

BOND GUARD ZRC-111

NON-PHOSPHATED SURFACE TREAT & SEAL

BOND GUARD 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. It can be used as a conversion coating and as the final dry-in-place rinse sealer.

BOND GUARD 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.

BOND GUARD 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.

Features & Benefits

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

Physical Data

pH (5%)	4.0 – 4.6
Product Type	Liquid
Spec. Gravity	1.035
Lbs./gal.	8.84
Foam (0=Low; 9=High)	0
Shelf Life	10 years
Freeze Information	Not damaged by freezing

Typical Processing

- 1) Clean
- 2) Rinse
- 3) BOND GUARD ZRC 111: 3 – 4% by volume, 70° – 110° F., 45 – 90 sec., pH 4.0 – 5.0
 - a. (steel pH 4.4 – 5.0, nonferrous pH 3.8 – 4.4)
- 4) Rinse
- 5) DI or RO rinse, or final seal rinse for maximum quality.
 - a. **optional no rinse process for nonferrous if required. Dry in place.
- 6) Hot air dry prior to powder coat.

Operating Conditions

Concentration Range	2 – 4% by volume
Temperature Range	70 - 110° F.
Time Range	30-90 seconds
Agitation	Per system

Maintain pH of 4.0 – 5.0

To Lower the pH: Use pH Adjuster ZRC

To Raise the pH or lower free acid: Use pH Conditioner #4
 (pH Control: steel pH 4.4 – 5.0, nonferrous pH 3.8 – 4.4)

Titration Method

- 1) Take A 10ml Sample (pH Must Be in Operating Range)
- 2) Add 3-5 Drops of Phenolphthalein Indicator
- 3) Titrate with 0.1N NaOH until a permanent pink appears.
- 4) The Number of Mls Required = % By Volume

Test Kit Method

Total Acid/Concentration: (Target Equals 6-12 Drops)

- 1) Take A 10ml Sample (pH Must Be in Operating Range)
- 2) Add 3-5 Drops of Phenolphthalein Indicator
- 3) Add Drop by Drop (count the drops) of 0.1N NaOH until a permanent pink appears
- 4) The Number of Drops Required Multiplied by a Factor of 0.35 = % by Volume

Free Acid/Consumed Acid: (Target Equals 0-1 Drops)

- 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)



Product Bulletin

Product Name: Bond Guard ZRC-111
Product Code: 2204901
Revision Date: March 26, 2026

Waste Disposal

NEUTRALIZE, REMOVE METALS IF PRESENT

Holding Tank Materials of Construction

ACID RESISTANT, STAINLESS OR POLY

Caution

BOND GUARD ZRC 111 is a mildly acidic solution. Wear protective clothing, gloves, and goggles when handling this product. Flush exposed areas immediately with clean, cold water. For the eyes, flush repeatedly with water and call a physician.

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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

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