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### Technical Bulletin #213 Mi-Glow® 920

Mi-Glow® 920 is fluorescent yellow-green particles used with CircleSol M, a refined petroleum distillate. It is designed to be used with black light to detect forging type discontinuities. It meets or exceeds AMS 3044 and all applicable industry specifications.

#### Properties

Particle Color: Fluorescent Yellow-Green

Specific Gravity: 1.2 g/ml

Particle Size: Not less than 98% passage through US Standard No. 325 (45 µm) sieve as defined in AMS 3044. The typical range of particle sizes is from 1 to 12 µm, with an average particle size of 5 µm (volume distribution) and 1.5 µm (number distribution).

Sensitivity: Mi-Glow® 920 shows a minimum of 8 lines on an AISI 01 Ketos tool steel ring (as defined in SAE AS5282), set on a 1-inch diameter copper bar, magnetized with 2500 A of direct current.

Particle Certification: Particles meet or exceed all relevant industry specifications, including but not limited to MIL-STD-1949, AMS 3044, MIL-STD-271, NAVSEA 250-1500-1, NTR-1E, ASTM E 1444. Certification is included with each shipment.

Temperature Limits: 32-120°F (0-49°C)

Shelf Life: Four (4) years, when closed containers are stored in a clean, dry environment away from excessive heat and cold. A Certificate of Shelf Life is available upon request.

#### Directions for Use

Preparation: Mi-Glow® 920 should be used at a concentration of 15-17 oz. av. per 100 gallons (1.25 grams/liter) of CircleSol M. For best results, add a small amount of CircleSol M to the powder to form a slurry prior to addition to the bath.

Settling Test: The settling test, to check particle concentration and contamination, shall be performed upon startup, at each shift thereafter and whenever the bath is changed or adjusted.

*Checking Bath Concentration* - The settling test is essential to check the bath concentration and is accomplished by gravity settling in a graduated pear-shaped centrifuge tube as specified in Guide E709.

1. Run the pump for 30-60 minutes, to agitate the suspension thoroughly and to assure particle distribution.

2. Fill 100 ml sample from the delivery hose into the centrifuge tube.
3. Demagnetize the sample and stand, together.
4. Allow particles to settle for a minimum of 30 minutes or until completely settled.
5. The recommended volume is between 0.15 and 0.25 ml and will vary from one specification to another. (Read the settled particles that are fluorescent using a black light.)
6. Adjust bath, either by adding particles or vehicle, if necessary.

*Checking Bath Contamination* - To determine bath contamination, use the same sample that was used for the concentration settling test, and examine the liquid above the settled particles with a black light. The liquid should be clear. If the bath is noticeably fluorescent, the bath must be changed. Next, examine the graduated portion of the tube where the particles have settled, with a black light and visible light for striations or bands of contamination that will be different in color and appearance than the settled particles. These striations or bands represent solid contamination, and if they exceed 30% of the settled particles, the bath should be changed.

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