

TX1

The Game Changer in Metal Treatment



TX1 is used in over **TWO MILLION TRUCK TURBOCHARGERS** on engines made by the world's leading manufacturers.

Variable geometry turbine nozzles are expected to survive 500,000 miles of exposure to combustion gases at 1100 °F.

TX1 radically improves wear resistance of steels by thermally diffusing into surfaces of parts to a depth of up to 125 microns (0.005”).



WEAR RESISTANCE • LUBRICITY • RESILIENCE



TX1 makes machinery last longer in harsh environments by providing...

- High surface lubricity without oils
- Outstanding wear resistance
- Anti-galling without adding brittleness
- Dimensionally stable finished parts
- Transforms surface to increase strength and resist spalling
- Applicable to either new parts or parts in service

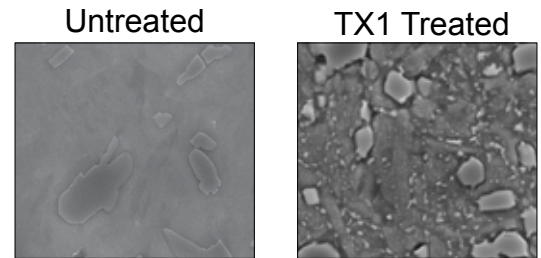
What is TX1?

The TX1 process is a unique thermal diffusion surface transformation technology that improves the toughness of steel without creating brittleness. These improved characteristics transform lower cost materials so they either match or outperform more costly exotic alloys in high-wear applications.

TX1 is not a coating. Instead of traditional surface coating methods, which are prone to brittle fractures and spalling, TX1 is a treatment that works through both diffusion and crystal lattice transformation.

TX1 is a unique approach

Wear resistance is usually achieved by hardening a surface. TX1 takes a different approach. By altering the crystalline lattice of the steel, TX1 eliminates wear at the nano level. Additionally, TX1 overcomes wear by transforming the surface chemistry of steel to work in conjunction with changes in the bulk matrix. Therefore, when an abrasive particle or opposing surface strikes TX1 treated steels, the wear energy is adsorbed and dissipated throughout the surrounding steel.



TX1 dramatically increases the wear resistance properties for steel alloys in most applications.

TX1: A Case Study

We tested two pieces of 304L stainless steel in a bearing tester. One piece of steel was treated with TX1 and the other was not. The piece that was untreated showed 500 times more wear and seized the motor. The test was performed at 1,750 RPM for 30 seconds using 75 lbs. of force, synthetic motor oil, and identical Rockwell hardness values (Rc=19) for the treated and untreated steel.

