

A night-time photograph of an industrial oil and gas refinery. The scene is illuminated by various lights, including a prominent bright yellow flare on the right and several greenish-yellow lights on the central processing units. The sky is dark with some light streaks. A vertical red and pink gradient bar is on the left side of the image.

Oil & Gas Industry

POWERED BY SCIENCE

200 years of scientific achievements

DuPont puts science to work by creating sustainable solutions essential to a better, safer, healthier life for people everywhere. Operating in more than 70 countries, DuPont offers a wide range of innovative products and services for markets including oil&gas, agriculture, nutrition, electronics, communications, safety and protection, home and construction, transportation and apparel.

In 1802, DuPont was primarily an explosives company. One hundred years ago, our focus turned to chemicals, materials and energy. Today, we deliver science-based solutions that make real differences in people's lives around the world. Look closely at the things around your home and workplace, and chances are, you'll find dozens of items made with DuPont materials. Our ability to adapt to change and our foundation of unending scientific inquiry has enabled DuPont to become one of the world's most innovative companies. But, in the face of constant change, innovation and discovery, our core values have remained constant: commitment to safety, health and the environment; high ethical standards; and treating people with respect.

What has this commitment allowed us to accomplish?

Take a look:

2006 revenues: \$27.4 billion

Employees: 60,000 worldwide

Global: Operating in more than 70 countries worldwide

R&D: More than 40 research and development and customer service labs in the United States, and more than 35 labs in 11 other countries.

Famous products and brands

Nylon • Neoprene • DuPont™ Teflon® • Lycra DuPont™ Nomex®

• DuPont™ Kevlar® • DuPont™ Tyvek® • DuPont™ Corian® •

Cordura • DuPont™ Kapton® • Stainmaster • DuPont™ Glean®

• DuPont™ Mylar® • DuPont™ Surlyn® • DuPont™ Dymel®

• DuPont™ Suva® • DuPont™ Aritsti™ • DuPont™ Sorona® • Solae®



Putting the science of DuPont to work for our customers has allowed us to develop a wide range of products made specifically for applications in the oil and gas industry. From lubricants that provide superior protection in the harshest of down hole environments, to enhanced oil recovery agents and user-friendly bactericides, DuPont has products and services that can help you optimize your company's performance in the field.

THE STRUCTURE OF OIL AND GAS PROCESSING SYSTEM

MARKETS AND PRODUCTS

PETROCHEMICAL MANUFACTURING

REFINING

STORAGE

LONG DISTANCE TRANSPORTATION

FIELD PIPELINE GATHERING

FIELD PROCESSING

PRODUCTION OPERATIONS

FIELD DEVELOPMENT

EXPLORATION

PIPE SOLUTIONS

The main tasks for pipeline transportation are fail-safe, timely, profitable and ecologically safe oil, gas and petroleum products delivery without quantity and quality losses notwithstanding enormous distances between oil well and end point. DuPont provides solutions for corrosion protection, flow assurance (and accordingly – cost effectiveness) based on high gloss and anti-stick internal coatings and additives for viscosity and drag reduction and cold properties improvement.



Nap-Gard and Fusabond®

Components of three-layer pipe coating system

DuPont Pipeline Solutions' comprehensive line of offerings includes:

- Nap-Gard primer, single and dual-layer Fusion Bonded Epoxy (FBE) powder coatings for corrosion-protection of oil, gas and water pipe.
- Fusabond® adhesives for bonding of PE and PP multi-layer coating systems at operating (service) temperatures up to 100°C, in the case of the 3-layer PE system.

DuPont™ **STREAMAX™**

Coatings for downhole tubes, tools and accessories

For maximized well productivity and reduced operating costs, look to DuPont™ **STREAMAX™** coatings to help minimize pluggage and corrosion during production. DuPont™ **STREAMAX™** offers superior chemical resistance at high temperatures plus excellent adhesion to metal and a very low friction coefficient. DuPont™ **STREAMAX™** helps reduce overall maintenance costs, reduces the risk of reservoir damage from chemicals and helps maximize tubular life.

Pipelon®

A unique line of engineering resins & technologies

Pipelon® is unique family of DuPont engineering polymer resins and world class technology designed to serve the demanding field of polymeric pipe solutions for the oil and gas industry. The product and technology addresses today's market for improved permeation resistance, higher temperature, higher pressure, lighter weight and lower life cycle cost pipe in the oil and gas industry.

