Get smart about grease

An Intensive three-hour seminar for Engineers and Engineering Managers on using Synthetic Lubricants to Improve the Performance, Life, and Value of Mechanical and Electromechanical Products.

Nye® The SmartGrease Company™

Getsmartaboutgrease

Why Attend?

Design and quality engineers are recognizing that synthetic lubricants improve product performance. They're also discovering that the right synthetic lubricant reduces design costs and shrinks warranty claims. Nye's *Get Smart About Grease* seminar helps you achieve these goals. It offers an in-depth look at synthetic lubricants as design materials and shows you how to turn them into a real competitive advantage for your company. You'll learn the fundamentals of lubricant engineering, become more conversant with colleagues and vendors about synthetic lubricants, and improve your ability to select the right synthetic lubricants for your designs. Our goal: to show you how synthetic lubricants add performance, value, and operating life to your products … and to become a key resource in your design support network.

What You Get

Seminar Handbook contains all seminar slides and space for your notes — a great synthetic lubricant reference booklet.

Nye LubeShopper CD describes Nye's most popular synthetic lubricants for bearings, switches, gears, connectors, potentiometers, sensors, and sliding parts — all tested and proven by world-class manufacturers.

Engineer's Reference Card contains a wealth of concise information about synthetic oils and greases.

Free Subscription to Nye's *Lubeletter*, the oldest, continuously published corporate newsletter about synthetic lubricants. Practical information about the role of synthetic lubricants in product design and performance.

Get Answers

Get answers to these and all your questions about how to choose the best lubricants for your products.

- *When should I use grease instead of oil?*
- *Which lubricants are likely to damage various plastics and rubbers?*
- *How do you read a lubricant data sheet?*
- *What can I do to prevent oil migration?*
- *What's the difference between clean lubricants and ultraclean lubricants?*
- *Can grease improve the sound of hand-operated devices?*
- *How can you tell if a grease will resist water washout?*
- *How can a synthetic lubricant reduce product cost?*
- *When should I use synthetic lubricants instead of petroleum?*
- *Which synthetic lubricants work below -40°C? above 200°C?*
- *How can grease minimize arcing damage of motor shaft bearings?*
- *Which lubricants resist fuel, solvents, chemicals, and oxygen?*
- *Can grease stop gearing backlash?*
- *When should I insist on deaeration of grease?*
- *How do I calculate the cost of grease per device instead of per pound?*
- *Why is "viscosity index" an important consideration in selecting a grease?*
- *How do I "design for grease?"*
- *How is grease used to control free motion?*
- *How can grease, which is an insulator, improve connector performance?*
- *How much grease should be applied to a component?*
- *Which greases are known to be incompatible with certain plastics?*
- *Which type of synthetic oil has an affinity to metal?*
- *Do plastic gears need grease?*

... Add your own questions before the Seminar and we'll answer those too!

Seminar Outline

What you'll learn about synthetic lubricants in this information-packed seminar…

Introduction to Lubricant Engineering

- Lubricants as Design Components
- Definition of Lubricants
- Advantages of Custom-Formulated Synthetic Lubricants
- Three Classes of Lubricants

Lubricating Oils

- Qualities of Good Lubricating Oils
- Major Families of Lubricating Oils
- Key Characteristics of Major Oil Families
- Advantages and Disadvantages of Major Oil Families
- Key Properties of Lubricating Oils
  - – Viscosity
  - – Viscosity Index
  - – Viscosity and Film Strength
  - – Pour Point
  - – Oxidative Stability
  - – Material Compatibility
  - – Flash Point
  - – Evaporation
  - – Density
  - – Neutralization Number
  - – Surface Tension
  - – Vapor Pressure
- Lubricant Additives

Greases and Gels

- How Greases Are Made
- Key Properties of Grease
  - – Penetration
  - – Apparent Viscosity
  - – Dropping Point
  - – Oil Separation
  - – Evaporation
  - – Base Oil Viscosity
  - – Low Temperature Torque
  - – Oxidation Stability
  - – Neutralization Number
  - – Evaporation
  - – Density
  - – Vapor Pressure

