

Boron Lubricants, Inc. is addressing the rising cost of energy through the development of lubricating products that improve fuel efficiency, reduce friction, reduce heat, wear and corrosion in engines, transmissions, differentials, and industrial manufacturing equipment.



4th Generation-liquid boron

Boron chemistry as a lubricant was discovered by the Department of Energy's Argonne National Laboratory (ANL). The initial discovery in 1991 was the 1st generation. Ali Erdemir, senior scientist in Argonne's Energy Systems Division, received an R&D 100 award, for [the discovery of boric acid as a solid lubricant](#). ANL also developed a 2nd generation boron chemistry and research has continued in the private market. Today, **BLI's Liquid Boron**TM is the 4th generation development of boron-oxide boundary lubrication and it is the key ingredient in Boron Lubricants, Incorporated's line of quality products.

With the exception of **BLI's Liquid Boron**TM, lubricant additives today contain graphite, chlorine, molybdenum, sulfonates and zinc/phosphorus compounds that do not chemically bond to metal surfaces, and are either toxic or produce toxic by-products and corrosive acids. Engine oil additive's wear off and are negatively affected by contamination to the point that the useful life of engine oil becomes much less than originally designed.

Previous generations of boron lubricants consisted of milled boric acid particles suspended in oil soluble liquids. This "dispersion" worked fairly well in systems with larger micron filtration. When engine manufacturers started producing engines with very small (5 and 10 micron) oil filters the solid boron became trapped in the filter media. **BLI's Liquid Boron**TM is not a dispersion, but a [patents pending](#) "solution" with liquid (molecular size) properties similar to engine oil. Filtration is not an issue for **BLI's Liquid Boron**TM. In addition to its liquid state, it provides four to five times the actual active boron content of previous generation products, significantly increasing its effectiveness.

The discovery of this unique additive technology only comes along every 25 to 30 years and with this discovery, **BLI's Liquid Boron**TM is an improvement of considerable magnitude to the lubrication world today. Increased mechanical efficiency, decreased equipment downtime, with extended oil and component life, improved fuel efficiency and reduced emissions, **BLI's Liquid Boron**TM quickly adds profit to fleet operations.

In summary, **BLI's Liquid Boron**TM is an extremely low friction boundary layer lubricant that works synergistically with the lubricant delivery in vehicles (i.e. motor oil, manual transmission and gear/differential oils, diesel and gasoline fuels, hydraulic oils, etc.) improving the performance of the fluid lubricant, but not affecting the existing lubricant negatively. **BLI's Liquid Boron**TM is nearly permanent through its own self-replenishment properties and is active on virtually any metal surface. The boron bonding has a strong affinity to metal surfaces producing a boundary layer with a unique hardness just about the equivalent of diamonds.



1st Generation-µm BA

2nd Generation-nm BA



3rd Generation-milled µm BA

Prior generations of solid boron lubricant. Settlement can be seen.