Reinforced Thermoplastic Pipe (RTP)

Pipeline technology

RTP is a revolutionary pipeline technology designed and specified to provide cost effective, maintenance and trouble free operation for a variety of onshore pipeline applications. RTP range of products is especially intended for those end users conscious of reducing pipeline life-cycle costs and concerned about safe environmentally sound operation.



HIGH PERFORMANCE MATERIALS

Working in the oil and gas refineries, as well as the downhole environments can prove environmentally and operationally challenging. DuPont recognizes the needs for highly specialized products and services. Whether you are looking for stimulation additives or lubricants, surface tension reduction or bacterial control, DuPont work with you to understand your application, operational needs, critical issues, and your definition of success.



Krytox®

Lubricants for extreme environments

DuPont™ Krytox® oil and grease products can exceed your most challenging needs, from the aggressive world of chemical processing, to the high temperatures in state-of-the-art automotive, paper corrugating, and textile applications, to the critical tolerances of aerospace military specifications. Krytox® oils and greases offer a unique combination of properties that extend the life of components, allowing manufacturers to extend warranties and manufacturing plants to reduce costly maintenance and downtime due to component failure. This is especially true in downhole operations, which place the most severe service demands on your equipment.

Kapton® and Oasis®

Polyimide Film

High Performance Materials manufactures and supplies worldwide the DuPont™ Kapton® polyimide film and DuPont™ Oasis® composite film used in a wide variety of electrical and electronic applications. Kapton® has been used for over 40 years as the insulation of choice with proven performance for applications at very high (up to 400°C) or very low (-269°C) temperature extremes.

Hytrel® and DuPont™ ETPV Flexible thermoplastic solutions

Hytrel® Thermoplastic Elastomers and DuPont™ ETPV Engineering Thermoplastic Vulcanizates offer new solutions for many parts and components in the oil and gas and processing industries. They give the flexibility of rubbers, the performance of high strength polymers and the processability of thermoplastics. In particular, they both have excellent resistance to a wide range of chemicals, hydrocarbons and solvents, even at elevated temperatures. They can be moulded into complex shapes and dimensional tolerances beyond that which can be achieved with conventional elastomers. Both are ideal for parts requiring excellent flex fatigue resistance and stability of performance over a wide temperature range.

Viton® Fluoroelastomers for harsh environments

Proven over decades of service Viton® has delivered a combination of high-temperature performance and exceptional chemical resistance for almost 50 years. Its dynamic characteristics give critical seals and parts exceptional performance and longer life in aggressive environments.

Kalrez® High performance perfluoroelastomer parts for reliable, long-term sealing

The Kalrez® perfluoroelastomers sealing product line has been specifically designed to deliver outstanding performance in aggressive process environments, ranging from chemical to oil and gas applications.

Teflon® and Tefzel® Fluoropolymer solutions

Industrial products made with Teflon® fluoropolymer resins have exceptional resistance to high temperatures, chemical reaction, corrosion, and stress-cracking. The properties of Teflon® make it the preferred plastic for a host of industrial applications.

OIL WELL PRODUCTIVITY

Putting the science of DuPont to work for our customers has allowed us to develop a wide range of products made specifically for enhancing oil well productivity in the oil and gas industry. Whether you're looking for stimulation additives, drilling fluid agents, surface tension reduction or bacterial control, DuPont has the products for your application, operational needs, critical issues, and your definition of success.



DuPont™ Tyzor® Organic Zirconates and Titanates

Used to improve the recovery of oil and gas from production wells in a variety of applications including hydraulic fracturing, drilling and enhanced oil recovery.

The Tyzor® products most commonly used in oil and gas field applications are water-stable chelates of zirconium or titanium. Selection of the proper grade depends on the fluid formulation and the conditions of the treatment process.

A broad range of DuPont™ Tyzor® zirconates and titanates are available for solvent, solvent-free, and water-based applications.

DuPont™ Zonyl® Fluorosurfactants

Well stimulation additives

Extremely effective at low concentrations and can be used in combination with existing surfactants in well stimulation fluids for faster, more complete fluid recovery. DuPont Zonyl® fluorosurfactants offer a sustainable solution to oilfield customers that is evident by DuPont's continued product availability and ongoing commitment to safety.

