

# SYN-Nth Hydraulicfluid The N<sup>th</sup> Degree of Energy Savings







### **Effects of Viscosity on Overall Pump Efficiency**

Lubricants for a Healthier Planet™ is the portfolio of environmentally intelligent Hydrotex® products including lubricants, greases and fuel improvers. All of these products are formulated and tested to meet very specific application and environmental hurdles and parameters. These products complement the triple bottom line of People, Planet and Profit, making a contribution to sustainable business practices. Lubricants for a Healthier Planet combined with the Principles of Lubrication Management provide a competitive advantage, improve efficiency and reduce operational costs and emissions.

#### Two elements that make up Pump efficiency are:

- Volumetric Efficiency
- Mechanical Efficiency

Both elements are viscosity dependent. Mechanical efficiency relates to frictional losses in a hydraulic component and the energy required to produce rotary motion in a pump or motor. Volumetric efficiency relates to flow losses within a hydraulic component and to internal leakage. Leakage decreases as the fluid viscosity increases, resulting in higher flow rates and improved volumetric efficiency.

Viscosity must be balanced for the load, environment, temperature and speed of the hydraulic pump to prevent internal leakage. A shear stable, high VI\* hydraulic fluid optimizes hydraulic efficiency as viscosity is more consistent over a wider temperature spectrum. Viscosity is the key factor in overall efficiency.

\* Viscosity Index (VI) is the degree of change of a fluid's viscosity with a change in temperature. High VI means the lubricant's viscosity is more consistent across a wide range of temperatures.



- <sup>†</sup> SCAQMD VOC < 0.5% by weight, No VOC





## **For Immediate Release**

### Hydrotex<sup>®</sup> SYN-N<sup>th™</sup> Hydraulic Fluid Reduces Component Failure and Improves Energy Efficiency in Injector Molder

#### SYN-Nth<sup>™</sup> Receives OEM Approval

Nestlé Waters North America (NWNA), in conjunction with Hydrotex® developed a collaborative program to eliminate servo valve failures in their Husky HyPET 500 units which caused costly downtime and multiple component replacement. The program also intended to extend drain intervals, reduce energy consumption, reduce bottom line costs, and be environmentally intelligent and appropriate for use in a food/beverage plant.

The result of this program demonstrates that use of Hydrotex SYN-Nth Hydraulic Fluid in this application, when combined with the principles of lubrication management, reduces incidence of valve failure and improves energy efficiency.

Beginning in June of 2009, NWNA, Husky Injection Molding Systems and Hydrotex began conducting baseline monitoring on one of the five Husky HyPET 500 units at the NWNA Hawkins Facility. Baseline monitoring consisted of the collection of temperature and energy consumption data for the steady state operation of the machine. During this period all preform injection molders utilized a conventional hydraulic fluid as normal. Following this period, one unit's reservoir was flushed with Hydrotex Gear & Hydraulic Flush and then charged with SYN-Nth, an energy saving synthetic high VI hydraulic fluid. For over a year, NWNA and Hydrotex monitored performance while the unit operated with SYN-Nth Hydraulic Fluid. Monitoring of fluid and component life continues along with profile checks on energy consumption.

Like all Hydrotex synthetic fluids, SYN-Nth is shipped from the manufacturing facility at very high levels of cleanliness compared to common fluids. Using the Hydrotex Lubrication Management Process, no servo valves failed during this period, and component life continues beyond historical levels.

Results of the study indicated an increase of 13.5% on average in energy efficiency over the 12 month period. For energy monitoring, a Dranetz BMI Power Visa was utilized, all monitoring was conducted in accordance with Dranetz procedures and protocols. SYN-Nth fluid life is significantly longer than the conventional fluid (ASTM D-943), extending drain intervals, reducing fluid and filter disposal volumes and costs.

David Turner, National Technical Manager of Nestlé Waters stated, "Initially, we wanted to change to synthetic lubricants to extend the drain intervals and gain improved performance. However, we are extremely pleased with the added value of the significant energy savings." He continued, "NWNA is very conscious of the environment. Hydrotex has helped us move closer to our goals of developing sustainable solutions."

Based on test performance, SYN-Nth was issued and included as an approved Fluid for use by Husky.

John Beasley, President and CEO of Hydrotex stated, "We were pleased with the program results and the improved energy efficiency." He continued, "We are committed to providing our customers with solutions that enhance the sustainability of their operations."

To read the white paper, please visit the Hydrotex website at www.hydrotexlube.com in the Sustainability section.

Hydrotex<sup>®</sup> is a manufacturer and distributor of high performance lubricant and fuel improver solutions. As an employee owned company, we help our customers develop sustainable solutions designed to improve system reliability, save energy, limit pollution, extend fixed asset life, reduce maintenance costs and improve fuel efficiency. Our products and services leverage over 75 years of innovation resulting in superior synthetic lubrication solutions and high touch customer service.

Hydrotex manufactures and distributes over 300 products in the U.S.A. The company has 30 distributions centers strategically located across the country and all Hydrotex products and solutions are available through Hydrotex local representatives or by calling 800-527-9439.





