As refiners continue to focus their resources around their core process units, DuPont is increasingly called upon to provide comprehensive aftermarket services and solutions for sulfuric acid alkylation. These services and solutions include everything from unit optimization, operations and product reliability improvements to mechanical equipment fabrication, process troubleshooting, operator training and more.

BELCO® CLEAN AIR TECHNOLOGIES
BELCO® technology, a leader in air quality control for refineries, was acquired in 2006. The BELCO® brand is well recognized for supplying air quality control systems for more than 40 years to the oil refining, sulfur recovery and sulfuric acid industries. The BELCO® “all-in-one” approach provides full control-enabling regulatory compliance for NOx, SOx and particulate emissions. Both reliable and flexible, the technology can be modified as requirements or regulations change.

As a company known for “putting science to work,” DuPont is committed to providing technology-based solutions that enhance the long-term sustainability of today’s modern business enterprise. Today, that means delivering a combination of improved operational efficiency, higher levels of safety and cleaner technologies to reduce the environmental impact within DuPont facilities and at client sites around the world.

SOLUTIONS FOR A CLEANER, SAFER TOMORROW
Through its science-based Clean Technologies portfolio, DuPont offers focused solutions based on real-world experience. The company has dedicated itself to improvements in the areas of clean air and clean fuel, and this has led the company to seek out like-minded industry partners and complementary technologies. From the reduction of sulfur oxides (SOx), nitrogen oxides (NOx) and particulate emissions to technologies that support the production of clean fuels, DuPont resources deliver a broad range of clean and green services, with a strong focus on refinery based enterprises.

The DuPont portfolio of clean technology and service offerings help alleviate environmental challenges faced by production facilities today, to enable clients to better focus on their core business. The Clean Technologies portfolio currently includes STRATCO®, BELCO®, IsoTherming®, and MECS® technologies, including a comprehensive suite of aftermarket service and solutions offerings.

STRATCO® ALKYLATION TECHNOLOGY
The world leader in sulfuric acid alkylation technology licensing, STRATCO® technology became part of the DuPont family in 2003. With the STRATCO® technology acquisition, DuPont was able to supplement its sulfuric acid expertise with alkylation knowledge and significantly expand the breadth of its offerings to the refining industry. STRATCO® alkylation technology was developed in the 1930s and was subsequently licensed to refiners globally. The result is over 80 years of experience in alkylation development, licensing, design, startup, and equipment fabrication for refineries throughout the world.
ISOTHERMING® HYDROPROCESSING TECHNOLOGY

IsoTherming® hydroprocessing technology was acquired by DuPont in 2007 and offers a unique technology suited to reducing sulfur in motor fuels. The heart of the IsoTherming® technology is the ability to provide the hydrogen necessary for the reactions through a saturated liquid recycle stream. This eliminates the need for a recycle gas compressor, as is the standard with conventional technology. Flow through the IsoTherming® reactor becomes a single, liquid phase. Each catalyst particle is 100% wetted and therefore utilization of the catalyst is much more effective. The tendencies for channeling, hot-spot development and coke formation are much reduced. For the refiner, this technology offers reduced capital costs and lower annual operating costs while reducing sulfur content in motor fuels.

IsoTherming® technology is licensed for the following applications:

- Kerosene and Diesel Blend Hydrotreating to Latest Standards
- FCC Feed Hydrotreating
- Mild Hydrocracking
- Grassroots and Revamp Projects

MECS® SULFURIC ACID AND ENVIRONMENTAL TECHNOLOGIES

New to the Clean Technologies practice is MECS® sulfuric acid and environmental technologies. MECS® is the global leader in sulfuric acid plant design and technology licensing for the phosphate fertilizer, oil refining, metal smelting, chemicals, cement, and many other industries, with a special focus on the chlorine and organic chemicals segments. MECS® offers world-class gas cleaning products to control air emissions, custom-engineered heat exchange products to recover energy for the chemical process industry, and unique process technologies for oil refineries. At the core of MECS® technical expertise is a commitment to quality and a reputation for proven product innovation. MECS® consultants can customize technical services and proprietary technologies to achieve new performance gains for your organization, helping facilities meet and exceed regulatory requirements or solve crucial plant operating bottlenecks. MECS® experts bring a practical approach to plant evaluations, troubleshooting, and new technology solutions. Backed by nearly 100 years of experience, MECS® consultants can work closely with your team to analyze, recommend, engineer and implement a custom solution for your specific needs.

DuPont and MECS® help customers replicate the same world-class capability and success DuPont experiences in operating its own sulfuric acid plants by providing its customers a variety of technical, operational and mechanical services and solutions. These aftermarket product and service offerings are powered by a highly skilled staff of technical professionals with extensive process industry experience, to assist sulfuric acid plants with any operational, maintenance or technical challenge. Services include everything from throughput and yield optimization, uptime and reliability improvements, mechanical integrity assessments and process troubleshooting to energy optimization, capital effectiveness, safety assessments, operator training and more.

With proven and innovative technologies and solutions from DuPont, our customers are able to operate more profitably with minimized environmental footprint, energy consumption and risk. Because our planet will depend on the use of fossil fuels for the foreseeable future, there will be a greater need for environmental stewardship and increased demand for lower sulfur fuels produced with lower emissions. Everything is trending toward a safer, more environmentally responsible world. DuPont provides solutions that help your business obtain a competitive position in this market.