

DuPont Oil & Gas Solutions

MEETING INDUSTRY CHALLENGES THROUGH
SCIENCE AND INNOVATION



The miracles of science™

Overview of the DuPont Oil & Gas offerings

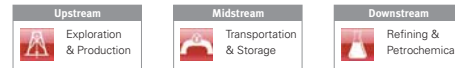
	Sustainability	Safety	Environment	Productivity
DuPont™ Anthium Dioxide® Stabilized chlorine dioxide solution A highly effective bactericide for both brine and fresh water systems. Applications include control and abatement of poisonous and corrosive hydrogen sulphide gas and sulphate-reducing bacteria often found in drilling fluid and produced water.	●	●	●	●
DuPont™ BELCO® Clean Air Technologies DuPont™ BELCO® Clean Air Technologies benefit both the environment and your refining business. BELCO® combines leadership in air emissions control with the extensive science and technology resources of DuPont. BELCO® can give you the peace of mind you need to focus on core processes, by ensuring you are in compliance with the most current environmental regulations.	●	●	●	●
DuPont™ Capstone® Well stimulation additives A fluorosurfactant which provides unsurpassed surface tension reduction. Due to its unique thermal and chemical stability in harsh environments & ability to alter wettability of rock formations and create low surface tension fluids, Capstone® is an excellent additive for stimulation & EOR applications.	●	●	●	●
DuPont™ Chlorine Dioxide Bactericide/Oxidizer A strong oxidizer for the treatment of biofilms, bacteria, spores, viruses, fungi, algae and zebra mussels as well as sulphides, phenols & various metals e.g. iron & manganese. Can be used to treat produced & injection water, refinery cooling water, desalination & petrochemical plants. A fast and efficient solution to macro/micro fouling of industrial water streams.	●	●	●	●
DuPont™ FM-200® Waterless Fire Suppression Trusted choice in waterless fire suppression. FM-200® deploys quickly and cleanly and won't leave behind oily residue, particulate, or water. FM-200® fire suppressant stops fires fast. FM-200® systems reach extinguishing levels in 10 seconds or less, stopping ordinary combustible, electrical, and flammable liquid fires before they cause significant damage. FM-200® fire suppressant can also be safely used where people are present.	●	●	●	●
DuPont™ Fusabond® Resins for bonding of multi-layer pipe coating systems Reactive polyethylene, formulated to adhere to metal surfaces that have been correctly prepared. It can be used as a tie layer between nylon and polyethylene and has the capability to bond to partially cured epoxies.	●	●	●	●
DuPont™ Glycolic Acid Cost efficient cleaning and de-scaling Glycolic Acid ensures economical cleaning & mineral de-scaling in transportation pipelines & cooling systems by providing low-cost metal complexing in a readily biodegradable form. Glycolic acid chelates rust, scale and particulate found downhole and in surface facilities and pipelines as well as reduction equipment. Glycolic Acid can effectively eliminate harmful deposits while minimizing corrosion damage to steel or copper piping systems and equipment.	●	●	●	●
DuPont™ Glycolic Acid Production/Flow Assurance Calcium Naphthenate is a troublesome deposit that can form in oil production systems that are handling crude oil with a high acid number (TAN). Glycolic Acid is a very soluble calcium complex for the prevention and remediation of Calcium Naphthenate precipitation. It can be injected into the well either subsea or at several places topsides (e.g. on the production and test headers, upstream of the crude cross exchangers and crude heaters or into the electrostatic coalescer) to mitigate/control their build up.	●	●	●	●
DuPont™ IsoTherming® Clean fuel technologies IsoTherming® hydrotreating technology is a commercially proven breakthrough process which provides petroleum refineries a more economical and flexible means to produce today's ultra low sulfur transportation fuels. It has attractive benefits for refineries, including lower total investment, reduced equipment delivery lead times, reduced light ends make, increased catalyst life, less coking, reduced maintenance and operating cost.	●	●	●	●

