



CORPORATE Lubeletter

The World Leader in Synthetic Lubricants

Volume 29 Number 2

New President, New Corporate Structure, Same Steady Course

George B. Mock, III, became the eighth president and CEO of Nye Lubricants last June, setting off a management buy-out effort that culminated in March 2001 with his family's purchasing the majority of the Company's stock and sharing ownership with employees through an Employee Stock Ownership Plan (ESOP).

The Mock family, who were minority stockholders prior to the buy-out, have managed day-to-day Company activities since 1963. George's father is credited with transforming what was once a moribund whale-oil company in the late 1950s into what Nye is today: a world-class formulator of custom synthetic lubricants with sales offices throughout the United States and local distributors serving every major industrialized region of the globe. The Mocks purchased controlling interest in the family-owned Company from in-law George Unhoch.

George "started" at Nye at age 12, helping his father "with inventory, packing, and washing dishes," he reflected. He worked summers at the Company while majoring in physical organic chemistry at Princeton. After earning a Master of Science in Management, Sloan School, Massachusetts Institute of Technology, he served as a marketing representative at IBM for three years, before returning to Nye full-time in 1986. Since then he has served as projects manager, operations manager, and executive vice president — positions that offered hands-on training in all aspects of the business. Among his contributions to Nye, he installed the Company's



George B. Mock, III, President and CEO

first computer network, managed major facility expansions, updated OSHA programs, actively participated in application engineering, and developed the Company's first line of low-temperature damping greases, still widely used in the automotive and appliance industries. As executive vice president, he established short and long-term business plans, including marketing, public relations, and Web site development programs. Currently, he is initiating strategic planning with the Baldrige model, expanding the Company's applications testing capabilities, and implementing cell manufacturing for key product lines. George succeeded former Nye president Jerry Madden, who retired in June 2000.

"The ownership structure of the Company has changed," George said, "but it has not affected our mission and

purpose. The ESOP is a proven way to enhance productivity and sharpen everyone's focus on customer needs. My family's leadership ensures that Nye remains the same company that our customers have come to value: technology-driven, market-oriented, committed to service, and always looking for opportunities to solve design engineering problems with custom synthetic lubricants."

New R&D Manager Keeps Nye on the "Cutting Edge"

When Dr. Michael Dube joined Nye as a staff chemist in 1998, his talents in synthetic chemistry quickly caught the attention of NASA.

Mike was able to synthesize and characterize experimental batches of silahydrocarbons, a relatively new class of liquid lubricant that shows promise in aerospace applications.

Silahydrocarbons may replace perfluoropolyethers on metal surfaces under boundary conditions, an operating environment where PFPE tends to degrade. Mike is now co-authoring studies on these new lubricants with leading scientists at AYT Corp., NASA, and Wright Patterson Air Force Base.

His work with NASA gives direction to his new role as Nye's manager of technology, research and development.

(continued on page 4)

New Vacuum-Rated Lubes Shine at Beta Sites, Move Mainstream



After kudos at three beta sites, NyeTorr™ vacuum lubricants are being rolled out as “the new standard” for vacuum and clean room applications.

Robot, lead screw, and turbomolecular pump manufacturers — each well-known vacuum-rated equipment suppliers — switched to NyeTorr lubricants after reporting significantly improved wear resistance and up to 10 times longer component life.

The NyeTorr line is a ‘fork in the road’ for broad-temperature, low-vapor-pressure, low-outgassing lubricants. Every

NyeTorr oil and grease is formulated with materials that have a very narrow range of molecular weights and ultrafiltered and packaged in a Class 100 (ISO Class 5) minienvironment. This unique manufacturing process significantly reduces trace outgassing, which depletes lubricant supply and creates a source of contamination. Gas phase contaminants can condense on nearby sensors, optics, and other sensitive instruments, or jeopardize products like semiconductor wafers, disk drives, and pharmaceuticals.

Nye Nears Commercialization of Synthetic Replacement for Exxon’s Andok® C

AST, Barden, and other leading bearing manufacturers are reporting that a new experimental synthetic grease by Nye looks as good or better than Exxon’s recently discontinued Andok C.