DuPont™ Glycolic acid and Polyglycolic Acid

Oil Field & Petro Refining Applications

DuPont™ Glycolic Acid ensures economical cleaning by providing low-cost metal complexing in a readily biodegradable form that will not add potentially undesirable Biological Oxygen Demand (BOD) or Chemical Oxygen Demand (COD) to formulated products. It can be used with hydrochloric or sulfamic acids to prevent iron precipitation in cleaning operations or water flooding. NSF-certified with low odor, low vapor pressure and non-flammability, Glycolic Acid can effectively eliminate harmful deposits while minimizing corrosion damage to steel or copper piping systems, all with safety in handling and ease of use.

DuPont™ Anthium Dioxide® & Chlorine Dioxide

Bactericides and oxidizers for oil & gas applications

DuPont™ Anthium Dioxide® is a highly effective bactericide for specific Gas and Oil-Field applications. Chlorine dioxide is a selective oxidizer for biofilm treatment, mainly for water facilities that are affiliated with a refinery or power/utilities plant.



PERSONAL PROTECTION

DuPont Personal Protection Because someone's life may depend on it.

Your employees put their health at risk. In return, they deserve protection that they can rely on and trust. Our goal is to combine scientific innovation and manufacturing expertise to provide a comprehensive range of excellent protective clothing. All garments are made to DuPont high quality standards and deliver an ideal combination of protection, durability and wearer comfort that you can count on.

One of the keys to employee safety is the provision of appropriate protective clothing. Selecting the right garment not only helps to prevent injury, but may also help to prevent long-term occupational diseases. Different industrial applications mean different safety requirements. For this reason, we work very closely with industry to ensure that our product range meets specific industry needs. But our commitment to safety doesn't stop there; we also offer extensive training and back-up support to ensure that our garments are worn safely.



Nomex®

Flash fire and electric arc protection

NOMEX® protective garments combine extreme durability, outstanding cost effectiveness and high wearer acceptance in one. NOMEX® provides genuine heat and flame protection for companies in the petroleum, chemical, metal, transportation, utilities and electrical industries. Garments made from NOMEX® brand fiber have long been known as the superior choice in flame-resistant protective apparel. What may not be as well known, however, is that protective apparel of NOMEX® is also one of the most cost-effective investments your company can make in both the short and long term.



Tyvek®

Solid particles and low concentrated inorganic chemicals protection

TYVEK® delivers inherent barrier protection. Touch any garment from the comprehensive DuPont™ TYVEK® product range, such as TYVEK® Classic, and you will notice the difference. It is a unique and versatile material that is tough, yet light and soft. TYVEK® was invented and is manufactured exclusively by DuPont. TYVEK® is permeable to air and water vapour, yet repels water-based liquids and aerosols. It acts as an efficacious barrier against particles and fibres. It is low-linting.

Tychem®

Chemical and biological protection

The TYCHEM® range offers lightweight comprehensive protection starting at low toxic chemicals up to toxic gases and biological hazards. TYCHEM® protective clothing is commonly used for oil handling; land decontamination; production plants decommissioning; industrial cleaning and maintenance; tank and oil tanker cleaning; spill clean-up and accident intervention; gas supply sector; typical chemical industry applications or where protection against biohazards is needed.

Kevlar®

Cut, slash and abrasion protection with excellent heat resistance

DuPont™ KEVLAR® specializes in the protection of hands and wrists against cuts and abrasions, and offers functioning solutions to a wide range of mechanical risks. In response to the specific needs of certain industries and users, DuPont Personal Protection offers them a high level of performance and has redefined the description and characteristics of its protective equipment.

DuPont™
NOMEX

DuPont™
KEVLAR

DuPont™
TYVEK

DuPont™
TYCHEM

CLEAN TECHNOLOGIES

Global demand for cleaner fuels and cleaner air, along with more sophisticated methods of air pollution control, mean that environmental sensitivity has become a priority within the oil and gas industry. Refiners are handling crude oil with a higher sulfur content than they did five years ago, yet they are required to produce low-sulfur products while reducing the sulfur emissions they generate in the process. DuPont science helps them to achieve green success without compromising productivity.



