



Lubricants for Vacuum & Cleanroom Applications



Today's vast array of electromechanical devices in semiconductor wafer fabrication, flat panel, solar panel and LCD manufacturing equipment places increasingly challenging demands on the lubricants used to keep them running. Lubricants today must be able to handle higher loads, higher temperatures, extend component operating life and improve productivity. At the same time, they must also eliminate or minimize airborne particle and mist generation which could fog optics or contaminate wafers.

For more than 50 years, Nye has been working with NASA and leaders in the commercial aerospace industry, qualifying lubricants for mission critical components while addressing problems like outgassing, contamination, and starvation. Outgassing reduces the effectiveness of a lubricant and can contaminate nearby components.

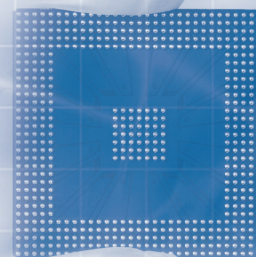
Much of this research is now paying off in other industries where Nye is applying this technology to design lubricants for uses in components and sub-assemblies for cleanrooms, laboratories and semiconductor fabrication facilities, both in vacuum and non-vacuum applications. Nye has recently expanded its product line to offer a full complement of lubricants for high vacuum, cleanroom and vacuum pump applications.

The Right Lubricant for the Right Application - NyeTorr® and NyeClean®

NyeTorr® is a unique line of lubricants designed for the rigorous demands of the Semiconductor Production Environment. These products have been developed with several key parameters in mind: Low Outgassing, High Temperature Stability, Aggressive Chemical Resistance, Wear Protection, and Cleanliness. The raw materials used in NyeTorr® formulations are tightly controlled on a molecular level to limit the Vapor Pressure, Outgassing, and Contamination. Nye tests and certifies the vapor pressure of each batch to guarantee that the vapor pressure on the label matches the actual vapor pressure of the lubricant. Additionally, all NyeTorr® lubricants are subjected to a proprietary "Ultrafiltration Process" which removes microscopic particulates and homogenizes agglomerated thickeners.

The **NyeClean®** line has been developed with its focus on a wide range of general purpose applications in lower vacuum cleanroom environments. In this product line, you will find the broadest range of lubricants developed for motion control applications like bearings, linear guides, and ball screws. Some of the benefits of the NyeClean® product line include Low Particle Generation, Wear Prevention and Low Torque.

TECHNOLOGY IN MOTION™



Comparative Matrix of Nye Product Lines for the Semiconductor Industry



	Ultrafiltered (<300 particles/cc, 35µm)	Low Particle Generation (Class 100 Cleanroom capable)	High Temperature (capable of > 175°C)	Wear Resistance	Chemically Inert	Very Low Starting Torque (<200g.cm)	Low Outgassing (passing ASTM E-595 Result)	Low Vapor Pressure	Vacuum Capabilities
NyeTorr® 6200	■	■		■			■	■	★★★★★
NyeTorr® 6300	■	■	■		■		■	■	★★★★★
NyeTorr® 5200	■	■		■			■	■	★★★★★
NyeTorr® 5300	■	■	■		■		■	■	★★★★★
NyeTorr® 5300XP	■	■	■	■	■		■	■	★★★★★
NyeTorr® 5350	■		■	■	■		■	■	★★★★★
NyeTorr® 5370	■		■		■		■	■	★★★★★
NyeTorr® 5380	■		■		■	■	■	■	★★★★★
NyeClean® 5067		■	■		■			■	★★★★
NyeClean® 5077			■	■	■	■	■	■	★★★★★
NyeClean® 5087			■		■	■	■		★★★★★
NyeClean® 5088			■		■		■	■	★★★★★