



# TCJ-50 Lo-Temp Zinc Phosphate

TCJ-50 is a "LO-TEMP" Medium coating zinc phosphate compound used for applying corrosion inhibiting coatings to steel in immersion tanks. Operates as low as 125° F. Ultra Low Sludging, Up to 75% less than conventional zinc phosphate systems.

TCJ-50 is an immersion type product which provides coatings of 800-1500 mg/ft<sup>2</sup>. Coatings are applied over steel and subsequently coated with a corrosion inhibiting coating, oil, wax or lubricant.

TCJ-50 provides a dark coating which resists many hours of corrosion resistance in salt spray testing conditions. Premium quality performance. Does not contain EDTA type products.

Meets various industry specs: PS-80, GMW 3179, GM4435, MIL DTL-16232G Type Z

## Features & Benefits

Lo-temperature Processing: Note: Nickel Free.

- 1) Providing Significant Energy Cost Savings.
- 2) Ultra Low Sludging
- 3) Extended Bath Life By 3-5 Times, Lowering Cost.
- 4) Resistance To Iron Related Problems. Up To 20 Points Iron
- 5) Provides Dark Dense Coatings.
- 6) Provides Improved Corrosion Resistance And Bonding.
- 7) Eliminates "excess" Heat Related Sludge On Coils.
- 8) Effectively Coats Resistant Alloys.

## Physical Data

Specific gravity	1.545
Solubility in water	Complete
LBS/Gal	12.89
pH concentrate	<1



## Operating Conditions / Typical Processing

- 1) Pre-clean, Power Soak Ls-150 8% B.v, 8 Min., 170 Deg. F.
- 2) Rinse (or Alkaline Descaler #399 Lr) (as Needed Per Various Specs)
- 3) Acid Pickle
- 4) Rinse, Preferred Double Rinse
- 5) TCJ-50 Zinc, 135-160+ F., 8-20 Min, 35+ Points Acid (re:5%) Iron Up To 20.
- 6) Rinse, Preferred Double Rinse
- 7) Sealer/RP:
  - Oil option: 10-20% by volume #240, 125 deg. F, 30-60 Sec. (OR #168)
  - Dry to touch “pre-paint option” #2018, 1-4%, 125 deg F. 30-60 sec.
  - Lubrication option: Polymer, Loc-Lube #5, 8 oz./gal., 175 deg. F, 4-10 min.

## Testing, Operating & Troubleshooting Data:

### New Tank Make-up:

Fill tank with water, leaving enough room for 5% v/v addition of TCJ-50. Place a barrel of parts in solution prior to heating the tank to “seed” iron into the bath. Allow parts to remain in solution until operating temp is reached and solution tests positive for iron.

### Total Acid: (range 35-95)

- 1) Take a 10 mL sample.
- 2) Add 5-10 Drops Total Acid Indicator (phenol Indicator).
- 3) Titrate With 0.1 N NaOH (caustic Soda) (Color Will Change From Clear To Pink)
- 4) Number of mLs used = Total Acid

\*Raise Total Acid: 1% add of TCJ-50 will raise TA points by 9

### Free Acid: (range per Ratio)

- 1) Take a 10 mL sample
- 2) Add 5-10 Drops Of Bromophenol Blue
- 3) Titrate With 0.1 N NaOH (caustic Soda) (color Will Change From Yellow To Blue)
- 4) Number Of mLs Used = Free Acid

### Acid Ratio:(range 4.5-9)

TA/FA = 4.5 (New Bath) to 9 (Older Bath With Higher Iron)

**Iron Test:** (range 1- 15)

- 1) Take a 10 mL sample
- 2) Add 5-10 mL of 50% Sulfuric Acid
- 3) Titrate With 0.2 N Potassium Permanganate until maintaining a pink endpoint.
- 4) Number Of mLs Used = Points Of Iron

**Effective Total Acid:** (Target 35+ Points Of Eta)

ETA= Total Acid - (Iron Pts X 3.5)

Target = 35-45 Pts ETA

<u>Iron</u>	<u>Total Acid Target</u>
1.0	35-45
2.0	42-52
3.0	45.5-55.5
4.0	49-59
5.0	52.5-62.5
6.0	56-66
7.0	59.5-69.5
8.0	63-73
9.0	66.5-76.5
10.0	70-80
11	73.5-83.5
12	77-87
13	80.5-90.5

**Waste Disposal**

Neutralize with either caustic soda or soda ash before discarding. In order to be completely informed on those latest waste disposal regulations for your area; please contact the local authorities.

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## Our People. Your Problem Solvers.

For more information on this process,  
please call us at 203.756.5521 or email: [techservice@hubbardhall.com](mailto:techservice@hubbardhall.com)

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