DuPont Refinery Solutions provides demonstrated, science-based services and solutions to help refiners respond to environmental challenges in ways that improve their environmental footprint. DuPont Refinery Solutions has expanded its business from supplying sulfur products to providing refiners with fully integrated environmental solutions.

The recent acquisition of Belco Technologies Corporation (BELCO®) means that DuPont Refinery Solutions now offers these industry-leading technologies under a single umbrella.

- STRATCO® alkylation and DuPont Acid Regeneration technology with extremely low emissions
- Sulfur gas recovery services
- BELCO® world-class air quality control technology that significantly reduces SO_x and NO_x emissions from the refinery process

STRATCO®

Alkylation

STRATCO® is a world leader in alkylation technology with over 600,000 B/D of licensed capacity. STRATCO® offers a full range of alkylation support services including troubleshooting, startup assistance, mechanical field service, pilot plant testing, analytical services, spare/replacement parts, continuous acid analyzer, and ongoing R&D for technology improvements.

BELCO®

Particulate SO_x and NO_x Emission Control

Refinery applications demand the best and most durable equipment available. Abrasive particulate and multiple year non-stop operation require that the designer have in-depth understanding of how an air pollution control system behaves in such conditions. BELCO®'s years of experience in this field, along with a very robust and reliable system design make it a perfect partner to the refinery customer. BELCO®'s team of seasoned engineering professionals has in-depth expertise from a broad range of industrial applications that is used to design and construct gas cleaning systems meeting the comprehensive needs of our Customers.

DuPont Sulfuric Acid Regeneration

DuPont has over 70 years of experience in manufacturing and transporting sulfur-based products. DuPont has constructed a facility to provide the refinery with sulfuric acid regeneration services. The DuPont facility receives spent acid and sulfur-bearing streams generated at the refinery cleans the acid and returns it to the refinery in a system known as sulfuric acid regeneration. The regenerated acid will then be used as a catalyst to make an octane-enhancer used in gasoline. This process is a proven pollution control system that DuPont refers to as DuPont Refinery Solutions.

SAFETY MANAGEMENT CONSULTING

DuPont helps companies improve business performance by providing services that not only enhance a client's safety systems and operations, but positively affect its bottom line. By leveraging its 200 year industrial heritage with safety as a core value, DuPont has helped hundreds of organizations worldwide reduce workplace injuries and fatalities while realizing sustainable improvement in operating costs, productivity quality and employee morale.

These results are based on DuPont belief that a safe workplace and operational excellence are critical elements to business success. The key to our approach is creating a disciplined safety and operational culture focused on prevention and process improvement.

Our areas of expertise include:

Workplace Safety

We help develop a customized solution to install an effective and sustainable management system within your business.

Operational Excellence

We apply a structured approach to achieve systemic improvement in capital effectiveness and asset productivity.

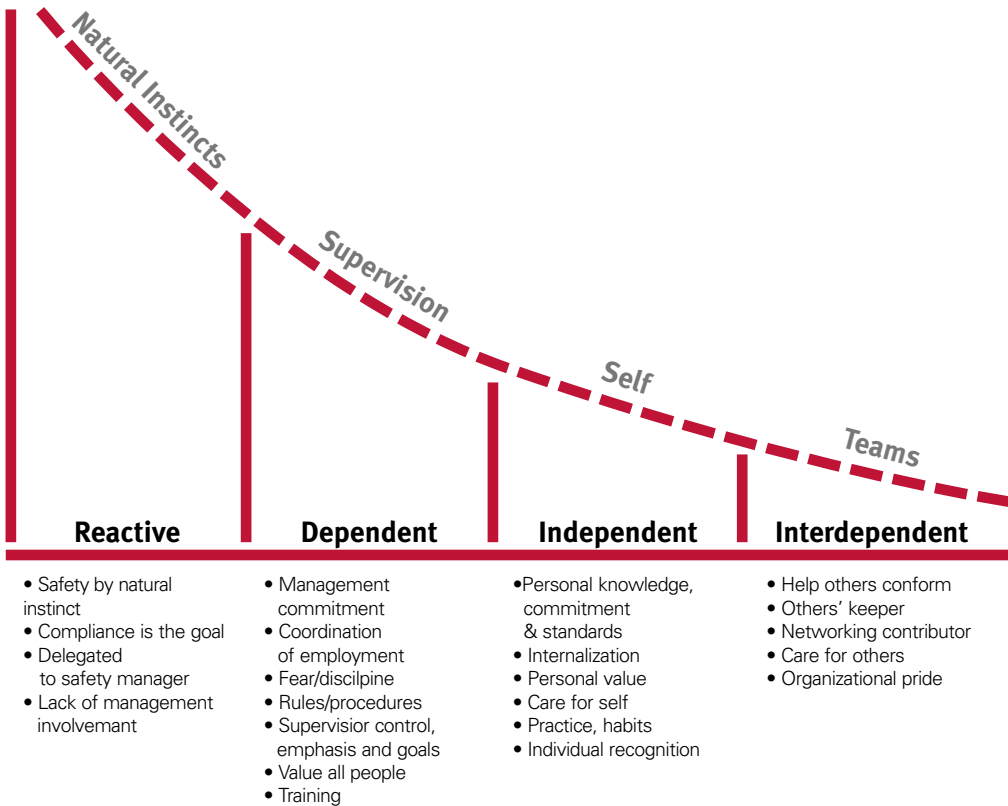
Years of experience prove that the application of DuPont safety management methodologies benefits organizations by enabling:

