



# PRODUCT INFORMATION

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EMERGENCY - MARTRON 704-289-1934  
CHEMTREC 800-424-9300

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## MARTRON ZNX HEAVY ZINC PHOSPHATE

**Martron ZNX** represents a unique zinc phosphate coating concentrate designed primarily for use on ferrous surfaces. **Martron ZNX** operates at temperatures between 130°F and 180°F to satisfy government and automotive specifications for heavy zinc phosphates. Above 130°F., **Martron ZNX** operates effectively and economically as a single-package concentrate.

In addition to its ability to operate at low temperatures, another outstanding attribute is **Martron ZNX's** unusually high iron tolerance. This exceptionally high tolerance for iron is the reason that **Martron ZNX** is the most economical to operate heavy zinc phosphate available

**Martron ZNX** was developed to be employed for zinc phosphating fasteners and small parts such as nuts and bolts, under-the-hood automotive components such as pulleys and hood hinges and latches as well as various other types of sub-assemblies. This zinc phosphate is also used as a paint base before application of decorative protective organic finishes on fasteners and small parts and for enhancing rubber-to-metal adhesion on items such as oil seals and motor mounts. **Martron ZNX** is also an excellent parting medium and lubricant carrier for cold heading, extrusion, rolling drawing and seamless tubing, bumpers, etc.

### Feature

### Benefit

Operation at temperatures as low as 130°F  
Versus conventional zinc phosphates consumption.

Reduced operating costs through reduced fuel  
Lessens vulnerability to fuel shortages and allocations.

Operating at temperature of 180° - 200°F shorter processing time. As little as 5 – 10 minutes versus 20 - 30 minutes for conventional zinc phosphates.

Shorter processing time. As little as 5 – 10 minutes  
Versus 20 – 30 minutes for conventional zinc phosphates.

Increased production rates with lower per unit cost.

Exceptionally high quality, tight coating which surpasses

High quality means satisfied customers and increased business.

Government spec. mil-p16232C and numerous automotive Specs. Causes no hydrogen embrittlement

Eliminated costly rejects and substandard production.

### Section 1: Typical Properties

Physical form

Liquid

Color

Light green

Specific gravity

1.65 @ 60°F (15°C.)

Pounds/gallons (grams/liter)

13.75 (1660)

Conversion, % by volume to points

1% = 10-12 points total acid

**FERROUS IRON POINTS**

0 - 1  
 1 - 2  
 2 - 3  
 3 - 4  
 4 - 5  
 5 - 6  
 6 - 7  
 7 - 8  
 8 - 9  
 9 - 10  
 10 - 11  
 11 - 12

**MINIMUM TOTAL ACID POINTS**

23 - 27  
 27 - 30  
 30 - 33  
 33 - 36  
 36 - 39  
 39 - 42  
 42 - 45  
 45 - 48  
 48 - 51  
 51 - 54  
 54 - 57  
 57 - 60

**Section 2: Operating Conditions**

Concentration, % by volume	1 - 4 Optimum 2
Time, minutes	5 - 30
Temperature, Deg. F (Deg. C)	130° - 200° (55° - 93°)
Coating weight, mg/ft <sup>2</sup>	2500 - 3000
Total acid points (ml 0.1 N NaOH)	25 - 60
Free acid points (ml 0.1 N NaOH)	3 - 4
Iron points (ml 0.2 N KMnO <sub>3</sub> )	See operation section

**Section 3: Control**

**Free Acid**

1. Pipette a 10ml sample of the solution into a flask.
2. Add 3 - 4 drops BROMPHENOL BLUE INDICATOR.
3. Titrate the yellow solution to a blue endpoint with 0.1 N SODIUM HYDROXIDE.
4. The ml of 0.1 N SODIUM HYDROXIDE are points of free acid.

**Total Acid**

1. Pipette a 10ml sample of the solution into a flask.
2. Add 3 - 4 Drops PHENOLPHTHALEIN INDICATOR.
3. Titrate the clear solution to the first pink with 0.1 N SODIUM HYDROXIDE.
4. The ml of 0.1 N SODIUM HYDROXIDE are points of total acid.

**Iron**

1. Pipette a 10ml sample of the solution into a flask.
2. Add 10 - 12 drops 1: 1 PHOSPHORIC/SULFURIC ACID.
3. Titrate the clear solution to pink with 0.2 N POTASSIUM PERMANGANATE.
4. The ml OF 0.2 N POTASSIUM PERMANGANATE are points of iron.

**Section 4: Operation**

Add 2.0%, by volume, of **Martron ZNX** to a tank filled with hot water. Raise the temperature to operating level and begin phosphating. The total acid is maintained by additions of **Martron ZNX**. An addition of 1.0% equals 10 points of total acid.

The normal coating produced by **Martron ZNX** is light to dark gray. Both coating weight and color are dependent upon type, quality and cleanliness of the base metal, and the time, temperature and concentration of the phosphate solution. To insure proper operation of the phosphate, temperatures and concentrations should be kept consistent.

**Section 5: Typical Cycle**

Clean	Contact <b>Martron Inc.</b> for suitable cleaning products.
Rinse	Overflowing water, 30 seconds
Phosphate	130° - 200°F (55° - 93°C), 2 - 4%, by volume, <b>Martron ZNX</b> , 5 – 15 minutes
Rinse	Overflowing water, 30 seconds
Seal	Contact <b>Martron Inc.</b> for the best chromate, non-chromate or petroleum-based sealant.

**Section 6: Equipment**

All tanks may be constructed of mild steel. For maximum phosphate tank life, it is recommended, however, not necessary, that the tank be constructed of 316 stainless steel.

**Section 7: Disclaimer**

The information presented within this bulletin is based upon extensive laboratory and production use and is believed to be correct. However, **Martron Inc.** makes no warranty, expressed or implied, as to the accuracy of these data. All risks involved with the safe handling and use of this product are assumed by the user.

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