



DEOXYLYTE[®] 54NC

NON-CHROME INORGANIC POST TREATMENT

1. INTRODUCTION:

Deoxylyte 54NC is an acidic, inorganic, liquid post treatment chemical used in immersion and spray final rinses to improve paint adhesion and to minimise underfilm corrosion and blistering. This final rinse counteracts the effect of hard water salts and leaves the phosphated surface of metals in the best condition for painting.

2. OPERATING SUMMARY:

Chemical: Deoxylyte 54NC Primer 40	Bath Preparation per 1000 litres: 3.7 kg or 3.5 litres for pH adjustment
Operation and Control: Concentration pH Time Temperature	4 to 10 points (4 to 6 typical) 4.0 to 4.5 15 to 90 seconds 20° to 50° Celsius

3. THE PROCESS:

The complete process for the **Deoxylyte 54NC** post treatment normally consists of the following steps:

- A. Conversion coating.
- B. Water rinsing.
- C. Treating with the **Deoxylyte 54NC** post treatment solution.
- D. Deionised water rinsing.
- E. Drying (optional)

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4. MATERIALS:

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Primer 40 (alkaline neutralising solution)
Testing Reagents and Apparatus

5. EQUIPMENT:

Process tanks and housings may be fabricated from mild steel plate, however, equipment life will be greatly extended by using a 300 series alloy stainless steel, such as 304L or 316L. The 316L being preferred for maximum tank life. In all cases approved welding techniques must be used.

Process piping and pumps should be constructed of 316 or 304 stainless steel alloys. Various formulations of plastic pipe may be used with recommended support spacing, Schedule-80 being generally recommended. PVC Type 1 is limited to maximum process temperatures of 60° Centigrade. CPVC and PP may be used up to a maximum process temperature of 90° Centigrade. PVDF may be used for all expected operating temperatures and may reduce the rate of scale buildup in process piping.

Heat exchanger plates should be polished 316 stainless steel. If gas fired burner tubes are used, they should be made of Schedule-80 mild steel pipe or equivalent. All process circulation pump seals, valve seats, door seals, etc., which come into contact with the process solution and occasional acid equipment cleaners, should be EPDM, Viton™ or Teflon™. Note that while Hypalon™ is compatible with the process solution, it is not compatible with acid equipment cleaners which may be used.

Chemical feed pump parts and other elastomers which may come into contact with the concentrated replenishing chemical can be EPDM, Hypalon, Viton or Teflon.

Support equipment available from Parker Amchem for this process includes: chemical feed pumps, level controls, transfer pumps and bulk storage tanks.

Our sales representative should be consulted for information on automatic process control equipment for this process and any additional questions. In addition, the "Parker Amchem Equipment Design Manual" may be consulted.

6. SURFACE PREPARATION:

The post treatment follows the water rinse after the conversion coating application. Effort should be given to providing an adequate rinse following the conversion coating step to avoid excessive contamination of the post treatment.

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7. TREATING WITH DEOXYLYTE 54NC POST TREATMENT SOLUTION:

Buildup:

Fill the tank about three-fourths full with water. Add 3.7 Kg or 3.5 litres of **Deoxylyte 54NC** for each 1000 litres of working volume. The exact amount to be added depends on the mechanical characteristics of the equipment, and will be specified. Add sufficient water to bring the solution up to the working level, mix thoroughly and heat to the operating temperature. Before use determine the pH and adjust if necessary.

Operation:

After the conversion coating and water rinse, the metal is sprayed with or immersed in the treatment solution for 15 to 90 seconds at 20° to 50° Centigrade.

8. TESTING AND CONTROL:

Concentration:

Measure 100 ml of bath sample into an Erlenmeyer flask.

Add 5 to 7 drops of Indicator 3. While stirring, titrate the sample using Titrating Solution 11 until a mild pink colour is obtained which lasts for at least 10 seconds. Record the ml of titrating solution used. The ml of titrant represents the concentration of the bath in 'points'. A bath prepared using 3.7 kg per 1000 litres (after neutralisation to the proper pH range, see below) typically requires 5.0 mls of titrant and is known as a 5.0 point bath.

