

## Cee-Bee® J-88

**Cee-Bee® J-88** is a powdered alkaline permanganate scale conditioner used in various multi-step turbine engine cleaning processes. Cee-Bee® J-88 is typically used in conjunction with Super Bee™ 300LF/G, Cee-Bee® J-84AL, Cee-Bee® J-3 and Cee-Bee® C-623.

### **Conforms To**

- AMS
  - 1383A (Includes ARP 1755B)
- CFM
  - CP. 2008
- General Electric
  - C04-055
- International Aero Engines
  - CoMAT No. 01-165A
- Military
  - T.O. 2-1-111
- Rolls Royce
  - OMat No. 198C

### **Benefits**

- Strong oxidizing agent that conditions high-temperature oxides for removal with acid descalers like Cee-Bee® J-3 and Cee-Bee® C-623.
- Effective in removing coked fuel and oil when used in conjunction with Cee-Bee® J-84AL.
- Conditions alpha case scale on titanium alloys when used in conjunction with Cee-Bee® J-84AL, prior to acid etching.
- Safe on steel, most copper alloys, chromium, nickel and cobalt and their alloys.

### **Properties**

- Highly alkaline oxidizing powder
- Dark purple
- Free flowing

### **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.

## Use Procedure

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### Tank Recommendation

- Use 316 stainless steel tanks and heaters with this product.
- Use mechanical agitation.

### Operating Procedures

- Please refer to the respective OEM Standard Practice Manuals for the various cleaning and overhaul processes that utilize Cee-Bee<sup>®</sup> J-88.

## Solution Control

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1. Periodic additions of Cee-Bee<sup>®</sup> J-88 and Cee-Bee<sup>®</sup> J-88 Additive P are required to make up for drag-out losses and active ingredients consumed during the cleaning process. To determine concentrations, use the procedures below.
2. The control procedures are based on two analyses: alkalinity and permanganate concentration. To properly carry out these straight-forward tests, you'll need the following equipment and reagents.

### Reagents & Equipment

- |                                      |                           |
|--------------------------------------|---------------------------|
| • Distilled or Deionized Water       | • 500 ml Volumetric Flask |
| • 1 N Sulfuric Acid                  | • 250 ml Erlenmeyer Flask |
| • 50% Sulfuric Acid                  | • 50 ml Burette and Stand |
| • 0.1 N Potassium Permanganate       | • 25 ml Pipette           |
| • 0.1 N Sodium Oxalate               | • 10 ml Pipette           |
| • pH Meter                           | • Glass Filter Funnel     |
| • 11 cm Glass Microfiber Filter Disc |                           |

## Solution Control (Continued)

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### Part 1 – Sample Filtration

- If the sample is excessively dirty, filter approximately 50 ml of tank solution, heated to 190°F (88°C), using a glass filter funnel and glass microfiber filter disc. DO NOT USE PAPER FILTERS.

### Part 2 – Concentration Based on Alkalinity

1. Pipette a 5 ml aliquot of hot filtered solution into a 100 ml volumetric flask.
2. Dilute with DI water to 100 mls. Cap and mix by inversion.
3. Pipette 25 mls of the dilute solution into 250 ml Erlenmeyer flask and dilute to 100 ml with DI water.
4. Titrate with 1 N acid to pH 6.0 using the pH meter.
5. Calculations:

$$\text{ml 1N acid} \times 0.382 = \text{lbs./gal. Cee-Bee}^{\text{®}} \text{ J-88 based on alkalinity}$$

$$\text{ml 1N acid} \times 45.78 = \text{g/l Cee-Bee}^{\text{®}} \text{ J-88 based on alkalinity}$$

[(Operating Concentration) - (lbs./gal. Cee-Bee<sup>®</sup> J-88 based on alkalinity)] X 100 = lbs. Cee-Bee<sup>®</sup> J-88 required for 100 gals. of tank solution.

(Operating concentration) - (g/l Cee-Bee<sup>®</sup> J-88 based on alkalinity) = kg of Cee-Bee<sup>®</sup> J-88 required for 1000 liters of tank solution.

## Solution Control (Continued)

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### Part 3 – Permanganate

1. Add 10 ml of 50% sulfuric acid to the previously titrated sample from Step 2.
2. Add exactly 25 ml of freshly standardized 0.1N sodium oxalate solution and heat to approximately 190°F (88°C).
3. If the solution does not decolorize when heated, add additional 0.1N sodium oxalate solution in 10 ml increments until decolorized.
4. When decolorized, IMMEDIATELY titrate with 0.1N potassium permanganate until a faint pink color remains for approximately 30 seconds.
5. Calculations:

(ml. 0.1N sodium oxalate - ml. 0.1N potassium permanganate X 0.070 = lbs./gal. Cee-Bee<sup>®</sup> J-88 based on potassium permanganate.

(ml 0.1N sodium oxalate - ml 0.1N potassium permanganate X 8.39 = g/l Cee-Bee<sup>®</sup> J-88 based on potassium permanganate

(lbs./gal. Cee-Bee<sup>®</sup> J-88 based on alkalinity - lbs./gal. potassium permanganate) X 30 = lbs. Cee-Bee<sup>®</sup> J-88 Additive P required for 100 gallons of tank solution.

(g/l Cee-Bee<sup>®</sup> J-88 based on alkalinity - g/l potassium permanganate ) X 0.3 = kg Cee-Bee<sup>®</sup> J-88 Additive P required per 1000 liters of tank solution.

### If Cee-Bee<sup>®</sup> J-88 Additive PL is used, calculate addition as follows:

(lbs./gal. Cee-Bee<sup>®</sup> J-88 based on alkalinity - lbs./gal. based on permanganate) X 6.5 = gals. Cee-Bee<sup>®</sup> J-88 Additive PL required for 100 gals. of tank solution.

(g/l Cee-Bee<sup>®</sup> J-88 based on alkalinity - g/l based on permanganate) x 0.55 = liters of Cee-Bee<sup>®</sup> J-88 Additive PL per 1000 liters of tank solution.

## Safety, Handling, and Precautions

- Not to be used on titanium and aluminum.
- Cee-Bee<sup>®</sup> J-88 will slightly attack magnesium alloys containing zinc, tin or aluminum. Care should be taken when processing this alloy.
- Heat is generated when powder is mixed with water. Add slowly with continuous agitation to prevent boiling and splashing.
- Store in a tightly closed container.
- Cee Bee<sup>®</sup> J-88 is a highly oxidizing material. Avoid contact with combustible materials.

## Contact Us

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### United States

#### McGean

Phone: +1-216-441-4900

Fax: +1-216-441-1377

Email: [Aviation@McGean.com](mailto:Aviation@McGean.com)

### United Kingdom

#### McGean-Rohco (UK) Ltd.

Phone: +44-1902-456563

Fax: +44-1902-457443

Email: [Aviation@McGean-Rohco.co.uk](mailto:Aviation@McGean-Rohco.co.uk)

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### Singapore

#### McGean Singapore

Phone: +65-6863-2296

Fax: +65-6863-2297

Email: [Info@ceebee.com.sg](mailto:Info@ceebee.com.sg)

### China

#### Cee-Bee Aviation Materials (Xiamen) Co. Ltd.

Phone: +86-592-551-3689

Email: [Info@ceebee.com.cn](mailto:Info@ceebee.com.cn)

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