Andok is a line of greases formulated by Exxon for rolling-contact bearings in severe operating conditions. Andok C, which was recently discontinued, was prized for its excellent channeling characteristics.

Nye’s substitute for Andok C is a polyalphaolefin, lithium-complex grease — light tan in color, buttery in consistency. Compared to Andok C, Nye’s grease exhibited comparable oil separation (0.44% vs. 0% at 150°C); improved

evaporation rates (0.9% vs. 6.9% at 150°C); and improved Four-Ball Wear Scar results (0.6mm vs. 0.97mm). In addition, Nye’s complex-lithium thickener offers excellent protection against water washout — something Andok’s sodium thickeners cannot offer. When subjected to water washout testing (1 hour at 80°C), 99.5% of the Andok C had washed out, compared to 2.8% of the Nye grease. Nye believes that its grease contains less thickener than Andok C, which means quieter bearing performance. Because Nye’s grease uses a synthetic oil instead of petroleum, it also offers a broader operating temperature range than Andok C.

The NyeTorr line consists of a variety of synthetic chemistries. Perfluoropolyethers (PFPEs) are recommended for their inertness and ability to withstand extreme temperatures. For heavily loaded or oscillating applications, where PFPEs generally fall short, the NyeTorr line also offers more robust, non-fluorinated chemistries that have vapor pressures equal to or lower than PFPEs.

Only NyeTorr ensures that the vapor pressure listed on the package is the vapor pressure of the lubricant inside. The vapor pressure of every NyeTorr batch is measured and certified. Other vacuum lubricants list only “typical” vapor pressure, which represents one historical measurement with no guarantee that current products still match that value.

For more information, contact Dan Shea at dshea@nyelubricants.com.

REM Added in Ohio



Chuck Denison, Regional Engineer Mgr.

Charles “Chuck” Denison joined Nye’s Ohio office in April as a regional engineering manager. His responsibilities include managing key accounts in Ohio, Indiana, Kentucky, and Western Pennsylvania.

Chuck brings extensive mechanical engineering experience to Nye. Formerly he was manager of special projects at M&M Precision Systems Corporation, a leader in gear metrology.

Chuck joins Jeff Lay, Nye’s senior Ohio engineer, who will focus on the lubricant needs of power tool and appliance manufacturers throughout the US.

NyeBar Q Replaces 3M's Fluorad FC-722



NyeBar® Q, a fluorochemical barrier film functionally identical to 3M's Fluorad® FC-722, is available for immediate delivery.

3M recently announced that it will phase out the perfluorooctanyl chemistry used to produce certain surfactant and repellent products, including Fluorad® FC-722

Like Fluorad FC-722, NyeBar Q is a fluoropolymer supplied in a fast-evaporating fluorosolvent. Concentration of the resin in the solvent can be specified from 0.1% to 2.0%. The film remaining after evaporation of the solvent repels hydrocarbon oils, silicone oils, synthetic fluids, and aqueous solutions. NyeBar Q films can withstand temperatures up to 200°C for prolonged periods and maintain good repellent qualities.

NyeBar Q can be used to create an antimigration barrier or a protective coating in such applications as precision bearings, small motor shafts, magnetic storage media, printed circuit boards, and electrical contacts.

NyeBar Q also serves as a replacement for NyeBar K, a barrier film first formulated by Nye in 1964. Like FC-722, NyeBar K incorporated 3M's perfluorooctanyl chemistry.

New PTFE-Thickened Damping Greases Boost Shear Stability, Prevent Rust

Nye's Fluorocarbon Gel 868 series is a new family of PTFE-thickened damping greases that goes where no other damping grease has gone before: high-shear, metal-on-metal components that have to operate smoothly and quietly for extended periods.

For more than a decade, NyoGel 774 damping greases have been an economical way to add a high-quality feel and sound to many low-shear devices, including microscopes, plastic molded switches, stereo tuners, and more than 30 automotive components — all relatively low to moderate shear applications. Recently, Nye engineers noticed that after extended, high-shear durability testing, the most viscous of the NyoGel 774 greases did not maintain desired damping characteristics.

