Technical Data Sheet

BONDERITE® C-AK 4338L AERO

February 2025

PRODUCT DESCRIPTION

BONDERITE® C-AK 4338L AERO provides the following product characteristics:

Technology	Metal pre-treatment
Chemical type	Permanganate scale remover/conditioner
Components	Two-component
Appearance - Part A	Colorless
Appearance - Part B	Dark violet
Application	Metal pretreatment
Specific benefits	• Long bath life • Safe on all ferrous and hot resistant alloys • Reach compliant

BONDERITE® C-AK 4338L AERO is a 2-part alkaline permanganate formulation developed specifically for jet engine cleaning. BONDERITE® C-AK 4338L AERO modifies high temperature heat scale by chemically changing the structure of the oxide deposit to one that is properly conditioned for ease of chemical removal in subsequent processing steps.

Application areas

- Supplied as two liquid concentrates that are mixed together with water for greater safety and ease of handling compared to powdered products. Each part may be used for both tank makeup and tank maintenance.
- May be used over a wide range of concentrations to handle various types of scale.
- BONDERITE® C-AK 4338L AERO is used on all ferrous and high temperature alloys.
- BONDERITE® C-AK 4338L AERO can be used in mild steel tanks.

BONDERITE® C-AK 4338L AERO should not be used on reactive alloys such as aluminum.

GENERAL INFORMATION

For safe handling information on this product, consult the Safety Data Sheet (SDS). Also, for chemical products exempt from compulsory labeling, the relevant precautions should always be observed. Please also refer to the local safety instructions.

Directions for use

- Prepare a solution of BONDERITE® C-AK 4338L AERO by first adding enough water to comprise about 40% of the final volume.
- While mixing, add sufficient BONDERITE® C-AK 4338L AERO Part A and BONDERITE® C-AK 4338L AERO Part B for each individually to comprise 15 to 25% by volume of the final solution.
- BONDERITE® C-AK 4338L AERO parts A and B should be used in equal volumes.
- BONDERITE® C-AK 4338L AERO part A should be added to the water first, while mixing.
- The appropriate amount of BONDERITE® C-AK 4338L AERO part B should then be added to that solution, while continuing to mix.
- Heat to 194°F (90ºC) while mixing.
- Add sufficient good quality water to make up the final volume while mixing.

Immersion

1. Immerse parts in BONDERITE® C-AK 5948 DPM AERO (known as TURCO 5948 DPM) at 5-10% by volume at 131°F to 176°F (55°C to 80°C) for 5 to 15 minutes.
2. Thorough water overflow dip rinse.
3. Immerse parts in BONDERITE® C-AK 4181 L AERO (known as TURCO 4181 L) at 20-50% by volume at 185°F to 205°F (85ºC to 95ºC) for 5 to 10 minutes.
4. Thorough water overflow dip rinse.
5. Immerse parts in BONDERITE® C-IC SCALE GON 5 AERO (known as TURCO SCALE GON 5) at 20-30% by volume at 167°F to 195°F (75°C to 90°C) for 15 to 60 minutes.
6. Thorough water overflow dip rinse.
7. Immerse parts in BONDERITE® C-AK 4338L AERO solution at 176°F to 203°F (80º to 95ºC) for 30 to 60 minutes.
8. Thorough water overflow dip rinse.
9. Immerse parts in BONDERITE® C-IC 4409 AERO (known as TURCO 4409) at 5-50% by volume at 65°F to 149°F (18°C to 65°C) for 3 to 30 minutes.
10. Water dip rinse. Follow with pressure rinse with air/water hand rinse gun to blast off the loosened scale deposit and reveal the shiny base metal surface.
11. Thorough water overflow dip rinse.

Control procedure for BONDERITE® C-AK 4338L AERO

A. CONCENTRATION OF BONDERITE® C-AK 4338L AERO PART 1:

Apparatus

1. Pipette, 5 ml
2. Burette, 25 ml
3. Beaker, 250 ml
4. pH meter

Reagents

1. 1.0 N Sulfuric acid

Procedure

1. Obtain a sample from the tank and cool to room temperature.
2. Pipet 5 ml sample into a 250 ml beaker containing 100 ml DI water.
3. Titrate with 1.0 N sulfuric acid to pH 8.3 and record this value as 'A'. Continue titrating to pH 4.0 and record this value as 'B'.

Calculation

[(2 x A)-B] x 1.05 = % by volume BONDERITE® C-AK 4338L AERO Part 1

B. CONCENTRATION OF BONDERITE® C-AK 4338L AERO PART 2:

Apparatus

1. Pipette, 5 ml, measuring
2. Pipette, 10 ml, volumetric
3. Burette, 25 ml
4. Erlenmeyer flask, 250 ml
5. Flask, Volumetric, 100 ml

Reagents

1. Titrating Solution 1565 (0.1N Ammonium Fe II Sulfate)
2. Concentrated Sulfuric Acid

Procedure

1. Obtain a sample from the bath. Filter sample while warm, ~120°F (49°C) through Whatman GF/A glass fiber filter paper or equivalent. Cool the filtered sample to room temperature.
2. Using a 5 ml measuring pipette, measure 5 ml into a 100 ml volumetric flask. Make to volume with deionized water and mix.
3. Pipet a 10 ml aliquot into a 250 ml Erlenmeyer flask. Add 25 ml of deionized water and slowly add 2 ml of concentrated sulfuric acid.
4. Titrate with Titrating Solution 1565 to a pale yellow or yellowish-brown endpoint.

Calculation

mL Titrating Solution 1565 x Normality of Titrating Solution1565 x 21.8 =
% by volume of BONDERITE® C-AK 4338L AERO Part 2

Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

Optimal storage: 19 to 24ºC. Storage below 12°C or above 38°C can adversely affect product properties.

Protect from freezing.

Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Henkel representative.

Not for product specifications
The technical data contained herein are intended as reference only. Please contact your local quality department for assistance and recommendations on the specifications of this product.

Data ranges
The data contained herein may be reported as a typical value. Values are based on actual test data and are verified on a periodic basis.

Temperature/Humidity Ranges: 23°C / 50% RH = 23±2°C / 50±5% RH

Conversions
(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
µm / 25.4 = mil
N x 0.225 = lb
N/mm x 5.71 = lb/in
N/mm² x 145 = psi
MPa x 145 = psi
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

Disclaimer
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