



# Technical Process Bulletin

Technical Process Bulletin No. 232251

This Revision: 09/15/2006

## **TURCO ALTREX 24**

Non-Etch Alkaline Cleaner

### 1. Introduction:

TURCO ALTREX 24 is an inhibited, non-etching, concentrated liquid alkaline cleaner for cleaning aluminum and aluminum alloys. TURCO ALTREX 24 is an effective remover of most soils found on aluminum, plus other metals, and can be used in a variety of cleaning operations.

TURCO ALTREX 24 is qualified under BAC-5749 as a medium duty soak cleaner.

TURCO ALTREX 24 controls hard water compounds and it is highly buffered for long solution life. Inhibited for maximum safety to aluminum, TURCO ALTREX 24 can also be used as an effective cleaner for brass, copper, magnesium, steel and stainless steel. Because it is a concentrated liquid, TURCO ALTREX 24 can be automatically proportioned and electronically controlled. Operators will not contact alkaline dust nor concentrated material for greater safety.

### 2. Operating Summary:

<u>Chemical:</u>	<u>Bath Preparation per 100 Gallons:</u>
TURCO ALTREX 24	5-10 gallons 5-8 gallons (BAC-5749)
<u>Operating and Control:</u>	
Free Alkali	11.4 to 22.7 points (ml) 11.4 to 18.2 points (BAC-5749)
Time	3 to 10 minutes
Temperature	120° to 180° Fahrenheit 120° to 130° (BAC-5749)
<u>Typical Operation:</u> 6 gallons per 100 gallons, immersed for 10 minutes at 150° Fahrenheit.	

### 3. Materials:

TURCO ALTREX 24  
Testing Reagents and Apparatus

### 4. Equipment:

The process tank, pumps and piping for use with this solution may be constructed of mild steel. The 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 circulating pump seals, valve seats and other elastomers which come in contact with the working process solution should be Buna-N, Hypalon™ or Viton™. EPDM elastomers should be avoided.

Automatic process control equipment, which promotes consistent quality and controlled costs, is available for automatically controlling this process. Auxiliary equipment, which is engineered and specified for this process, include air operated chemical transfer pumps, chemical metering pumps, reliable level controls, solenoid valve assemblies and bulk storage tanks. All chemical pump seals, valve seats and other elastomers which come in contact with the concentrated solution should be Buna-N, Teflon™ or Viton.

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

### 5. Treating with the TURCO ALTREX 24 Solution:

#### Buildup:

Fill the tank about 2/3 full with cold water. A typical cleaning solution is prepared by adding 6.0 gallons (19 liters) of TURCO ALTREX 24 product for each 100 gallons of operating volume. Add water to the operating level, stir thoroughly and heat to the desired operating temperature.

#### Operation:

Temperature: 120° to 180° Fahrenheit  
Time: 3 to 10 minutes  
Typical Operation: 6 gallons per 100 gallons, immersed 3 minutes at 150°F

The initial charge and replenishment data contained herein are normal for most installations; however, our technical representative may suggest a deviation from this data if indicated by plant conditions.

#### Note:

Excess concentration of TURCO ALTREX 24, temperature or time can cause a tarnish or stain on brass. Start with the minimum for these variables and work up slowly to the desired level of performance.

### 6. Testing and Control:

Never pipet by mouth. Use a pipet filler.

Free Alkali:

Pipet a 10 ml sample into a 250-ml beaker. Add approximately 75 ml of distilled water. Add 5 drops of Indicator 3. Titrate with Titrating Solution 61 until one drop discharges the last of the pink color. Alternately, a pH meter can be used to determine the endpoint which is a pH reading of 8.6. The ml of Titrating Solution required indicates the concentration (free alkali) in points.

The concentration may be calculated from the following equation:

$$\% \text{ TURCO ALTREX 24 by volume} = 0.44 \times \text{points.}$$

Maintain the concentration within  $\pm 1.0$  point of the value found to give best results.

To increase concentration 1.0 point: Add 0.44 gallon of TURCO ALTREX 24 chemical per 100 gallons.

If desired, the concentration may be obtained from the following table:

<u>gal per</u> <u>100 gal</u>	<u>Percent by</u> <u>Volume</u>	<u>Points</u>
3.0 .....	3.0 .....	6.8
5.0 .....	5.0 .....	11.4
7.0 .....	7.0 .....	15.9
9.0 .....	9.0 .....	20.5
11.0 .....	11.0 .....	25.0

The Free Alkalinity titration should be used to determine the strength or the concentration of TURCO ALTREX 24 solutions.

A Total Alkali titration can be used as a predictor of contamination. To perform the Total Alkali titration follow these steps:

1. Titrate the Free Alkalintiy as stated above. Keep this titrated sample! Do not refill the titrant burette!
2. Using this same sample add 4 drops of Indicator 4. The sample should be yellow in color.
3. Continue titrating the sample with Titrating Solution 61 until the sample turns red. Record the number of mls (total volume used) of titrants as points.

Note:

Alternately, a pH meter can be used to determine the end point for the Total Alkali titration which is a pH reading of 3.5.

When the ratio of Total Alkali to Free Alkali (Total Alkali point / Free Alkali point) is "2" or greater, the soil load is high and the cleaner bath may need to be discharged.

7. Storage Requirements:

TURCO ALTREX 24 is a liquid product which must be protected from freezing. Opened containers should be kept closed when not in use.

8. Waste Disposal Information:

Applicable regulations covering disposal and discharge of chemicals should be consulted and followed.

Disposal information for the chemical in the form as supplied, is given on the Material Safety Data Sheet for the chemical.

The processing bath is alkaline and contains silicates. Waste treatment and/or neutralization of rinse water or processing solution may be required prior to discharge to the sewer. (Refer to Waste Treatment Information Bulletin WT1007, available on request).

The cleaning solution and sludge 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.

9. Precautionary Information:

When handling the chemical used in this process, the precautionary, first aid and handling recommendations on the Material Safety Data Sheet for the product should be read, understood and followed.

The processing bath is alkaline and can cause irritation 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 TURCO ALTREX 24.

Testing Reagents and Apparatus

(Order only those items which are not already on hand.)

<u>Code</u>	<u>Quantity</u>	<u>Item</u>
592488	2*	Flask, Erlenmeyer, 250-ml, Glass
596491	1	Bung Wrench
592477	1	Buret Assembly, 25-ml Automatic, Glass
592398	1 qt	Indicator 3 (phenolphthalein)
592399	1 qt	Indicator 4 (methylorange)
592475	1	Indicator Dropping Bottle, 2 oz
592498	2*	Pipet, 10-ml Volumetric, Glass
592494	1	Pipet Filler
594334	1	Thermometer, Floating
592441	1 gal	Titrating Solution 61 (0.1N HCl)

\* Includes one more than actually required, to allow for possible breakage.

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Form Revised 04 June 2001