

14 A

WET METHOD FLUORESCENT PARTICLES

General Description

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

It 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.

14A may be suspended in either a petroleum-based vehicle (oil) such as MAGNAFLUX MG Carrier II, or in water. When water is used as a vehicle, conditioning agents such as WA-2B, or WA-4E are required. The conditioning agents improve 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 365nm.

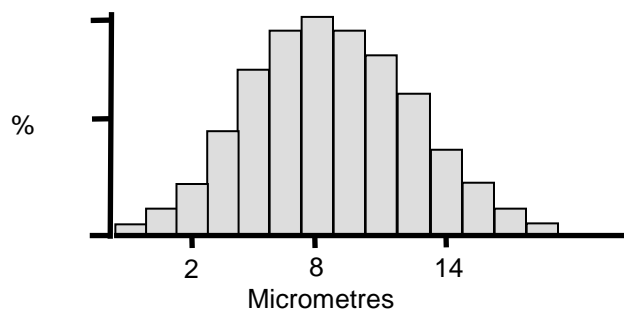
Composition

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 per litre
Settlement 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.

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Bath Preparation

The recommended concentration is 1 to 1.25 g of 14A per litre of carrier.

➤ **Oil Based Ink**

Mix the weighed out powder with the required quantity of a suitable oil carrier such as MX Carrier II, and allow to mix for approximately 15 minutes or until fully dispersed. Before use check for correct settlement volume.

➤ **Water Based Ink**

Prepare the water carrier by dissolving 10 g of WA2B or WA4E wetting agent 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 settlement volume.

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 ink can be applied by spraying, immersion or flooding.

The ink 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 magnetization. The indications will be formed during the application of magnetising current. The flow of ink must be stopped before the magnetising current is switched off, otherwise there is a risk that the force of the ink 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 ink 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 settlement volume using a graduated ASTM pear shaped centrifuge tube.

When the settlement 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 demagnetized before cleaning to insure ease of particle removal.

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Specification Compliance

Specification	14A
<input type="checkbox"/> AMS-3044	✓
<input type="checkbox"/> ASME B & PV Code, Sec V	✓
<input type="checkbox"/> ASTM E-165	✓
<input type="checkbox"/> ASTM E-709 (E-138)	✓
<input type="checkbox"/> ASTM E-1444	✓
<input type="checkbox"/> Boeing PS 21201	✓
<input type="checkbox"/> MIL-STD-271	✓
<input type="checkbox"/> NAVSEA 250-1500-1	✓
<input type="checkbox"/> Rolls Royce CSS231	✓

Availability

14A is available as follows:

- 1 Kg packs, part number 059C025
- 5 Kg packs, part number 059C026

Health and Safety

- Safety data sheets for this product are available on request from your Magnaflux distributor or via the Magnaflux website (www.magnaflux.com)
- Read the relevant safety data sheets before use
- Avoid breathing dust when handling
- Avoid contact with skin and eyes
- Wear suitable gloves and eye protection if there is a risk of skin or eye contact

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