



# MAGNAGLO 14A WET METHOD FLUORESCENT PARTICLES

## General Description

Magnaglo 14A is a powder concentrate used to prepare fluorescent ink for wet method magnetic particle inspection testing. The ink is used in conjunction with suitable magnetising equipment for use in high sensitivity wet method magnetic particle inspection.

14A 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 Magnaflux WA-2B is required. The conditioning agent improves particle suspendibility, mobility and surface wetting together with nominal corrosion inhibition.

Inks made from 14A give clear fluorescent green indications when viewed in a darkened area under UV(A) of peak wavelength 365 nm.

## Applications

14A is used to locate 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

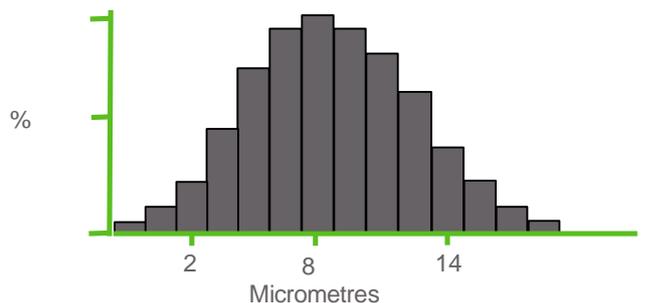
14A is composed of compounded fluorescent pigment and magnetic iron oxide.



## Typical Properties (not a specification)

Property	14A
Form	Brown powder
Colour under UV (365 nm)	Green
SAE sensitivity	8-9
Recommended concentration range	1.0-1.25 g/litre
Settling volume	0.15-0.25 ml
Temperature limit	48 °C

## Particle Size Range



Like all Magnaflux materials Magnaglo 14A is closely controlled to provide unique batch to batch consistency and uniformity to assure optimum process control and inspection reliability.

## Benefits

- ✓ High sensitivity
- ✓ Can be suspended in oil or water

## Bath Preparation

The recommended concentration is 1 to 1.25 g of 14A per litre of carrier (oil or water).

### ➤ Oil Based Bath

Mix the weighed out powder with the required quantity of MX/MG Carrier II, and allow to mix for approximately 15 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 water conditioner per litre of water.

Weigh out the appropriate amount of 14A powder then add to the prepared water carrier and allow to mix for approximately 15 minutes or until fully dispersed. Before use check for correct settling volume.

Magnaflux P/N T03005 with a 1.0 ml stem in 0.05 increments is recommended for measuring settling volume.

The centrifuge 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 Water Baths for 30 minutes and for Oil Baths for 60 minutes .

## 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 ink 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.

When the settling volume approaches the lower limit then additions of Magnaglo 14A particles can be made to the bath providing the bath liquid is still clean and uncontaminated.

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 demagnetised before cleaning to insure ease of particle removal.



**Specification Compliance**

Specification	14A
AMS 3044	✓
ASME B & PV Code, Sec V	✓
British Std. B.S.4069	✓
ASTM E-709 (E-138)	✓
ASTM E-1444	✓
Boeing PS 21201	✓
MIL-STD-271	✓
NAVSEA 250-1500-1	✓
NAVSEA T9074-AS-GIB-010/271	✓
Cummins IS-16048-13	✓
MIL-STD-2132	✓

**Availability**

14A is available as follows:

- 1 kg containers, part number F03009.
- 500 g containers, part number F03008.

**Health and Safety**

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

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