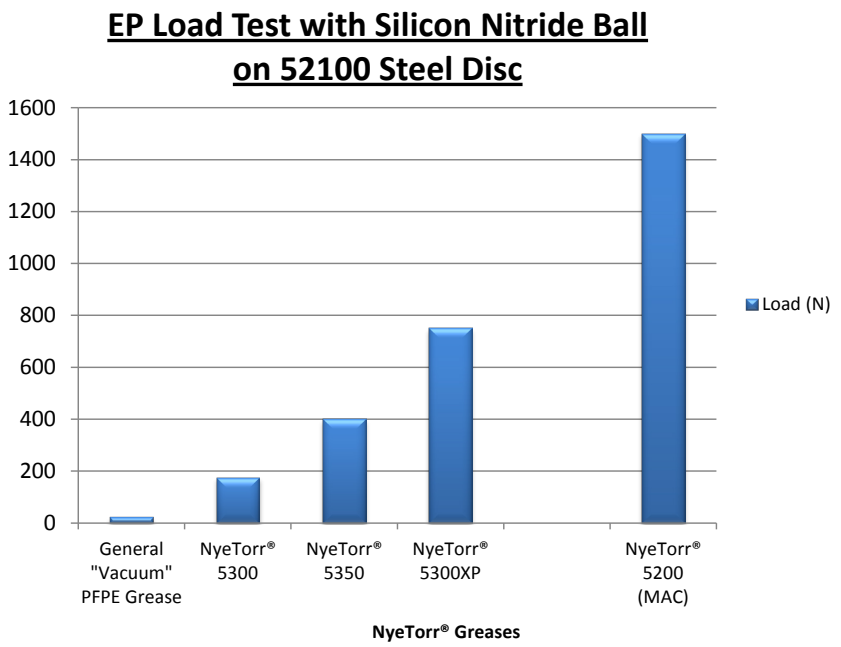
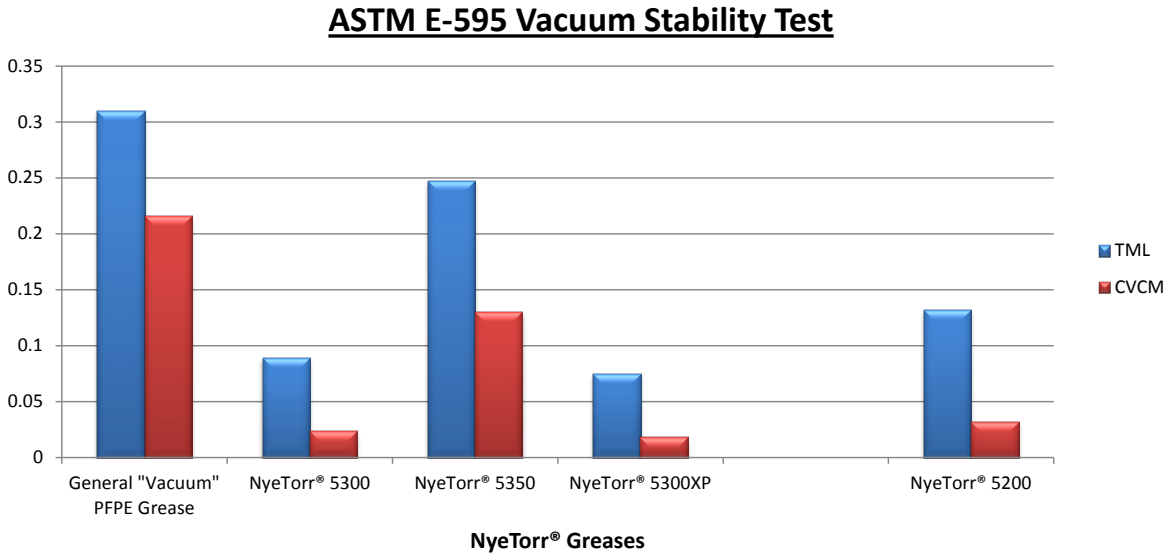
Product Development Update: Increasing PFPE's EP Load Characteristics

Perfluoropolyethers (PFPE) are widely known in the Aerospace and Semiconductor industry to offer many benefits like heat resistance, vacuum stability, and inertness. The main weakness of the PFPE molecule is that it does not support high loads and extreme pressure (EP) very well. This has meant that PFPE's have required more frequent lubrication intervals in order to provide long life in vacuum applications.

At Nye Lubricants, we have been working to develop new and innovative products for the Vacuum Industry that would allow for longer lubrication cycles, longer endurance, and trouble free maintenance while maintaining the high temperature stability and low outgassing requirements. Two years ago we released the NyeTorr® 5350 which doubled the EP loading capacity of our legacy NyeTorr® 5300 product. Below are comparative results on several vacuum lubricants from an EP load test done using a silicon nitride ball on a 52100 steel disc.



While the improvement seen by the NyeTorr® 5350 is strong compared to the 5300 and standard PFPE greases, we wanted to develop a product that would take PFPE's to the next level. Another challenge with this development project was that many additives are not soluble in PFPE's and some of the traditional EP additives may include contaminants which would outgas and condense. With our goal set to improve the EP load capability of a PFPE grease while maintaining the low outgassing features, we developed the NyeTorr® 5300XP which features the use of a proprietary functional Alkylated Additive.



We are proud to introduce the NyeTorr® 5300XP as this is an exciting new product in the NyeTorr® line that has High Temperature Stability, Low Outgassing (E-595), and EP Load capabilities.