Designing a Synthetic Lubricant for *Your* Product

- Key Lubricant Design Properties
- Operating Temperature Range
- Material Compatibility
- Load and Wear
- Type of Component
- Oil Migration
- Preventing Oil Migration
- Operating Environment
- Delivery and Handling Issues
- Grease Cleanliness
- Making Ultraclean Lubricants
- Deaeration
- Packaging
- Dispensing
- Cost of Lubricants by Family
- Cost of Lubricant per Item

Case Studies: Tying It All Together

- High Current Electric Switch
- Noise and Motion Control
- Disk Drive Bearings
- Electrical/Electronic Connectors
- High-Brightness LEDs
- Office Printers
- Electrical Assist Steering Columns
- Small Motors
- Rack and Pinion Units
- Power Tools
- Appliances

Nye Corporate Overview

Summary and Evaluation

…with ample opportunity for questions and discussions about your applications.

In Good Company

Join engineers from these world-class companies who have benefited from Nye's seminars:

3M Company
Allen-Bradley
Allied Signal
Allor Mfg., Inc.
American Axle Mfg., Inc.
AMP Canada
Ark-Less
AST Bearings
Augat
Barden Corporation
Baxter Healthcare
Black & Decker
BMW/Mini
Buehler Motors
C+K Components
Cadillac Luxury Car Division
Capsonics
Cardell Corp.
CH Industries
Cherry Electric
Club Car
Cooper Power Tools
Crown Equipment
CTS
DaimlerChrysler
Delphi Automotive
Delphi Chassis
Delphi Mechatronics
Delphi Packard Electric
Delphi Saginaw Steering Systems
Delta Systems
DeWalt Performance Tools
Dispensing Automation Inc.
DuPont
Dura Automotive
Duracell
Electro Switch
Emerson Electric
FCI
Ford Motor Company
Framatome Interlock
GE Appliances
General Motors
Gillette
Handy and Harman Electronic Materials
Hewlett Packard
Honeywell Microswitch
Imation
Inland Motors
Interfic, Inc.
Interroll
Invensys Appliance Controls
J.M. Ney Company
Joseph Pollak Corporation
King Industries
Kingston Timer
Kollmorgan
Kostal
Land Rover
Lear
Lexmark
Leybold Vacuum Products
Lord Corporation
Lucas Body Systems
Lucerne Products
Mallory Controls
Methode
Methode Malta
MG Rover
Midwest Dental
Miniature Precision Bearing Corporation
Molex, Inc.
Motion Systems
Nacom
New Hampshire Ball Bearing
Nissan
NSK
NTN Bearing Corporation
OMC
Packard Electric
Pratt and Whitney
Quantum Corp.
Quantum Milpitas
Rockwell Automation
S-B Power Tool
Schukra – Canada
SENCO
Siemens Energy & Automation
Sintered Metals
Southern Electric Motor
Square D
Sram
Stoneridge-Pollak, Ltd.
Sturdy Corporation
Tech Development Inc.
Tecumseh Products
Teleflex
Texas Instruments
Thomason Saginaw Ball Screw Co.
Torrington
Tricad Engineering
Truth Hardware
TRW
Tyco Electronics
United Technologies
Valeo
Wabash
Whirlpool Corporation
Xerox Corp
Yazaki

Get smart about grease

"This is one of the best seminars I've attended. It should be taken at least a couple times a year because we tend to forget the important role of lubricants along the path of product development."

Systems Engineer
Fortune Global 500 Company

"I use the knowledge and information that I obtained from this seminar on a daily basis on product development teams … and recommend the seminar to other engineers, managers, and technical professionals who have direct or indirect responsibility for applications that involve tribology and lubrication."

Materials Engineer
Global Tier One Automotive Supplier

"We were able to ask lots of questions and get immediate answers … I learned a lot."

Senior Design and Development Engineer
Global Lighting Controls Manufacturer

Set a Date Today! ***Get Smart About Grease is offered as a customer service from Nye. To schedule a Lunch & Learn Lube Seminar, contact Nye Lubricants at (508) 996-6721 or e-mail at techhelp@nyelubricants.com.***

Nye® *The* SmartGrease *Company*™

Nye Lubricants, Inc.
12 Howland Road Fairhaven, MA 02719 USA
Ph: 1.508.996.6721 Fx: 1.508.997.5285
E-Mail: techhelp@nyelubricants.com

SmartGrease.com