Product Bulletin
Product Name: Bond Guard ZRC-333
Product Code: 2204903
Revision Date: February 12, 2024

Bond Guard ZRC-333

NON-PHOSPHATED SURFACE TREAT & CLEAN. ZRC-333 non-phosphated cleaner & 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-333 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-333 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 treatments prior to paints and coatings

Physical Data

Specific gravity	1.06
Product Type	Liquid
PH	5+
LBs/Gal	8.84
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) Clean & Prep: ZRC-333 2-5%, 90 -150 F., 45-90 SEC., PH 4.5 - 6.0 (Steel pH 5.0-6.0, Non Ferrous pH 4.5-6.0)
2) Rinse
3) DI or RO Rinse, or Final Seal Rinse for maximum quality.

**Optional NO Rinse Process is available if required. Dry in Place.

4) To Dry Off and Paint

Packaging

Container Type	POLY
Net Units	486
Tare Wt.	25 Lb
Gross Wt.	485
DOT_NAME	UN 3264, Corrosive Liquid, Acidic, inorganic, N.O.S., (Flu (Fluorozirconic Acid), 8, PG II
DOT Hazard	Corrosive
Tariff ID:	2826.19.90

Use Parameters

Concentration Range	2-5%
Temperature Range	90-140 F.
Time Range	30-120 seconds
Agitation	Per System

Waste Disposal

NEUTRALIZE, REMOVE METZLS IF PRESENT

Holding Tank Materials of Construction:

ACID RESISTANT, STAINLESS, OR POLY

Testing, Operating, & Trouble Shooting Data

Maintain Ph Of 4.5-5.6

To Lower The Ph: Use Zrc

To Raise The Ph: Use Ph Conditioner #4, Ammonia Hydroxide, (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

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)

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

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 Microscpic (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 Poplular Method For Measuring Nano.
S E M (Scanning Electro Microscopy) Used For Zinc, Iron And Manganese Phosphates Is Not Acceptable

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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Our People. Your Problem Solvers.

For more information on this process,
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