacement.

Control emissions through low vapor permeation

New EPA and CARB regulations are requiring greater accountability and control of fuel system evaporative emissions. Compared to other commonly used elastomers in fuel system applications, Dyneon fluoroelastomers have the lowest permeation numbers in alcohol-containing and reformulated gasolines. Because of their ultra-low fuel permeation characteristics, components made from Dyneon fluoroelastomers—O-rings, custom molded seals, filler neck tubes, fuel and vapor lines—can be an integral part of diurnal and running loss recovery systems in meeting today’s restrictive emissions standards.
Dyneon™ Base Resistant Elastomers:
Meeting new automotive design challenges

Extended warranties, increased service intervals and higher-output engines make for harsher and hotter underhood environments requiring improved lubricating fluids. Dyneon™ Base Resistant Elastomers (BREs) are specifically designed to resist attack by amine additive packages found in today’s new ATF fluids, gear lubricants and engine oils.

Excellent resistance to lubricant additive packages

Not only can Dyneon BREs withstand these aggressive fluids, they provide the same performance benefits found in other Dyneon fluoroelastomers—superior chemical resistance, high-temperature performance, excellent processability and outstanding value.
When specifications require high temperature performance and low friction, specify Dyneon™ PTFE, Dyneon™ TFM™ PTFE and Dyneon™ Custom PTFE Compounds

The automotive industry trusts Dyneon to provide innovative, world-class Dyneon™ PTFE (polytetrafluoroethylene) and Dyneon™ TFM™ PTFE (second generation PTFE) resins for a myriad of demanding applications. Additionally, Dyneon has earned the reputation as the industry leader in providing custom PTFE-based compounds with exceptional physical properties—all designed to withstand the most extreme automotive operating conditions.

**Excellent performance characteristics**

Dyneon TFM PTFE is a chemically modified PTFE that bridges the gap between classic PTFE and melt-processable Dyneon™ PFA Fluorothermoplastic, extending the Dyneon product range. All Dyneon TFM PTFE grades are distinguished by their excellent weldability, substantially lower deformation under load and denser polymer structure than first generation PTFE products.

What this means is that Dyneon TFM PTFE allows new designs and processing methods to be used, especially in applications where high-temperature performance and low friction are specified—lip seals, gaskets, rings, high-pressure hoses, high-quality compounds used in bearings and seat belt guides. In addition, Dyneon PTFE is rapidly becoming the material of choice where high durability, excellent thermal properties and chemical inertness characteristics are required.

**Proven PTFE Compounds**

Dyneon has a track record of working with OEMs and tier one customers to meet their toughest design requirements. As a result of this work, over 2,200 separate and distinct PTFE compound formulations have been developed, and new materials are being explored daily. What’s more, we’re working directly with suppliers of high-performance additives to produce new fluoropolymer compounds designed to meet the challenges of the always evolving automotive industry.
grades are available for compression molding, ram extrusion and automatic molding.

When you incorporate Dyneon PTFE, Dyneon TFM PTFE and Dyneon Custom PTFE Compounds into your specifications, you can be sure you are using state-of-the-art materials to create higher performing, longer-lasting parts. We’re ready to put our proprietary PTFE blends to work on your toughest automotive design requirements.

A wide application range

Typical automotive applications for Dyneon PTFE include low-friction protective liners for push-pull controls and cables and seals for oil, fuel and other fluids. As a dispersion, the material is widely used by automakers over a sintered bronze coating as a low-friction, lubrication-free bearing surface in rolled steel door hinge sleeves. Low molecular weight Dyneon PTFE micropowders can be added to thermoplastics, lubricants and coating systems to improve their wear resistance, lubricity and anti-stick characteristics. Granular free-flow
When you need performance and flexibility, rely on Dyneon™ Fluorothermoplastics

When automotive engineers needed to dramatically reduce the hydrocarbon permeation of rubber hoses used in fuel and vapor applications—while retaining the flexibility and other attributes of rubber hoses—they turned to Dyneon™ THV Fluorothermoplastic.

**Dyneon™ THV: The right combination of properties**

Dyneon THV is the only fluoroplastic in the world with this combination of critical properties:

- Ultra-low permeation and exceptional chemical resistance to a wide variety of fuel formulations.
- The most flexible fluoroplastic on the market today.
- A relatively low processing temperature that allows co-processing with elastomers (THV permeation barrier, elastomer cover stock).
- A unique chemistry that allows strong bonds to various elastomers.
- Formability.
- Available in grades that bleed off static charges.

**Proven, versatile performer**

Dyneon THV has proven itself on numerous platforms and nameplates, providing engineers with the confidence to specify Dyneon THV for current and future vehicles. That’s because the processability and performance features have allowed hose manufacturers to develop innovative designs which also meet high-volume production criteria.

Dyneon THV also has other features, including exceptional clarity, E-beam crosslinking, weatherability and low friction. It’s also useful in other applications including light management, wire and cable jacketing and chemically resistant coatings, weathering protection and stick-squeak reduction. Plus, it’s available in a variety of grades and product forms, including pellets, powder and aqueous dispersions. One Dyneon THV grade can even be put into solution using recommended solvents.

**Dyneon’s wide range of Fluorothermoplastics**

In addition to Dyneon THV, Dyneon manufactures other fluorothermoplastics offering performance advantages for many automotive applications. Dyneon FEP™ and Dyneon™ PFA provide exceptional high temperature resistance combined with excellent chemical inertness, heat and weather resistance, outstanding dielectric properties and toughness. These products can provide resistance to unusually high temperatures in excess of 200°C. Dyneon FEP is being used as a barrier layer in multi-layer fuel and vapor lines where it offers superb permeation resistance to a wide variety of fuel blends when tested to the most rigorous automotive test standards.

Dyneon™ ETFE also offers low permeation to a wide variety of fuels. Dyneon ETFE is also used in automotive wire and cable applications where it provides a valuable combination of good electrical properties, high temperature service life and resistance to cut through.

But the best is yet to come, because Dyneon continues to provide innovative fluorothermoplastic solutions. Chances are we have something under development that will meet your requirements for high-performance products.
Dyneon™ THV Permeation Barrier
Imaginative fluoropolymer solutions

At Dyneon, our goal is to provide you with design solutions to make your job easier—helping you solve problems now so that you can avoid problems down the road.

Whatever your challenge, you can count on Dyneon to respond with dependable, high-performance fluoropolymer products. By working directly with our customers and exploring new technologies, you can be sure that our fluoropolymers will not only meet today’s needs, but future design requirements as well.

Our worldwide commitment to quality

All Dyneon design, development, production and service facilities have achieved a global ISO 9001 certification for quality. In addition, our Gendorf, Germany, location has achieved ISO 14001 registration for environmental policies and procedures. And, our custom PTFE compounding facility is accredited A2LA for superior process management and quality control.

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