Product Bulletin
Product Name: Phos Oil #240
Product Code: 2052101
Revision Date: January 31, 2024

BOND GUARD ZRC-111

NON-PHOSPHATED SURFACE TREAT & SEAL

ZRC-111 non-phosphated conversion treatment for bonding and providing corrosion resistance for paint coatings on steel and non ferrous metals. Provides Low temperature operation and a greener pretreatment process. Can be used as the conversion coating and the final dry in place rinse sealer.

ZRC-111 promotes coatings on difficult surfaces of both ferrous and non-ferrous metals. ZRC is highly effective on weldment areas and high alloy surfaces which can typically be a problem with conventional pretreatments. Provides superior quality of top coatings and finishes.

ZRC-111 ZIRCONIUM TECHNOLOGY enhances finished product quality by providing a wider window of process capability and repeatable performance under paints and coatings. Highly effective on aluminum surfaces. MEETING AAMA 2603, 2604, 2605 SALT SPRAY PROTECTION UP TO 4000 HOURS.

Features & Benefits

- Phosphate Free
- Low Temperature Energy Savings
- High Performance
- Very low use cost.
- Reduced Maintenance
- Lower Sludging
- Concentrated liquid which easily mixes in water.
- Provides equivalent or improved performance over conventional phosphate
- For use in Spray or Immersion Processes

Physical Data

pH	4.0-4.6
Product Type	Liquid
Spec. Gravity	1.06
Lbs./gal.	8.84
Foam (0=Low; 9=High)	0
Shelf Life	10 years
Freeze Information	Not damaged by freezing

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Typical Processing

1. Pre-Clean (Power Clean)
2. Rinse
3. ZRC 2-4%, 90 -150 F., 45-90 SEC., PH 4.5 - 6.0
   (Steel pH 5.0-6.0, Non Ferrous pH 4.5-6.0)
4. Rinse
5. DI or RO Rinse, or Final Seal Rinse for maximum quality.
   **Optional NO Rinse Process for aluminum if required. Dry in Place.
6. To Dry Off and Paint.

Packaging

Container Type	Poly
Net Units	486
Tare Wt.	25
Gross Wt.	511
DOT Name	UN 3264, Corrosive Liquid, Acidic, inorganic, N.O.S., (Fluorozirconic Acid),8, PG II,
DOT Hazard	Corrosive
Tariff ID	2826.19.90

Use Parameters

Concentration Range	½-2% by volume
Temperature Range	90-140 deg. F.
Time Range	30-90 seconds
Agitation	Per system

Waste Disposal

NEUTRALIZE, REMOVE METALS IF PRESENT

Holding Tank Materials of Construction

ACID RESISTANT, STAINLESS OR POLY

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.

Testing, Operating & Trouble Shooting Data

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Maintain .ph. Of 4.5-5.6 (ferrous Metals Process Up To 6.5 .ph.)
To Lower the ph.: Use ZRC
To Raise the ph.: Use ph. Conditioner #4, Ammonia Hydroxide " Ammonia",
(Liquid Ammonium Bicarbonate) , Or Ammonium Bicarbonate.
(**ph. Control: Steel Target Ph Range Of 5.2-6.0**, Non Ferrous 4.5-6.0

Titration Procedure: (target 2-4 %)
1) Take A 10ml Sample (**ph. Must Be In Operating Range**)
2) Add 3-5 Drops Of Phenol Indicator
3) Titrate With 0.1n Naoh Until A Permanent Pink Appears.
4) The Number Of Mls Required = % By Volume

Dropper Titration
1) Take A 10ml Sample **(ph. Must Be In Operating Range)**
2) Add 3-5 Drops Of Phenol Indicator
3) Add Drop By Drop (count The Drops) Of 1.0n Naoh Until A Permanent Pink Appears.
4) The Number Of Drops Required Multiplied By A Factor Of 0.35 = % By Volume

Consumed Acid: (target 0-1.0)
1) Take A 10ml Sample (ph. Must Be In Operating Range)
2) Add 3-5 Drops Of Bromo Blue Indicator
3) If Blue (consumed Acid): Titrate With 0.1n Acid
If Yellow (free Acid): Titrate With 0.1n Naoh (do Not Operate With Free Acid, Use Adjustments)

Adjustments
Add ZRC To Lower The Consumed Acid And Lower The Ph
Add Ph Conditioner #4 To Lower Free Acid, Raise Consumed Acid And Raise The Ph.
Coating Weight And Crystal Formation Procedures: (1-2018 / R O S)
Our Technical Service Lab Provides 500x Digital Photo Prints Of The Conversion Coating.

Microscopes At 500x Show Complex Mixed Crystal Of Zirconium At Typically Less Then < 1- Micron In
Size. It Is Known The Crystals Less Then < 1.0 Micron Are Providing The Active Sites For The
Performance Of Corrosion Protection And Coating Adherence Of Paints And Other Top Coats.
It Is Recognized That The Performance Of Zirconium Coatings On Metals Are Of Superior Performance.

1) Technical Service Lab On Site Provides Digital Microscopic (500x) Evaluation Of The Coatings Is Typical and Provides Significant Quality Information To Confirm The Surface Conversion.

Alternate Methods Are:
S P M (Scanning Probe Microscopy)
S T M (Scanning Tunneling Microscopy) (Non-Contact & Dynamic Contact) (Tapping & I R)
A F M (Atomic Force Microscopy) (First Used In 1989) & Most Popular Method For Measuring Nano.

Our People. Your Problem Solvers.

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

Hubbard-Hall holds certifications for **ISO 9001:2015**, Responsible Distribution, as accredited by the **ACD** (Alliance for Chemical Distributors) and as a **Women-Owned Small Business**, as well as maintaining an association with **Omni-Chem**[136].