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DuPont™ Kalrez® Extreme elastomeric performance DuPont™ Kalrez® perfluoroelastomer parts have virtually universal chemical resistance and high temperature resistance up to 327°C. They are used as V-rings, O-rings & custom shapes, tubing to packer seals etc. It has widespread application in transportation pipelines, chemical & hydrocarbon processing as well as downhole drilling & logging tools and completion equipment. They offer excellent explosive decompression resistance, resistance to extrusion in high-pressure applications and show excellent chemical resistance to drilling fluids, sour gas & amines.	●	●	●	●
DuPont™ Kapton® Polyimide film An all-polyimide high performance flexible electrical insulation film for circuit applications requiring extreme temperatures (-269°C to +400°C), chemical and radiation resistance, electrical performance and mechanical stability. Kapton® is widely used as the insulation for wire & cables in ESP's, sensors, switches and insulation for transformers, cable & lead insulation in downhole equipment (e.g. wireline logging & LWD tools).	●	●	●	●
DuPont™ Kevlar® Reinforcement in umbilicals and risers Kevlar® is the primary strength reinforcement that enables the use of flexible thermoplastic hoses instead of steel in offshore umbilicals. It is also used to reinforce flexible risers. Combined with its chemical and corrosion resistance properties, the resistance Kevlar® has to elongation under load and "creep" make it particularly well suited for the rigors of offshore exploration and production. It is also used to reinforce control lines for remotely operated vehicles (ROV's).	●	●	●	●
DuPont™ Kevlar® Optimum cut and heat resistance Protective apparel made for workers exposed to a variety of cut, abrasion and high heat hazards. Available as protective gloves, sleeves & aprons designed to protect the hands and wrists against cuts, lacerations and abrasions. Also has excellent heat resistance.	●	●	●	●
DuPont™ Krytox® Lubricants for extreme environments Extreme environment lubricant with high-temperature performance, non-flammability, and chemical inertness under a wide range of conditions. It lubricates & protects in high temperatures & chemically aggressive environments far beyond capability of conventional lubricants. Insoluble in both hydrocarbon & petroleum distillates it is stable at temperatures of -40°C to +425°C. Used in pump applications, emission control valves, camshaft bearings, inlet control & line system valves, pipeline inspection equipment and downhole drilling equipment.	●	●	●	●
DuPont™ Nap-Gard® Corrosion protection Nap-Gard® primer, single and dual-layer Fusion Bonded Epoxy (FBE) powder coatings for corrosion-protection of oil, gas and water pipelines. A part of the three layer pipe coating system for the exterior protection of steel pipes, the system offers the advantages of mechanical, chemical and electrical resistance of the polyolefin top coat in combination with the excellent adhesion of epoxy to metal.	●	●	●	●
DuPont™ Nomex® Flash fire and electric arc protection Protective clothing for flash fires & electric arc hazard protection. Used by rig crews, fire fighting crews, fuel handlers, plant operators & pipeline workers. Nomex® brand fibres provide valuable seconds people need to escape and survive flash fires. Nomex® cannot be washed out or worn away. It does not melt or drip when exposed to a flash fire. It will self extinguish when removed from the heat source.	●	●	●	●
DuPont™ Particlear® Industrial Water Treatment An advanced flocculation aide which helps to remove particulate matter from water and waste streams. It is produced on-site using a highly reliable DuPont™ Particlear® generator, which combines sodium silicate solution and carbon dioxide to form a Particlear® Solution.	●	●	●	●
DuPont™ Pipelon® Non-metallic pipe solutions 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.	●	●	●	●

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DuPont™ STOP™ Safety Training Observation Program Using individual self-study, field activities and group meetings, STOP™ For Each Other teaches employees to rely on themselves and each other to stay safe. This approach fosters increased peer-to-peer communication about safety, allowing safety to become second nature to the individual and, over time, a greater and more integrated part of the company culture.	●	●	●	●
DuPont™ STRATCO® Clean Fuel Technologies Our advanced alkylation technology helps companies produce cleaner burning fuels required by environmental regulations. With more than 70 years of experience in alkylation development and 500 reactors installed throughout the world, DuPont can offer you a full range of comprehensive support services, including, troubleshooting, start-up assistance, mechanical field service, pilot plant testing, analytical services, part replacement, continuous acid analysis, and ongoing research and development for technology improvements.	●	●	●	●
DuPont™ StreaMax™ Downhole tubular protection These internal coatings are designed for downhole tubulars in production and injection wells to minimize operating and maintenance costs by providing superior corrosion protection in extreme environments or to maximize well productivity by preventing the accumulation and deposition of asphaltenes, paraffins, and scale.	●	●	●	●
DuPont™ Teflon® Temperature and Chemical Resistance Products made with fluoropolymer resins have exceptional resistance to high temperatures, chemical reaction, corrosion, and stress-cracking. Our PFA, FEP & ETFE melt processable fluoropolymers help protect wireline logging cables, umbilicals, motor windings and control lines and cables in ESP's.	●	●	●	●
DuPont™ Tychem® Chemical and biological protection Chemical protective apparel which offers a lightweight fabric with comprehensive protection against hazardous solid, and liquid organic and inorganic chemicals, including biohazards. Is commonly used in the chemical and energy industry for tanker cleaning & chemical handling applications and for handling spill clean up and accident intervention.	●	●	●	●
DuPont™ Tyvek® Solid particles and inorganic chemicals protection Tough, durable and breathable Tyvek® delivers inherent barrier protection. Tyvek® is permeable to air & water vapour yet repels water based liquids and aerosols. It is low linting and acts as an effective barrier against particles and fibres. Is commonly used in the industry, in manufacturing processes, industrial maintenance and cleaning and in emergency response.	●	●	●	●
DuPont™ Vespel® Improved pump performance Custom formed ultra high-performance parts and shapes made from advanced composite fluorocarbon materials. Replaces metal components with challenging tolerances. Used in centrifugal pumps in refineries, natural gas processing / petrochemical plants in non-abrasive process services (hydrocarbon, chemical, water) up to 260°C. Used in stationary pump components such as wear rings, throat bushings, pressure-reduced bushings, line shaft bearings, inter-stage bearings.	●	●	●	●
DuPont™ Viton® Fluoroelastomer sealing Viton® fluoroelastomer offers a combination of high-temperature performance (205°C), and exceptional chemical resistance. Its dynamic characteristics give critical seals and parts exceptional performance and longer life in aggressive environments. Major uses include bonded seals, radial lip seals, caulks, coatings, vibration dampeners, expansion joints, gaskets, O-rings, piston-seals, V-rings, bladders, packer elements, diaphragms, custom shapes & parts. Used in pumps, valves, BOP's, downhole motors, DHSV's etc.	●	●	●	●
Energy Efficiency Consulting Services Helping clients achieve energy efficiency and cost reductions, and improve operating team capabilities by developing decision-making and team building programs, integrated energy management programs, energy management competencies and implementing equipment, non-capital and information technology solutions.	●	●	●	●
Environmental Management Consulting Services Enabling clients to achieve their sustainability goals, effectively reduce their corporate environmental footprint and maximize the return on operating assets by applying integrated environmental management systems, developing environmental management competencies and implementing sustainability culture change models.	●	●	●	●

