

# TX1

# METAL TREATMENT

1,000,000 Parts Treated!

## Frequently Asked Questions

### What is TX1?

- TX1 is a metal treatment process that imparts hardness, wear-resistance, increased modulus, and lubricity to your materials.
- TX1 is a proprietary diffusion conversion-based technology, which improves the physical characteristics of ferrous alloys.
- TX1 is not a coating. Unlike traditional surface coatings, which are prone to brittle fractures and spalling, TX1 works through both diffusion and crystal lattice transformation.

### How does TX1 work?

- TX1 uses a unique approach to the problem of wear. By altering the crystalline lattice structure of the material, TX1 eliminates wear at the nano level. When an abrasive particle or opposing surface strikes TX1 treated materials, the energy is dissipated throughout the surrounding material. TX1 overcomes wear by transforming the surface chemistry of the material to work in conjunction with changes in the bulk matrix.

### Where should TX1 be used?

- Any ferrous surface subjected to any of the various types of wear.
- Parts moving against each other, such as bearings and rollers.
- Parts moving materials, such as augers and conveyors.
- Parts subjected to harsh operating conditions, such as abrasives and high heat.

### What materials can be treated?

- Carbon steels
- Stainless steels
- Alloy steels
- Tool steels

### What types of wear can TX1 address?

- Erosion
- Fatigue
- Galling
- Load
- Abrasion



# TX1

## Why TX1 over other methods?

- TX1-treated parts maintain dimensional stability, unlike other treatment methods that heat the base material to much higher temperatures. Those higher temperatures often result in having to perform post-treatment finishing processes (machining, honing, grinding), driving up the cost of the finished product.
- TX1-treated parts reduce equipment downtime, resulting in greater productivity from your equipment and staff, less money spent on parts and maintenance issues, and greater profitability.

## How can the properties of TX1 help wear issues?

- Erosion – surface hardness and energy dispersion
- Fatigue – surface hardness and lubricity
- Galling – wear resistance and lubricity
- Load – lubricity and energy dispersion
- Abrasion – surface hardness and wear-resistance

## What happens to materials that experience wear?

- Physical scarring
- Debris introduced into systems and lubrication
- Microstructure alterations
- Increased NHV (noise, vibration, harshness)
- Thermal effects
- Changes in material hardness

## What about friction?

- Friction creates wear and requires additional energy to overcome. TX1 reduces friction through its ability to impart lubricity to treated surfaces.

## What are the costs of wear?

- Replacement parts cost
- Scheduled maintenance cost
- Unscheduled maintenance cost
- Repair cost
- Down-time (lost production) cost
- Product liability (warranty repair) cost
- Compromised production schedule cost
- Damage to/loss of additional equipment due to failure
- Productivity/attitude of workers impacted