Searching for a more robust damping grease, Nye engineers discovered that the silica gellant was the culprit. When the same high molecular weight base oils used in the NyoGel 774 series were mixed with PTFE, the new grease

retained its damping characteristics after 153 hours of continuous high shear — and the Fluorocarbon Gel 868 series was born.

Though it's a new product line, several customers have already switched to the "868s." DaimlerChrysler specified Fluorocarbon Gel 868VH for its 2001 tilt-steering gearing. Visteon Corporation reported favorable results in an adjustable steering column. Delphi Automotive Systems used Fluorocarbon Gel 868VL to fix a warranty problem with GM tie rods, an application where the new series' rust prevention additive is a plus. Lear Corporation decided to switch from NyoGel 774L to Fluorocarbon Gel 868 on certain plastic switches for GM, noting that the PTFE grease gave the switches a "silky feel."

Fluorocarbon Gel 868 greases are smooth, off-white, and come in a variety of viscosities, from very light to very heavy. Operating temperature range is -40°C to +125°C. They can be used as replacements for most applications that now use NyoGel 774s.



Nye's new application engineer Tracy Montour is part of the team that commercialized Fluorocarbon Gel 868 series damping greases, PTFE-thickened blends of synthetic hydrocarbon oils that offer a silky feel for smaller components and superior shear stability in heavy-duty, metal-on-metal applications.

(continued from page 1)



Michael J. Dube, Ph.D.

"One of Nye's key strengths is its ability to formulate synthetic lubricants that meet the technological needs of our customers," Mike said. "I certainly want to continue that tradition. I also want to go one step further: to develop materials that are unique to Nye. I believe a willingness to step out of the box, to move into the experimental realm, will help keep all our efforts on the cutting edge."

Mike is an active member of the National Lubricating Grease Institute, American Association of the Advancement of Science, and the American Chemical Society. He received his doctoral degree in organic chemistry from Brown University.

Free Lube Stuff

Get Nye's LubeLetter, technical articles, white papers and more, delivered right to your E-Mail box! Log on to www.nyelubricants.com and click "Nye On-Line."

Sign up by June 1 and receive a bottle of all-purpose NyOil...free.



UniFlor Converts To Cell Manufacturing

UniFlor™, Nye's brand of perfluoropolyether (PFPE) oils and greases, converted from traditional large-batch to cellular manufacturing, part of a company-wide strategy to eliminate activities that add no real value to products and services.

Studies have demonstrated that cell manufacturing increases inventory turns, enhances product quality, supports on-time deliveries, and improves supplier and customer relationships.

In Nye's UniFlor cell, three team members, working with dedicated equipment, make and package all standard and custom PFPE oils and greases. They are also responsible for ordering raw materials, scheduling, quality checks — all phases of production.

"The UniFlor cell gives us so much more flexibility," Nye quality manager Tom Gray said. "For example, it's much easier to respond to rush orders. Large-batch production keeps equipment tied up. Once the batch is finished, you have to clean the equipment before working with a new chemistry. Now, with equipment dedicated to UniFlor, you don't have to wait. The team can decide to

temporarily suspend one project and start another, if a customer needs immediate delivery. Faster turnaround also enables us to keep our inventory and our customers' inventories low, which cuts carrying costs."

Cell manufacturing, which originated in Japan in the 1970s, is part of "lean manufacturing," a production methodology whose ultimate goal is to eliminate all wasted time, movement, and materials from the manufacturing process.

A unique and somewhat intangible benefit that's harder to attain with mass production also comes with cellular manufacturing. It's called pride.

"The cell gives us more freedom, more flexibility, more input into the process," said UniFlor cell member Dave Rinko, "and that gives us a greater sense of personal pride in the products we make. It's our name that's on those products now, and we're committed to making sure they're the best."

Plans are set to expand cell manufacturing to other product lines, including damping greases, later this year, and all lithium-soap greases in 2002.



On a cellular level. A three-person team, using dedicated equipment, produces all of Nye's PFPE oils and greases in the new UniFlor Cell.



12 Howland Road Fairhaven, Massachusetts 02719 USA
Phone 508-996-6721 Fax 508-997-5285 E-Mail techhelp@nyelubricants.com



FM 37483
QS 9000 / ISO 9001 Registered