

## MAGNAGLO®

# Magnaglo 14 HF, 410HF

## READY TO USE FLUORESCENT MPI INKS

### General Description

Magnaglo14HF & 410HF are oil based ready to use fluorescent inks for wet method magnetic particle testing.

The inks are used in conjunction with suitable magnetising equipment and UV(A) source to locate medium fine surface and slightly subsurface discontinuities in ferrous materials.

Typical defects found include shrink cracks, welding defects, grinding cracks, quenching cracks and fatigue cracks.

14HF is the material of choice for aerospace applications giving clear fluorescent green indications when viewed in a darkened area under UV(A) of peak wavelength 365nm. A suitable UV source for such an application is the **MAGNAFLUX ZB-100F**.

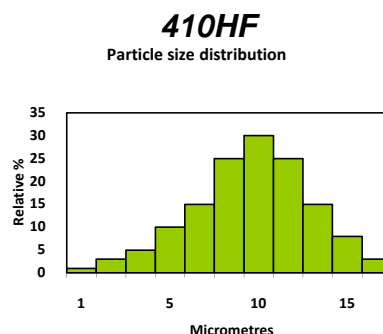
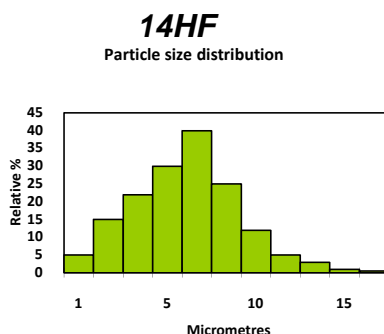
410HF can be used in similar applications to 14HF, its enhanced fluorescent green indications and slightly larger particle size means that a totally darkened inspection area is not always required.

### Composition

14HF & 410HF consist of a suspension of magnetic particles in a high flash low odour petroleum distillate.

### Typical Properties (Not a specification)

Property	14HF	410HF
Form	Brown liquid	Green liquid
Colour under UV (365 nm)	Yellow/green	Bright green
SAE sensitivity	8	7
Recommended concentration range	1.0- 1.25 g per litre	0.75 - 1.50 g per litre
Settlement volume	0.15 - 0.25 ml	0.05 - 0.15 ml
Temperature limit	48°C	48°C



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Like all MAGNAFLUX materials, Magnaglo 14F and 410HF are closely controlled to provide unique batch to batch consistency and uniformity to assure optimum process control and inspection reliability.

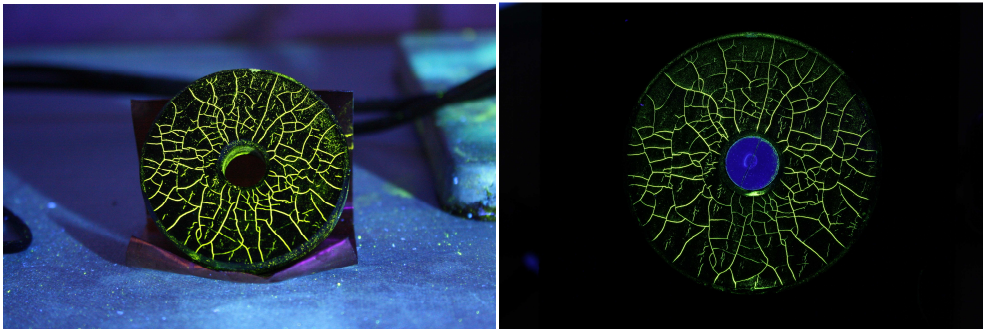
### **Method of Use**

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.



Examples of 410HF/14HF fluorescent indications on an ISO 9934 Type 1 reference block

### **Bath Replenishment / Concentration Control**

In use the magnetic content of any ink will become depleted. (Not applicable to aerosols.)

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 Magnetic particles can be made to the bath providing the bath liquid is still clean and uncontaminated.

- 14HF should be adjusted with 14A powder
- 410HF should be adjusted with MG 410 powder

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 ensure ease of particle removal.

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### Specification Compliance

14HF	410HF
<input type="checkbox"/> AMS-2641A	<input type="checkbox"/> AMS-2641A
<input type="checkbox"/> AMS-3045E	<input type="checkbox"/> ASME B & PV Code, Sec V
<input type="checkbox"/> AMS-3046E Aerosols	<input type="checkbox"/> ASTM E-709
<input type="checkbox"/> ASME B & PV Code, Sec V	<input type="checkbox"/> MIL-STD-2132D
<input type="checkbox"/> ASTM E-709	
<input type="checkbox"/> ASTM E-1444	
<input type="checkbox"/> EN-ISO 9934-2	
<input type="checkbox"/> MIL-STD-2132	
<input type="checkbox"/> MIL-STD-2132D	
<input type="checkbox"/> Rolls Royce CSS231	

### Availability

14HF is available as follows:

- 10 x 400ml aerosols, part number 008A105
- 4 x 5 litre containers, part number 058C006
- 25 litre containers, part number 058C007

410HF is available as follows:

- 10 x 400ml aerosols, part number 008A106
- 25 litre containers, part number 058C016

### Health and Safety

- Safety data sheets for these products are available on request from your Magnaflux distributor or via the Magnaflux website ([www.magnaflux.com](http://www.magnaflux.com))
- Read the relevant safety data sheets before use
- 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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