

**MAGNAGLO®**

# MAGNAGLO MG 410

## General Description

Magnaglo MG 410 is a powder concentrate used to prepare fluorescent bath for wet method magnetic particle testing. The bath is used in conjunction with suitable magnetizing equipment for use in general wet method magnetic particle inspection.

MG 410 may be suspended in either a petroleum-based vehicle (oil) such as MX/MG Carrier II, or in water. When water is used as a vehicle a conditioning agent such as WA-2B is required. The conditioning agent improves particle suspensibility, mobility and surface wetting together with nominal corrosion inhibition.

Bath made from MG 410 give clear bright fluorescent green indications when viewed in a darkened area under UV(A) of peak wavelength 365nm. A totally darkened inspection area is not required due to the intense brightness of MG 410.

## Applications

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

## Composition

MG 410 is composed of compounded fluorescent pigment and magnetic powder.

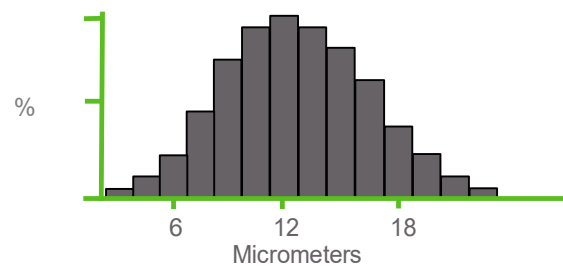
## WET METHOD FLOUROSCENT PARTICLES



## Typical Properties (not specification)

Property	MG 410
Form	Green powder
Colour under UV (365 nm)	Bright Yellow - green
SAE sensitivity	7
Recommended concentration range	0.75-1.50 g/litre
Settling volume (0.75 g/L of water – 30 min)	0.05 ml – 0.15 ml
Temperature limit	48 °C

## Particle Size Range



Like all Magnaflux materials Magnaglo MG 410 is closely controlled to provide unique batch to batch consistency and uniformity to assure optimum process control and inspection reliability.

## Benefits

- ✓ Clear bright indications
- ✓ Can be suspended in oil or water

### Bath Preparation

The recommended concentration is 0.75 to 1.50 g of MG 410 per litre of carrier (oil or water).

#### ➤ Oil Based Bath

Mix the weighed out powder with the required quantity of a suitable oil carrier such as MX/MG Carrier II, and allow to mix for approximately 30 minutes or until fully dispersed. Before use check for correct settling volume.

#### ➤ Water Based Bath

Prepare the water carrier by mixing 10 g of WA-2B wetting agent per litre of water.

Weigh out the appropriate amount of MG 410 powder then add to the prepared water carrier and allow to mix for approximately 30 minutes or until fully dispersed. Before use check for correct settling volume.

For more rapid and uniform dispersion, it is best to pre-slurry the MG-410 and the conditioning agent. Weigh out the appropriate amount of magnetic powder and WA-2B. Add enough water to form thick slurry and mix material. Add the slurry to the agitated bath tank.

### Method of Use

Components should be cleaned prior to testing to reduce the risk of bath contamination and to provide a suitable test surface.

The bath can be applied by spraying, immersion or flooding.

The bath must be mixed thoroughly prior to use and must be kept agitated during testing.

- Using the wet continuous method, the bath is applied to all surfaces of the component during magnetisation. The indications will be formed during the application of magnetising current. The flow of bath must be stopped before the magnetising current is switched off, otherwise there is a risk that the force of the bath application may wash away indications.
- Using the wet residual method, the premagnetised part is immersed in the bath, removed, allowed to drain and then inspected. This method is generally less sensitive than the continuous method and is more susceptible to rapid particle depletion and bath contamination.

### Bath Replenishment/Concentration Control

In use the magnetic content of any bath will become depleted. To guard against this, the bath strength should be checked at make-up and at least once each day. The most widely used method of control is by settling volume using a graduated ASTM pear shaped centrifuge tube.

MAGNAFLUX P/N T03002 is recommended for MG-410 with a 0.3 ml stem. The tube is filled to the 100 ml line with well mixed bath. The tube is placed in the stand in a vibration-free location for 30 minutes for water (60 minutes for Carrier II oil). After 30 minutes for water, (60 minutes for Carrier II) the settling volume is taken. The settling volume indicates the number of magnetic particles present in the bath.

In billet units the settling tube should be examined under black light to determine the amount of non-fluorescent scale present in the bath. Scale will reduce the brightness of the fluorescent indications and may completely overwhelm the fluorescent particles preventing flaw detection.

When the settling volume approaches the lower limit then additions of Magnaglo MG 410 particles can be made to the bath providing the bath liquid is still clean and uncontaminated. If the reading is too high, add vehicle.

If the bath appears contaminated or has been in use for any length of time, the contents should be replaced.

After inspection the components should be properly demagnetized before cleaning to ensure ease of particle removal.



## Specification Compliance

Specification	MG 410
ASME B & PV Code, Sec V	✓
ASTM E-709	✓
ISO 9934	✓

## Availability

MG 410 is available as follows:

- 1 kg containers, part number F03013
- 500 g containers, part number F03012

## Health and Safety

- Safety Data Sheets for this product are available on request from your Magnaflux distributor or via the Magnaflux website ([www.magnaflux.in](http://www.magnaflux.in)).
- Read the relevant Safety Data Sheets before use.

**MAGNAFLUX,**  
**DIVISION OF ITW INDIA PRIVATE LIMITED,**  
Plot No: 51,52, 207 & 208, Phase – 2,  
IDA, TSIC, Pashamylaram, Medak Dist.-502307,  
Telangana State, India

Tel: +91 8455 224710 Fax: +91 8455 224709  
Email: [magnafluxinfo@magnafluxindia.com](mailto:magnafluxinfo@magnafluxindia.com)  
[www.magnaflux.in](http://www.magnaflux.in)

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