	Sustainability	Safety	Environment	Productivity
Global Engineered Services Service & repair DuPont Global Engineered Services (GES) provides on-site review of sulfuric acid handling, plant design, operation, and performance, as well as in-depth reporting with specific recommendations for improved plant performance and operating procedures.	●	●	●	●
Integrity Management Consulting Services Application of management systems and controls (programs, procedures, audits, evaluations) to a manufacturing or chemical process in a way that process hazards are identified, understood, and controlled, so that process-related injuries and incidents are prevented.	●	●	●	●
Operations Risk Management Qualitative and quantitative assessment Our offering is an integrated management system that builds upon our proven safety-management model of technical safety to encompass process-safety management (PSM) and other operational risk management systems. It helps clients implement sustainable continuous-improvement processes to manage risk in each of seven key areas through assessing, envisioning and managing, planning and implementation.	●	●	●	●
Reinforced Thermoplastic Pipe (RTP) Non-metallic pipe solutions In combination with DuPont™ Kevlar® and/or DuPont™ Pipelon® products, RTP technology provides a cost effective and maintenance free alternative for onshore and offshore flexible pipelines and risers. RTP range of products is especially intended for those and users conscious of reducing pipeline life-cycle costs and concerned about safe, environmentally sound operation.	●	●	●	●
SAR/SGR Sulfuric Acid Regeneration – Sulfur Gas Recovery DuPont offers a cost-effective, flexible and energy-efficient technology to refineries for sulfur and spent acid management, also helps to improve environmental performance.	●	●	●	●
Sustainable Assets Capital Projects Consulting Services Enabling clients to improve their project delivery and operating performance, by implementing proven best practices to improve asset productivity and reliability, improving delivery, timing and performance of capital projects, team development and improved project leadership capability.	●	●	●	●

Fields of Application



For more information visit:

www.oilandgas.dupont.com



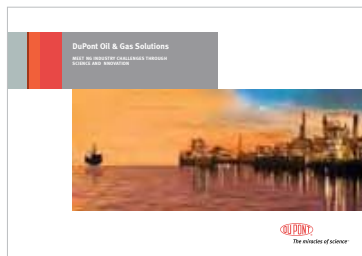
The miracles of science™

DuPont is a key strategic partner helping to solve many of the Oil & Gas industry's most serious challenges in safety, the environment and reliability & productivity.

Utilizing science to drive innovation

Putting the science of DuPont to work for our customers has enabled us to develop a wide range of solutions tailored specifically to the oil and gas industry. From high temperature seals and lubricants that provide superior protection in the harshest of environments, to anti-corrosion pipe coatings and clean fuel technology, DuPont has products and services that can help you optimize your company's performance.

Discover now what DuPont can do for you and order our brochure «DuPont Oil & Gas Solutions» or get your digital version at oilandgas.dupont.com.



Value proposition of our offerings

We are applying science to make a world of difference in the safety of your people with today's most innovative and trusted Safety & Risk Management tools and Personal Protection products in the industry.

SAFETY

We help you reduce air emissions, improve water quality and usage, formulate cleaner fuels and develop strategic environmental plans.

ENVIRONMENT

Our solutions help keep your operation working at peak efficiency, even in some of the most extreme operating environments.

RELIABILITY & PRODUCTIVITY

The Oil & Gas industry is all about delivering the world's energy safely and efficiently while safeguarding our environment for a future worth living.

Sustainable solutions for a clean, “green” future

Today, footprint reduction is expected of all companies. The challenge – and the opportunity – is to develop products and processes that are safer, less toxic, more energy efficient, use less water and produce fewer greenhouse gases.

DuPont has the experience and expertise to put science to work in ways that can build in attributes – at the early stages of product design – that help protect or enhance human health, safety and the environment. By bringing our science to the market, DuPont designs products and processes that pass rigorous criteria for the use of renewable resources, energy, water and materials.

As a material, technology and knowledge provider, DuPont has far reaching impact on virtually every major industry in the world. The goal is to help our customers and our customer's customers grow their businesses while contributing to social and environmental progress.

For more information visit:

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DuPont is a science company. Founded in 1802, 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 agriculture, nutrition, electronics, communications, safety and protection, home and construction, transportation and apparel.

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