**Product Bulletin**

Product Name: TCJ-50 “AF” Lo-Temp
Product Code: 2202940
Revision Date: February 12, 2024

# TCJ-50 “AF” Lo-Temp

MEDIUM ZINC PHOSPHATE "Non - Nickel". TCJ-50 MX is a "LO-TEMP" Medium- heavy coating zinc phosphate compound used for applying corrosion inhibiting coatings to steel in immersion tanks. OPERATES AT 150 F. ULTRA LOW SLUDGING, UP TO 75% LESS !!!

TCJ-50 MX is an immersion type product which provides coatings of 1400 (+ /-200) mg/ft2. Coatings are applied over steel and subsequently coated with a corrosion inhibiting coating, oil, wax or lubricant. Ultra low sludging. Approved by and meeting various MILITARY AND AUTOMOTIVE SPECIFICATIONS.

TCJ-50 MX 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. Meeting various industry specifications. BOOSTER 100 CAN BE USED TO BOOST COATING WTS ON HIGH ALLOY METALS.

## Features & Benefits

Low-temperature processing: Note: Nickel Free!
1) Providing significant energy heating costs savings
2) Ultra low sludging for lowest cost and downtime
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) Eliminated "excess" heat related sludge on coils.
8) Effectively coats resistant alloys

## Physical Data

| | |
|---|---|
| Specific gravity | 1.44 |
| Product Type | Liquid |
| PH | 1 |
| LBs/Gal | 12.01 |
| Foam, 0=Low 9=High | 0 |
| Shelf Life Years | 10 Years |
| Freeze Information | Not Damaged by Freezing |

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## Operating Conditions/Typical Processing

1) Pre-clean, Alkaline #2800 or 2444-L, 8% B.V, 8 min., 170 deg. F.
2) Rinse (Or alkaline descaler #399 LR) (as needed per various specs)
3) Acid Pickle, (Hydrochloric or Sulfuric) 8 min OPTIONAL AS NEEDED.
4) Rinse, 5) Preferred Rinse (maintain low conductivity levels in all rinses.)
6) TCJ-50 Zinc, 135-160+ F., 8-20 Min, 32+ points acid (re:5%) Iron up to 20.
7) Rinse, 8) Rinse ( NO CHROME SEALERS USED IN THIS PROCESS)
9) Oil option: 10-20% by volume #240, 125 deg. F, 30-60 Sec.)
10) Dry to touch “pre-paint option” #2010, 1-4%, 125 deg F. 30-60 sec.
11) Lubrication option: Loc-Lube #5, 8 oz./gal., 175 deg. F, 4-10 min.

## Packaging

| | |
|---|---|
| Container Type | POLY |
| Net Units | 660 |
| Tare Wt. | 25 |
| Gross Wt. | 685 |
| DOT_NAME | UN 3264, Corrosive Liquid, Acidic, inorganic, N.O.S., (Phosphoric & Nitric Acids), 8, PG II, |
| **DOT Hazard** | Corrosive |
| Tariff ID | 2835.29 |

## Use Parameters

| | |
|---|---|
| Concentration Range | 5% 30-95 (see tests for total |
| Temperature Range | 135-185 Deg. F. |
| Time Range | 8-20min |
| Agitation | n.a. |

## Waste Disposal

TREAT

## Holding Tank Materials of Construction:

ACID RESISTANT, STAINLESS OR POLY

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# Testing, Operating, & Trouble Shooting Data

**New Tank Make-up:**

Fill Tank With Water Leaving Enough Room For 5% By Volume Of Tcj-100. (5 Gallons Per 100 Gal). Place A Barrel Of Parts In Solution Prior To Heating The Tank, In Order To "seed" Iron Into The Bath. Allow The Parts To Sit In Solution Until The Tank Reaches Operating Temperature And The Solution Tests Positive For Iron. Process May Begin When The Operating Temperature Has Been Reached And Iron Is Positive.

**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

*to Raise Total Acid- 1% Add Of Tcj-50 Will Raise The Ta Points By 7.5

**Special Procedure For Baths With Very High Iron Where It Interfers With The Color Change**.
Add 25 Mls Water + 1 Ml Bath Sample + 5-15 Mls White Ti02 Color Transition Reagent. Then Proceed With Above Test. The Tio2 White Reagent Will Allow You To More Clearly See The Color Change To Endpoint, Multiply The Test Results By 10 To Obtain Total Acid

**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  9 Older Bath With Higher Iron

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

1) Take A 10 Ml Sample
2) Add 5-10 Mls Of 50% Sulfuric Acid
3) Titrate With 0.2 N Potassium Permanganate (obtain A Permanent Pink Endpoint)
4) Number Of Mls Used = Points Of Iron

**Peroxide Use To Lower Iron Level In A Zinc Phosphate Bath** ( 2-1-2020 / Ros Update )
A 1 Gallon ( 5 Liters ) Of 15% Hydrogen Peroxide To A 1000 Gallon Zinc Phosphate bath Will Decrease The Iron Points By 1.0

**Effective Total Acid:** Target 35+ Points Of Eta
Eta= Total Acid  (iron X 3.5)
Target = 35-45 Pts Of Effective Total Acid

| Iron | Total Acid Target |
|---|---|
| 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 |

**Various Specifications: The Subject Product Meets The Operating Specifications Of Many Of The Processes Listed: Gm6074m, Chrysler**
**Ps7902, Ford M21p6, Gm4435m, Chrysler Ps80, Ford S-58 Dry, Gm6174m, Chrylser Ps1649, Ford S-32-46, Gm6074m, Chrysler Ps7902,**
**Ford M21p6, Dana Shaes 196. (4-09)**

## Other Information

It is important that the OSHA DATA, "Material Safety Data Sheet" be carefully read and reviewed with the users of this product. OSHA data is required to be posted in the work area by law.

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**For more information on this process,**
**please call us at 203.756.5521 or email: techservice@hubbardhall.com**

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