MG-410

Fluorescent Magnetic Particles

MG-410 is an ultra-bright fluorescent magnetic particle powder for locating small, medium, and large discontinuities. These particles provide clear, ultra-bright, fluorescent green indications under UV light with minimal background. MG-410 is designed for use in water or oil baths for wet method fluorescent magnetic particle testing.

MG-410 is fluorescent powder which can be mixed with either water or oil for a wet-method inspection of metal parts. It detects medium to fine surface and slightly subsurface discontinuities such as cracks, inclusions, seams, tears, laps, flakes and welding defects. Indications appear an intense yellow-green under UV lighting. Conditioners for water baths such as WA-2B powder or WC-1 liquid should be used for anti-foaming, corrosion inhibiting, as a wetting agent and to facilitate particle suspension.

FEATURES

- Clear, ultra-bright indications under UV light
- Provides excellent discontinuity definition
- Can be suspended in water or oil vehicle
- Minimal background

SPECIFICATION COMPLIANCE

- AMS 3044
- ASTM E709
- ASTM E1444
- ASME
- ISO 9934
- MIL-STD-2132
- NAVSEA 250-1500-1
- NAVSEA T9074-AS-GIB-010/271
- SAFRAN IN 5300

PROPERTIES

Appearance	Fine, dry powder
Color in Visible Light	Forest green
Color in UV Light	Fluorescent yellow-green
Odor	Odorless
Mean Particle Size*	19 microns
SAE Sensitivity**	7

* As determined by industry-typical method for measuring particle size

** Representative of the number of indications on a tool steel ring as defined in ASTM E1444.

APPLICATIONS

Defect location: surface and slightly subsurface

Ideal for:

- Detecting small, medium, and gross discontinuities
- Raw products/materials
- After secondary processing
- Textured/rough surface finishes
- Unmachined parts
- Semi-dark environments
- Castings
- Forgings
- Welds

Defect examples:

- Inclusions
- Seams
- Shrink cracks
- Tears
- Laps
- Flakes
- Welding defects
- Grinding cracks
- Quenching cracks
- Fatigue cracks

USE RECOMMENDATIONS

NDT Method	Magnetic Particle Testing, Fluorescent, Wet Method
Suspension Vehicle	Water or petroleum distillate (oil)
Required Equipment	Magnetizing device, UV light source
Usage Temperature†	42 to 120°F / 6 to 48°C
Storage Temperature	50 to 86°F / 10 to 30°C
Settling Volume	0.05 – 0.15 mL

† Particle integrity and mobility may decline beyond these temperature limits.

PREPARATION INSTRUCTIONS

Oil Bath: Weigh out the appropriate amount of MG-410 and add to the appropriate amount of oil vehicle. Mix for a minimum of 15 minutes, until the particles are completely and evenly dispersed in the suspension. Check concentration before use.

Water Bath: In water-based suspensions, conditioning agents are required to improve particle suspendibility, mobility, and surface wetting. Measure out the appropriate amount of water conditioner, add to water and mix for 5 minutes. Next, measure out the appropriate amount of MG-410 magnetic particles and add particles to the conditioned water. Add particles directly over the pump for more rapid dispersion. Mix for 15 minutes or until the particles are completely dispersed. Check particle concentration before use.

Suspension vehicle	MG-410
1 gallon	0.1 oz
1 liter	0.74 g

INSTRUCTIONS FOR USE

Use MG-410 with appropriate magnetization procedure and equipment. All components, parts, or test areas should be cleaned prior to testing to provide a suitable test surface and reduce particle suspension contamination.
Particle suspension can be applied by gently spraying or flooding the components, parts, or test areas. The suspension must be properly mixed and continuously agitated when in use to ensure uniformity and concentration. Particles will settle out of suspension very quickly on standing.

Maintenance Recommendations

Magnetic particle suspensions need to be properly maintained to provide consistent results. Suspension concentration and contamination should be monitored at least once a day, or according to applicable specifications. Contaminated suspensions, or those in use for an extended length of time, should be replaced. Properly cleaning all components, parts, or inspection areas before testing helps to significantly reduce particle suspension contamination.

Particle concentration should be determined after initial bath preparation and at least once a day, or according to applicable specifications, to maintain the proper level of particles in the suspension. The most widely used method of control is by settling volume measurement in a graduated ASTM pear-shaped centrifuge tube. For testing MG-410, Magnaflux centrifuge tube 507923 is recommended: 100 ml capacity, stem graduated from 0 to 0.2 mL in 0.01 mL increments.

REMOVAL

All components, parts, or inspection areas must be properly demagnetized before cleaning to ensure easy particle removal. Cleaned parts may be treated with a temporary film protective coating if longer corrosion protection is required.

STORAGE

Store in a well-ventilated area away from magnetizing equipment and heat sources. Product age, exposure to elevated temperatures, and/or exposure to a strong magnetic field may adversely affect particle redistribution.

Protect from sunlight. Storage containers should be tightly sealed when not in use. Cool, dry storage location is preferred. Refer to Safety Data Sheet for additional storage instructions.

PACKAGING

2 lb / 907 g jar (case of 6) 01-0191-73

HEALTH AND SAFETY

Review all relevant health and safety information before using this product. For complete health and safety information, refer to the product Safety Data Sheet, which is available at **www.magnaflux.com**.