MAGNAFLUX

Product Data Sheet

MAGNAGLO® 14A, MG 410, MG 601

Wet Method Fluorescent Magnetic Particles

General Description

Our MAGNAGLO® powder concentrates are used to prepare fluorescent inks for high-sensitivity, wet method magnetic particle testing. The inks give clear bright yellow/green indications when viewed in a darkened area under UV(A) of peak wavelength 365 nm.

MAGNAGLO 14A and MG 410 can be suspended in either a petroleum-based vehicle (oil), such as MAGNAGLO® MG-MX Carrier II, or in water. If water is used, you must add a conditioning agent (such as MAGNAFLUX® WA-1) to improve particle suspendibility and mobility, surface wetting and corrosion inhibition. MG 601 is a top-up for MAGNAGLO WB-655 ink concentrate.

Applications

Used in conjunction with suitable magnetising equipment, our powder concentrates will locate fine surface and slightly subsurface defects such as: inclusions, seams, shrink cracks, tears, laps, flakes, welding defects, grinding cracks, quenching cracks, and fatigue cracks.

Composition

Compounded fluorescent pigment and magnetic iron oxide.

Benefits

- High sensitivity
- Can be suspended in oil or water
- Easy to disperse

Specification Compliance

Specification	14A	MG 410	MG 601
AMS3044	✓		✓
ASME B & PV Code, Sec V	✓	✓	✓
ASTM E709	✓	✓	✓
ASTM E1444/E1444M	✓		✓
EN ISO 9934-2	✓		✓
GOST R ISO 9934-2-2011	✓		✓
KTA 3905			✓
MIL-STD-2132D	✓	✓	✓
MIL-STD-271F	✓	✓	✓
NAVSEA 250-1500-1		✓	
Rolls Royce RRP 58004 (CSS 231)	✓		
SAFRAN In 5300	✓	✓	

Typical Properties (not a specification)

Property	14A	MG 410	MG 601
Form and colour	Brown powder	Green powder	Light-brown powder
SAE sensitivity	8 - 9	7	8 - 9
Particle size range	5 - 12 µm	14 - 22 µm	3 - 5 µm
Recommended concentration range	1.0 - 1.25 g/litre	0.75 - 1.5 g/litre	0.4 - 0.9 g/litre
Settlement volume	0.15 - 0.25 ml	0.05 - 0.15 ml (1 hour)	0.1 - 0.2 ml
Storage temperature	10°C to 30°C	10°C to 30°C	10°C to 30°C
Usage temperature	< 48°C	< 48°C	< 60°C

Like all Magnaflux materials, our MAGNAGLO powders are closely controlled to ensure batch-to-batch consistency, optimum process control and inspection reliability.

MAGNAGLO® 14A, MG 410, MG 601

General Method of Use

Clean the component before testing to reduce the risk of contamination and provide a suitable test surface.

Prepare the ink using the concentrations detailed in the 'Typical Properties' table on the previous page.

Oil-based ink

Combine the required amount of powder with a suitable oil carrier, such as MG-MX Carrier II. Mix thoroughly until the powder is fully dispersed (this can take up to 15 minutes).

Water-based ink

First, prepare your water carrier by mixing 10g of WA-1 per litre of water. Then add the required amount of powder to the carrier and mix thoroughly until the powder is fully dispersed (this can take up to 15 minutes).

Before using your ink, check it has the correct settlement volume (see the 'Typical Properties' table on the previous page). You will need to continually agitate the ink during use to ensure uniformity of mix.

Apply by spraying, flooding or immersion, depending on your chosen method (see below):

Wet continuous method

Apply the ink to all surfaces of the component and apply a magnetising current. Remember to stop the flow of ink **before** the current is switched off, otherwise there is a risk that the force of the ink flood may wash away indications.

Wet residual method

This method is generally less sensitive than the continuous method and is more susceptible to rapid particle depletion and bath contamination.

- Pre-magnetise the part that needs to be tested.
- Imerse the part in a bath of the ink.
- Remove it and allow it to drain.
- Inspect the part.

During use, the magnetic content of any ink will become depleted so you will need to check your bath strength at least once each day. The most widely-used way of checking an ink's settlement volume is by using a graduated ASTM pear-shaped centrifuge tube.

When the settlement volume approaches the lower limit (see the 'Typical Properties' table on the previous page), you can add more powder to the bath as long as it is still clean and uncontaminated. If the bath appears contaminated, or if it has been in use for a long time, replace the contents.

After inspection, remember to completely demagnetise your components before cleaning, to ensure easy removal of any residual powder particles.

Recommended Products

Product type	Product Name(s)
Cleaner	SPOTCHECK® SKC-S
Oil vehicle	MAGNAGLO® MG/MX Carrier II
Water bath additives	MAGNAFLUX® WA-1 water conditioner MAGNAFLUX® WA-2 antifoam
UV(A) lamps	MAGNAFLUX® EV6000 MAGNAFLUX® UV-LED miniSpot
Centrifuge Tube for fluorescent ink (part no. 044C005)	

Availability and Part Numbers

14A	MG 410	MG 601
 059C025  059C026	 057C036	 059C030

Health and Safety

Read the relevant Safety Data Sheet for this product before use. Safety Data Sheets are available on request from your Magnaflux distributor or via the Magnaflux website:

www.eu.magnaflux.com

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