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Hydrotex collaborates with customers on Lubrication Management, a reliability-centered process that focuses on solutions to enhance the customers' overall operating model by improving output capabilities, reducing operating costs and increasing ROI and profitability.

#### Lubrication Management is a Process, the Following Overview is Not All Inclusive:

- Define Goals & Develop
   Implementation Plan
- Review OEM Recommendations, Previous Years' Lubrication Problems, Usage and Expense
- Agree on Historic Lubrication Costs & Maintenance Activity Levels
- Commit to Changeover to Hydrotex Lubricants & Methods
- Introduce Principles of Lubrication (POL) Training
- Conduct A Hydrotex Survey and Confirm OEM Recommendations
- Approve the Hydrotex SurveyConduct Customer Specific
- Lubrication Training
- Conduct Root Cause Analysis & Solutions for Significant Lubrication Issues
- Implement Extended Drain Intervals & Oil Analysis Program
- Implement Fuel Analysis Program
- Develop Standard Operating Procedures (SOP) & Lubrication Practices
- Implement Key Metric Reporting
- Continuous Improvement & Ongoing Training



# Hydrotex Solutions

Hydrotex is committed to developing the most appropriate solutions for our customers.

We have over 300 products and even more in research and development. In addition, we frequently formulate a specific product for a customer to ensure the best solution is created for the application.

Our products provide solutions across a wide range of industries and applications, ranging from Food Processing and Agriculture to Utilities and Sanitation and from Pupil Transportation and Fleets to Textiles and Building Components.

We develop and manufacture all of our products in the USA. We are ISO 9001:2008 certified and all of our products are designed to meet or exceed Industry Performance Standards such as API, NLGI, SAE, DIN, NSF and ISO.

#### A Few Solutions We Provide:

- Extending Maintenance Intervals
- Decreasing Downtime
- Reducing Energy Costs
- Improving Productivity
- Extending Equipment Life
- Delivering Environmentally Intelligent Products
- Formulating Products to Eliminate Known Carcinogens
- Providing Reliable Cold Weather Performance
- Improving Fuel Performance & Efficiencies
- Decreasing Harmful Emissions
- Decreasing Internal Rust and Corrosion
- Meeting Specific Lubricity Requirements to Protect
  Equipment
- Addressing High Temperature Requirements
- Providing Solutions for Heavy Loads
- Decreasing Carbon Footprint



Lubrication Training is a Vital Step in Developing and Maintaining Successful Maintenance Programs and is the Cornerstone of Our Reliability Centered Maintenance Approach.

Hydrotex Lubrication University offers fundamental and customized lubrication training. Either at our corporate office or at our customers' facilities across the nation, we present our lubrication training seminars.

## Through our training and Lubrication Management, Hydrotex customers implement many of the following condition monitoring processes:

- Electrical Consumption Monitoring
- Fuel Analysis
- Oil Analysis
- Performance Analysis
- Power Quality Monitoring

- Thermography
- Ultrasound
- Vibration Analysis
- Visual Inspection

#### Following is a list of some of the Lubrication University courses:

**Principles of Lubrication** -- Since we all must learn to walk before we run, we begin our training series with the Principles of Lubrication. The duration of this seminar is approximately two (2) hours. It begins with subjects such as; "Why Lubricate and Different Lubrication Practices." It also covers what specific lubricants must accomplish in order to protect valuable equipment and defines the real cost of a lubricant.

**QSchool** -- This intense 3-day course is developed and presented by Hydrotex experts specifically to train our Lubrication Consultants, our Division Partners and our Customers. You will learn the most current application procedures, product knowledge, industry changes, upcoming mandates and environmental issues in the Lubrication Industry.

**Oil Analysis** -- Just as medical labs analyze key indicators within our blood, oil analysis labs analyze key indicators within in-service oils. When we learn how to interpret this information, we can correct problems in the early stages of development before there is permanent damage to the equipment. This course covers topics such as; "The Basics of Oil Analysis," "How Oil Analysis Works," "Sampling Methods and How to Read a Report."

**Fuel Analysis** -- Testing is used as a predictive tool to determine any potential performance issues or sources of contamination before impacting your fleet. Testing also evaluates how well the fuel can be expected to perform during both summer conditions and harsher winter conditions. Fuel Analysis Training will help your team determine specific fuel treatment options to optimize fuel usage and fleet performance.

**Customer Specific Training** – The value of lubrication training becomes very clear when facilities begin to see positive results with increased output capacities, reduced operation and maintenance costs and improved return on investments. Hydrotex offers customized training for customers. Following are a few examples:

- Introduction to Bearing Lubrication
- Bearing Failure Analysis
- How to Start an Oil Analysis Program
- Managing an Oil Analysis Program
- Reading and Interpreting an Oil Analysis Report
- Hydraulics and Fluid Cleanliness
- Fuel Management
- Green Lubricants / Sustainability





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Don't Pollute, Conserve Resources, Extend Maintenance Intervals Reduce Your Carbon Footprint

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