Maintain the solution within ± 1.0 point of the build up concentration.

Concentration range: 4 to 10 points (ml).

To increase value 1 point (ml): Add 0.7 kg or 0.66 litres per 1000 litres of **Deoxylyte 54NC**.

The strength of the solution in litres per 1000 litres can also be obtained from the table:

litres per 1000 litres	points
1.5	2.1
2.5	3.6
3.5	5.0
4.5	6.4
5.5	7.8
6.5	9.3
7.5	10.7

Mechanical Loss:

Whenever a portion of the bath is discarded or lost by leakage, the volume should be restored with the same portion of chemicals and water as used in the original bath.

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8. TESTING AND CONTROL (continued)

pH Determination:

The pH may be determined with a pH meter having a fluoride resistant electrode. Estimations made with pH papers are not satisfactory.

The desired pH is in the range of 4.0 to 4.5.

The pH initially obtained depends upon the alkalinity of the water used in building up the **Deoxylyte** solution.

If the initial pH is below 4.0, add **Primer 40**, until the pH is in the range of 4.0 to 4.5. An addition of 0.24 kg per 1000 litres of **Primer 40** should be added and the pH retested. An addition of 0.06 kg of **Primer 40** per 1000 litres will raise the pH by 0.1 to 0.2 points. Once the pH is within the correct operating range, the concentration should be retested.

If the initial pH is above 4.8, no correction is needed since the **Deoxylyte 54NC** solution has a tendency to gradually drop in pH. However, if the solution remains above pH 4.8, and a precipitate occurs, then the water is not suitable for use and our representative should be consulted. As the **Deoxylyte** solution is used, the pH may vary depending on the amount of carryout, the production being treated and the alkalinity of water added. Therefore, determine the pH of the solution periodically during the day and adjust as required.

Deionised Water Rinsing:

A water rinse may be required following the post treatment. Deionised water is preferred but relatively pure tap water may be used. The paint system used and the quality required for the finished part will determine if rinsing is necessary and if deionised water must be used.

Drying:

This step may not be required because sometimes painting parts still wet from the water rinse can give satisfactory results. The specific paint used and the quality required of the painted part will determine if an air blowoff or oven drying is needed.

If the drying unit is omitted, sufficient drain time should be allowed to prevent excessive drag-in of water into the finish.

9. STORAGE REQUIREMENTS:

No special storage is required for **Deoxylyte 54NC**. If the product does freeze after extended storage at low temperature, thaw in a warm place and stir thoroughly before using.

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10. WASTE DISPOSAL INFORMATION:

Applicable regulations covering disposal and discharge of chemicals should be consulted and followed. Disposal information for the chemicals in the form as supplied is given on the Material Safety Data Sheet for each product.

The treatment bath is acidic and contains fluoride compounds. Waste treatment and neutralisation may be required prior to discharge.

The treatment bath and sludge from the bath or waste treatment operation can contain ingredients other than those present in the chemical as supplied and analysis of the solution and/or sludge may be required prior to disposal.

11. PRECAUTIONARY INFORMATION:

When handling the chemicals in the form as supplied, the precautionary, first aid and handling recommendations on the Material Safety Data Sheet for each product should be read, understood and followed.

The treatment bath is acidic and can cause irritation and possible severe burns of the skin and eyes. Do not get in eyes, on skin or on clothing. In case of contact, follow the recommendations on the Material Safety Data Sheet for the **Deoxylyte 54NC** chemicals.

DISCLAIMER

Any information given is, to the best of our knowledge, the best currently available, with respect to our products and their use, but it is subject to revision as additional knowledge and experience is gained. Such information is offered as a guideline for experimentation only and is not to be construed as a representation that the material is suitable for any particular purpose or use. Customers are encouraged to make their own enquiries as to the material's characteristics and, where appropriate, to conduct their own tests in the specific context of the material's intended use. This information is not a license to operate under nor is it intended to suggest infringement of any patent. We guarantee a uniform quality standard for this product. The only conditions and warranties accepted by Henkel in relation to this product or process are those implied by either Commonwealth or State statutes.