

## CIRCLE SYSTEMS, INC.

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## TECHNICAL BULLETIN #264

### MI-GLOW 718X

MI-GLOW 718X is a green liquid concentrate used for magnetic particle inspection in a water system. It contains fluorescent particles and special water chemistry, which consists of corrosion inhibitors, anti-foaming agents, wetting agents, and pH buffering agents. MI-GLOW 718X is designed for revealing fine defects on both machined and unfinished ferro-magnetic materials.

Particle Color: Fluorescent yellow-green

Specific Gravity: 1.3 g/ml -- for the concentrate

Particle Size: Not less than 98% passage through US Standard No. 325 (45  $\mu\text{m}$ ) sieve as defined in AMS 3044. The typical range of particle sizes is from 1 to 30  $\mu\text{m}$ , with an average particle size of 10  $\mu\text{m}$ .

Sensitivity: MI-GLOW 718X shows a minimum of 7 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 all relevant 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 Limit: 120°F Maximum

Preparation: MI-GLOW 718X should be used at a dilution of 1 part concentrate with 39 parts water. This will give a fluorescent particle concentration of 1.5 grams per liter. The recommended proportion may vary depending on specific applications. Each bottle should be thoroughly mixed before using. If a bottle is emptied, it should be rinsed with water and the contents added to the system.

Concentration Test: The suspension as delivered on the part should be tested for magnetic substance content by the following method at 8-hour intervals or shorter intervals if required by the user. The method of test should be as follows:

1. Run the circulating pump on the test equipment for at least 30 minutes.
2. Fill a 100 ml graduated centrifuge tube as specified in ASTM D96 or equivalent, to the 100 ml mark with suspension directly from the hose or other device used for applying it to the part in an inspection, or from an immersion tank. Demagnetize the suspension if considered necessary and let it stand undisturbed for 30 minutes.
3. Read the volume of the precipitate in the graduate. The volume should be 0.15 to 0.30 ml.

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