- Sustained reductions in injuries averaging 50% or more
- Associated direct and indirect cost savings
- Increased employee productivity and reduced overtime
- Reduced regulatory costs, liability and risk
- Improved operational effectiveness through integrated management systems
- Enhanced public perception that supports branding and marketing efforts



SAFETY AS AN INTERDEPENDENT CULTURE

The following DuPont Curve graphically illustrates the changes that occur as a company moves from reactive to dependent to independent and finally interdependent within an organizational structure.



An important aspect of moving down the curve into a culture of independence and interdependence is gaining the understanding that world-class safety goes far beyond a focus on injuries. Instead, a safety culture focuses on prevention through observation and assessment of hazards and through stressing in systems, practices and personal commitment to instill organizational pride and individual accountability.

Today DuPont clients represent a diverse range of industries such as energy, aerospace, surface transportation, food and healthcare, including: Conoco UK, Georgia-Pacific, Hunter Health, Los Angeles Metropolitan Transportation Authority, Pemex Gas, Qantas and Wawa.

OPERATIONAL EXCELLENCE

To help you achieve Operational Excellence, we combine the best management processes, globally recognized technologies and technologists, Six Sigma methodology, and a proven culture-change model to provide an integrated solution. Our DOES™ integrated management system process gives a company the benefits of lower costs, increased efficiencies, fewer injuries, maximum sustainable returns on operating assets, and an enhanced competitive position.

Transferring Knowledge. Transforming Companies.

- Increase in product quality 100–400%
- Increase in manufacturing productivity 40–70%
- Increase in manufacturing capacity 15–25%
- Reduction in in-process inventory 30–60%
- Reduction in overall product introduction time 30–60%



DOES™

Integrated management system

DOES™ can be applied to existing or new facilities (including acquisitions), expansions, and consolidations. Our process gives an organization these advantages:

- Strategic clarity about your mission, objectives, and organizational expectations;
- A culture of Operational Excellence;
- Best practices in advantageous architecture and processes;
- A well-orchestrated improvement journey;
- Superior organizational alignment and execution.

Taking the journey toward achieving Operational Excellence typically begins with making an initial step-change improvement, followed by a continuum of incremental enhancements, and resulting in a significant, sustained competitive advantage. Our approach has helped client companies face, assess and respond to challenges in the global marketplace that were undermining their ability to compete effectively. Let us help your organization achieve similar results.

If you want to gain a competitive advantage through Operational Excellence, talk to DuPont. We enable businesses to significantly improve their operational effectiveness through integrated management systems. During our many years of consulting, we have provided thousands of clients across a variety of industries with customized solutions that lead to measurable and sustainable results.

Our worldwide network of more than 1,000 consultants integrates the owner-operator experience, best-in-class management capabilities and proven DuPont technology to transfer our knowledge to your organization.

We also provide collaborative implementation assistance to help you create a culture of operational discipline.





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