

## Cee-Bee® J-84A

**Cee-Bee® J-84A** is a highly alkaline powder used for removing rust, high-temperature oxides, carbon, dry film lubricant and aluminized paints from hot section turbine engine components. Cee-Bee® J-84A is typically used in multi-step cleaning processes in conjunction with Super Bee™ 300LF/G or Cee-Bee® A-7X7 aqueous degreasers, Cee-Bee® J-88L alkaline permanganate and Cee-Bee® J-3 and/or Cee-Bee® C-623 acid descalers.

### **Conforms To**

- Airbus
- Allison Gas Turbine Operations (GM Corp.)
- AMS
- ARP
- Boeing
- CFM56
- General Electric
- Honeywell
- Rolls Royce

Full Listing on Page 2

### **Benefits**

- Effectively removes rust, high-temperature oxides and carbon deposits.
- Safe and effective cleaner for titanium alloys when used as directed.
- Excellent performance in ultrasonic cleaning equipment.
- Removes dry film lubricant and aluminized paints.
- Safe on steel, most copper alloys, chromium, magnesium, titanium, cadmium, nickel, cobalt and their alloys.

### **Properties**

- Free flowing powder
- White to off white color
- Highly alkaline

### **Notes Prior to Handling**

Before using your Cee-Bee® products, all safety and operating instructions should be read and understood. If you have any questions, please contact your Cee-Bee® representative before proceeding.

## Conforms To (Continued)

- Airbus
  - CML 11-033
- Allison Gas Turbine Operations (GM Corp.)
  - 501-D22 Overhaul Manual
- AMS
  - AMS 1380A
- ARP
  - ARP 1755B
- Boeing
  - BAC 5625, 5749 & 5751
  - SOPM 20-30-03
- CFM56
  - CP. 2006
- General Electric
  - C04-049
- Honeywell
  - SPM 20-94/70-94
- Rolls Royce
  - OMat No. 173J

## Use Procedure

### Tank Recommendation and Make Up Instructions

- **Use 316 stainless steel tanks and heaters with this product.**
- Use mechanical agitation.
- Fill the tank about one-half full with water. Heat will be generated when Cee-Bee<sup>®</sup> J-84A is added. Sprinkle powder in slowly and cautiously with constant mechanical agitation to avoid boiling and splattering. After the powder has been dissolved and the solution is free of lumps, add the remaining water with continuous mechanical agitation.

### Steel, Nickel and Cobalt Parts

1. Degrease parts using Super Bee<sup>™</sup> 300LF/G or Cee-Bee<sup>®</sup> A-7X7 aqueous cleaners.
2. Immerse the parts in a 2.5-3.0 lbs/gal (300-360 g/l) Cee-Bee<sup>®</sup> J-84A bath at 180-200°F (82-93°C). Remove the parts and pressure spray rinse with cold water over the Cee-Bee<sup>®</sup> J-84A solution tank.
  - a. **Note:** GE, SNECMA and CFM allow 2.0-3.0 lbs/gal (240-360 g/l).
  - b. **Note:** If parts are heavily scaled, parts can be removed from the solution up to two times during the cleaning cycle (maximum of 60 minutes) to pressure spray rinse degraded scale.
3. Immerse parts fully into clean, cold water, then pressure spray rinse.
4. To protect ferrous parts from flash rusting, immerse parts fully in final, heated rinse water bath containing Cee-Bee<sup>®</sup> Nortex 3025 rust inhibitor heated to 150-170°F (66-77°C) until the part reaches the water temperature.

## Use Procedure (Continued)

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### Ultrasonic Cleaning

1. Use at 0.8-1.2 lbs/gal (96-144 g/l) Cee-Bee<sup>®</sup> J-84A by volume in water at 160-170°F (70-75°C). Higher concentrations and/or temperatures will reduce effectiveness.
2. Cavitation begins at about 160°F (70°C).
3. Turn the unit on when the bath nears this temperature.
4. Position parts in the tank to receive maximum cavitation.
5. When clean, remove and rinse with high pressure water or dip the parts in air-agitated, overflowing, clear water.

### Titanium Parts: A Short Soak

1. Immerse the parts in a 2.5-3.0 lbs/gal (300-360 g/l) Cee-Bee<sup>®</sup> J-84A bath at 190-200°F (88-93°C) for up to 4 minutes. Longer exposure can result in prohibitive stock loss.
  - a. **NOTE: DO NOT ALLOW TITANIUM PARTS TO SOAK LONGER THAN 4 MINUTES IN THIS SOLUTION.**
2. Remove parts and allow excess cleaner to drain back into the tank, then rinse with a light mist of water over the tank to reduce drag-out loss. Dip rinse and if required, rinse with high pressure water.

### Titanium Parts: A Long Soak

1. Immerse the parts in a 12-16 oz/gal (90-120 g/l) Cee-Bee<sup>®</sup> J-84A bath at 160-170°F (71-77°C.) for up to 30 minutes. This solution should be designated as "TITANIUM CLEANING ONLY".
  - a. **NOTE:** At this concentration, cleaning action will be slower, but metal stock loss will not be critical.
2. When cleaning is complete, remove the parts and allow excess cleaner to drain back into the tank.
3. Rinse with a light mist over the tank, dip rinse and then if required, rinse with high pressure water.

## Solution Control

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- Daily additions of water are required to make up evaporation losses. In hard water areas, soft water is recommended. Periodic additions of Cee-Bee<sup>®</sup> J-84A and optionally Cee-Bee<sup>®</sup> Additive GO-2 are needed to replace dragout loss and active ingredients consumed during the cleaning process. To determine concentrations, use the following procedures.

