

Product Data Sheet

MAGNAGLO®

14A Fluorescent Magnetic Powder

General Description:

14A is a dry, free flowing, brown magnetic powder which fluoresces bright yellow-green under black light (wavelength of 365 nanometers). 14A is intended for use in high sensitivity wet method magnetic particle inspection. 14A may be suspended in either a petroleum-based vehicle (oil) such as Magnaflux/Magnaglo Carrier II, or in water. When water is used as a vehicle, conditioning agents such as WA-2B, or WA-4 are required. The conditioning agents improve particle suspendibility and mobility, part surface wetting, and nominal corrosion inhibition. 14A's fluorescent color contrasts sharply with the purple background of clean metal surfaces when viewed under black light in a darkened area.

Composition:

14A is composed of compounded fluorescent pigment and magnetic powder.

Application:

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.

Typical Properties (Not a Specification)

Color under white light:	Brown
Color under black light:	Yellow-green fluorescence
Mean Particle Size:	6 microns
SAE sensitivity:	8-9
Temperature limit:	120°F Maximum

NOTE! A measuring scoop is included with each 14A container. The scoop measures enough 14A particles for one gallon of Carrier II or water.

Oil Bath Preparation: When Carrier II is used as the vehicle, the 14A is weighed out, 1/6 oz. per gallon of Carrier II and added to the Carrier II. The bath must be agitated for several minutes to distribute the particles uniformly. Once thoroughly mixed, the bath should be checked for proper concentration and adjusted if necessary.

Water Bath Preparation: When water is used as the vehicle, the conditioning agent is measured out, added to the agitated bath, and allowed to mix for several minutes. Once mixed, the 14A is weighed out, 1/6 oz. per gallon vehicle, and added to the bath and again allowed to be mixed uniformly. The bath is tested for proper concentration and adjusted if necessary.

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Recommended Water Conditioner Concentration:

WA-2B Water Conditioner	1-1/3 oz./gal. (10 g/liter)
WA-4 Water Conditioner	1% by volume

Concentration Control:

The bath strength should be maintained constant at all times to provide consistent results. The concentration should be checked at make-up time and at least once each day. The most widely used method of control is by gravity settling in a graduated ASTM pear shaped centrifuge tube. MAGNAFLUX P/N 8493 is recommended for 14A with a 1.0 ml stem in 0.05 increments. 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
- Oil Baths for 60 minutes

After the 30 minute wait for water or the 60 minute wait for Carrier II, the settling volume is taken. The settling volume indicates the amount of magnetic particles present in the bath.

	Oil Baths/Settling Volume	Water Baths /Settling Volume
14A Concentration – 1/6 oz./gal. (1.25 g/l)	0.15 - 0.25	0.18 - 0.28

Method of Application:

- Parts should be cleaned prior to testing to reduce bath contamination and to ensure a more desirable test surface. The bath must be continuously agitated when in use to ensure uniformity, as particles will settle out of suspension on standing.
- Using the wet continuous method, the bath is applied to all surfaces of the part. The instant the bath stream is removed from the part the magnetizing current is applied. The indications will be formed during the current shot. If the bath is applied after the magnetizing shot, the force of the bath application may wash away indications.

Using the wet residual method, the pre-magnetized part (must be of high retentivity) is immersed in the bath and then removed and allowed to drain. The indications will be formed in the bath but background will be reduced during the drain. This method is generally less sensitive than the continuous method. The bath is also more susceptible to rapid particle depletion and contamination using this method.

Post Inspection Cleaning:

The parts must be properly demagnetized before cleaning for easy particle removal.

Specification Compliance:

ASTM E 1444; ASME B & PV Code, Sec. V; NAVSEA 250-1500-1; ASTM E-709 (E-138); MIL-STD-271; AMS-3044; Cummins IS-16048-13; MIL-STD-2132; Boeing PS 21201; British Std. B.S. 4069

Container Sizes: 1 lb. plastic jar; 6 Pack of 1 lb. plastic jars; 10 lb. plastic pail; 20 lb. plastic pail

Please also refer to the Product Data Sheet for 14AM, 14A Aqua-Glo, 14A Redi-Bath, 20B Fluorescent Magnetic Particle Prepared Bath.