MAGNAFLUX

Product Data Sheet

14A, MG 410, MG 601

Wet Method Fluorescent Magnetic Particles

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.

14A and MG 410 can be suspended in either a petroleum-based vehicle (oil), such as 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.

BENEFITS

Increases indication detection

- Find smaller, finer indications in critical applications with these highly sensitive particles.

Minimizes inspection time

- Clear, bright indications form quickly with minimal background fluorescence.

Improve inspection consistency and reliability

- Maintain magnetic particle system performance over longer periods of time thanks to the highly-durable, easily-dispersed particles

FEATURES

- Can be suspended in water or petroleum distillate (oil) vehicle
- High sensitivity
- Excellent fluorescent contrast
- Excellent particle mobility
- Optimised particle size distribution
- Durable particles
- Easily dispersed

SPECIFICATION COMPLIANCE

	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	✓	✓	

14A, MG 410, MG 601

APPLICATIONS

Defect location: surface and slightly subsurface

Ideal for:

- Detecting very fine to fine discontinuities
- Critical applications
- Machined parts
- Smooth surface finish
- After secondary processing
- In-service inspections

Ideal for:

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

COMPOSITION

Compounded fluorescent pigment and magnetic iron oxide.

USER RECOMMENDATIONS

NDT Method	Magnetic Particle Testing, Fluorescent, Wet Method
Storage temperature	10°C to 30°C
Suspension Vehicle	Water or MG/MX Carrier II
Water Bath Additive	WA-1 water conditioner WA-2 antifoam
Cleaner	SKC-S
Equipment	UV lamps: EV6000, UV-LED miniSPot
Accessories	Centrifuge Tube

PACKAGING AND PART NUMBERS

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

PRODUCT PROPERTIES

	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
Usage temperature	< 48°C	< 48°C	< 60°C

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

14A, MG 410, MG 601

INSTRUCTIONS FOR USE

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

Prepare the ink using the recommended concentration range below:

14A	MG 410	MG 601
1.0 - 1.25 g/litre	0.75 - 1.5 g/litre	0.4 - 0.9 g/litre

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 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 table below), 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.

Settlement volumes:

14A	MG 410	MG 601
0.15 - 0.25 ml	0.05 - 0.15 ml	0.1 - 0.2 ml

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

HEALTH AND SAFETY

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