## Solution Control (Continued)

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### Part I: Alkalinity Test

#### Reagents & Equipment

- Deionized or Distilled Water
- 1 Normal Acid
- Phenolphthalein Indicator
- 250 ml Erlenmeyer Flask
- 50 ml Beaker
- 5 ml Volumetric Pipette

#### Alkalinity Test Procedure

1. Pipette a 5 ml sample of the bath into a 250 ml Erlenmeyer flask.
2. Add approximately 50 ml DI water and 3 drops phenolphthalein indicator.
3. Titrate with 1 normal acid until the pink color disappears, the endpoint.

#### Alkalinity Calculations

(mls of 1N acid) X (0.1035) = lbs/gal of Cee-Bee<sup>®</sup> J-84A based on alkalinity.

(ml of 1N acid) X 12.4 = g/l of Cee-Bee<sup>®</sup> J-84A based on alkalinity

(lbs/gal Cee-Bee<sup>®</sup> J-84A @ desired operating level) - (lbs/gal based on alk.) X (100) = pounds of Cee-Bee<sup>®</sup> J-84A required for 100 gallons of tank solution

(g/l Cee-Bee<sup>®</sup> J-84A @ desired operating level) - (g/l based on alkalinity) = kg of Cee-Bee<sup>®</sup> J-84A required for 1000 liters of tank solution.

### Part II: Sequestrant Test

#### Reagents & Equipment

- Glass Thermometer: 0-230°F (-17-110°C)
- Water Bath @ 180°F (82°C), or Hot Plate
- High Intensity Lamp (like a Tensor)
- Coarse Filter Paper
- 50% Sodium Hydroxide (NaOH)
- Ferric Chloride Hexahydrate
  - (FeC<sub>13.6</sub>H<sub>20</sub>) 1M, (270 gms/1)
- Ferric Chloride Hexahydrate (FeC<sub>13.6</sub>H<sub>20</sub>) 1M, (270 gms/1)
- 50 ml Graduated Cylinder
- 50 ml Burette
- 20 ml Pipette
- 5 ml Graduated Pipette

## Solution Control (Continued)

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### Part II: Sequestrant Test (Continued)

#### Sequestrant Test Procedure

1. Heat a sample of the bath to 180 degrees +/- 5 degrees F (82°C) in a water bath. If the sample is heavily contaminated, filter through coarse filter paper to remove suspended solids.
  - a. NOTE: Filter before heating
2. Pipette 20 ml of the hot solution into the 50 ml graduated cylinder.
3. If the alkalinity titration value (from Part I) is less than 29 ml 1N acid, add 50% NaOH with agitation as determined below and mix well:
  - a. Volume of 50% NaOH to add = (29 - mls 1 N acid consumed) X (0.21).
4. Add the 1 molar ferric chloride hexahydrate solution in 1.0 ml increments.
5. After each addition, stopper the cylinder, shake 30 seconds, and place in the water bath. Stir the bath. (Never stir with a thermometer). Measure the temperature: heat to 180 +/- 5 degrees F (82°C).
6. Take the cylinder out of the bath & shake it vigorously again for 30 seconds.
7. Let it set outside the bath for 1 minute at room temperature.
8. Examine the sample for undissolved precipitate using high intensity lamp.
9. As you approach the endpoint add 0.5 ml increments of ferric chloride at a time. Repeat steps 5-7 until you reach the endpoint. The endpoint is a large volume of undissolved precipitate in the bottom of the cylinder. One or two small particles isn't the endpoint.

#### Sequestrant Calculations

(mls of 1M FeCl<sub>3</sub>) X (0.5) = lbs/gal Cee-Bee<sup>®</sup> J-84A based on sequestrant.

(ml of 1M FeCl<sub>3</sub>) X (60) = g/l Cee-Bee<sup>®</sup> J-84A based on sequestrant.

(lbs/gal Cee-Bee<sup>®</sup> J-84A based on alkalinity) - (lbs/gal Cee-Bee<sup>®</sup> J-84A based on sequest.) X (20) = (lbs of Cee-Bee<sup>®</sup> Additive GO-2, required per 100 gals of the Cee-Bee<sup>®</sup> J-84A bath)

(g/l Cee-Bee<sup>®</sup> J-84A based on alkalinity) - (g/l Cee-Bee<sup>®</sup> J-84A based on sequest.) X (0.2) = (kg of Cee-Bee<sup>®</sup> Additive GO-2 required per 1000 liters of the Cee-Bee<sup>®</sup> J-84A bath.

## ! Caution

- A carbonate sludge will accumulate on the bottom of the tank. Periodic desludging will extend the useful life of the bath.
- Bath will etch zinc, lead and aluminum. When contaminated with these metals, bath effectiveness is greatly reduced, and, in some cases, the bath will deposit a tenacious black smut on steel parts. If auto-deposition occurs, dump the tank and recharge with fresh material.

## ! Safety, Handling, and Precautions

- **WARNING! DANGER!** Contains caustic soda! Corrosive!
- Do not allow any contact with eyes, skin or clothing. May cause burns or external ulcers.
- Do not take internally.
- Do not breathe any fumes, mist or vapor. Use with adequate ventilation.
- Wash thoroughly after handling.
- Wear OSHA-approved protective gear including caustic resistant gloves, boots, full face shield, or proper OSHA approved respirator fitted with proper caustic filter cartridge. Wear proper protective clothing sufficient to prevent any skin contact.
- **SOME FORM OF PROPER EYE PROTECTION IS CRITICAL AT ALL TIMES**
- In case of accidental contact with eyes, flush with water for at least 15 minutes. Obtain prompt medical attention! For skin contact, flush with water for at least 15 minutes. If irritation persists, seek prompt medical attention.
- For inhalation, remove to fresh air.
- For ingestion, do NOT induce vomiting. Administer large quantities of water and immediately obtain medical attention. Wash clothing before reuse.

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