MAGNAGLO® MG-410
Wet-Method Fluorescent Magnetic Powder

GENERAL DESCRIPTION

MG-410 is a free-flowing, dry magnetic particle powder which fluoresces under ultraviolet light (wavelength of 365 nanometers). It bright fluorescent yellow-green color provides a vivid contrast against metal parts when viewed in UV black light in a darkened area, although a totally darkened inspection area is not required due to MG-410's intense brightness.

MG-410 is intended to be suspended in a water or oil carrier. In water, conditioning agents such as WA-2B or WC-1 are required to improve particle suspension and mobility, and to provide better test-piece wetting.

APPLICATION

MG-410 is designed to detect medium to fine surface and slightly subsurface discontinuities such as: inclusions, seams, shrink cracks, tears, laps, flakes, welding defects, grinding cracks, quenching cracks, and fatigue cracks.

TYPICAL PROPERTIES (Not a specification)

Color Under White Light	**Green**
Color Under Black Light	**Yellow-Green Fluorescence**
Mean Particle Size	**12-22 Microns**
SAE Sensitivity*	**7**
Temperature Limits	**120°F, 48.9°C Maximum**

** Representative of the number of lines shown on an AISI 01 Steel Tool Ring as defined in SAE AS5282.*

BATH PREPARATION

Recommended MG-410 concentration is 0.1 ounces per gallon of carrier (0.74 grams per liter).

Oil Bath: Weigh out the appropriate amount of MG-410 and add to oil. Mix bath for at least 15 minutes or until the particles are completely and evenly dispersed. Check concentration before use.

Water Bath: For a more rapid and uniform dispersion, it is best to pre-slurry the MG-410 and the conditioning agent. Weigh out the appropriate amount of MG-410 and conditioning agent. Combine and then add a little water and mix to form a thick slurry. Add the slurry to the agitated bath tank. If the materials are added to the bath tank without first forming a slurry, the conditioning agent should be added first and allowed to mix uniformly throughout the bath before adding the MG-410. Check concentration before use.

METHOD OF APPLICATION

Parts should be cleaned prior to testing to reduce bath contamination and to ensure a more desirable test surface. The bath must be continuously agitated when in use to ensure uniformity, as particles will settle out of suspension on standing. Using the wet continuous method, the bath is applied to all surfaces of the part. The instant the bath stream is removed from the part the magnetizing current is applied. The indication will be formed during the current shot. If the bath is applied after the magnetizing shot, the force of the bath application may wash away indications.

CONCENTRATION CONTROL

The bath concentration should be maintained constant at all times to provide consistent results.

Check bath concentration at make-up time and at least once a day to maintain the proper level of magnetic particles in the bath. The most widely used method of control is by gravity settling in a graduated ASTM pear-shaped centrifuge tube.

Procedure: Thoroughly agitate the bath to suspend the particles uniformly in the carrier liquid. Run the bath through the hand hose and nozzle for at least a minute to clear out the hose. Fill the 100 ml centrifuge tube using the hand hose. Place the centrifuge tube in its stand and allow it to settle on a vibration free surface for 30 minutes if the carrier medium is water and 60 minutes for oil carrier.

After the settling time, illuminate the centrifuge tube with UV light in a darkened area and record the settlement volume. If the settlement volume is too high add carrier, if it is too low then add MG-410.

Oil Settlement Volume	**0.05 – 0.15 ml**
Water Settlement Volume	**0.05 – 0.15 ml**

** At 0.1 ounces per gallon (0.74 grams per liter)*

In billet unit testing, the centrifuge tube should also be examined for non-fluorescent scale present in the bath. Excess scale will reduce the brightness of the fluorescent indications and may completely overwhelm the fluorescent particles preventing flaw detection.

Magnaflux® centrifuge tube PN 2461 is recommended for MG-410: 100 ml capacity, stem graduated from 0 to 0.2 ml in 0.01 ml increments.

POST INSPECTION CLEANING

The parts must be properly demagnetized before cleaning to ensure easy particle removal.

SPECIFICATION COMPLIANCE

ASTM E 709, ASME B & PV Code, Sec. V, NAVSEA 250-1500-1, MIL-STD-2132, NAVSEA T9074-AS-GIB-010/271

PACKAGING

2 Lb. Jar, Case of 6

HEALTH & SAFETY

For complete health and safety information, refer to the product Material Safety Data Sheet, which can be found on our web site at www.magnaflux.com.