

14AM

Oil-Based Fluorescent Magnetic Particle Suspension

14AM is a highly sensitive oil-based magnetic particle suspension for locating very fine discontinuities in critical parts. 14AM provides clear, bright, fluorescent green indications under ultra-violet light for excellent inspection quality and accuracy.

14AM is a ready-to-use mixture of 14A particles and an oil-based carrier (Carrier II). 14AM is sprayed onto magnetized parts prior to inspection. It is used to detect cracks and seams, as well as inclusions, laps, tears and flakes. 14AM is capable of detecting flaws that are open to the surface of the part, or slightly sub-surface. Parts tested can be forgings, welds, castings, and stamped or machined ferromagnetic materials, such as steel and other alloys of iron, nickel, and cobalt. Using 14AM may eliminate the need for an additional corrosion inhibitor step. The fluorescent particles in 14A collect where the magnetic field is interrupted, and glow under ultraviolet (UV) lighting.

FEATURES

- Ready-to-use
- Clear, bright indications under ultra-violet light
- Low maintenance, oil-based suspension
- High sensitivity
- Excellent fluorescent contrast for quick identification and better inspection quality
- Excellent particle mobility
- Good dispersion stability
- Protects parts and equipment against corrosion
- Great concentration consistency
- Superior surface wetting
- Even surface coverage gives higher probability of detection

SPECIFICATION COMPLIANCE

- AMS 2641
- AMS 3046
- ASTM E709
- ASTM E1444
- ASME
- ISO 9934
- MIL-STD-2132
- MIL-STD-271
- NAVSEA 250-1500-1
- NAVSEA T9074-AS-GIB-010/271

APPLICATIONS

Defect location: Surface and slightly subsurface

Ideal for:

- Detecting very fine to fine discontinuities
- Critical applications
- After secondary processing
- In-service inspections
- High strength alloys

Defect examples:

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

PRODUCT PROPERTIES

Appearance	Oily liquid and fine particle solution
Color in Visible Light	Brown
Color in UV Light	Fluorescent yellow-green
Odor	Minimal, negligible
Mean Particle Size*	6 microns
SAE Sensitivity**	8-9
Flash Point	> 200°F / 93°C

* As determined by industry-typical method for measuring particle size

** Representative of the number of indications on a tool steel ring as defined in ASTM E1444.

INSTRUCTIONS FOR USE

Use 14AM with appropriate magnetization procedure and equipment. For best results, all components, parts, or areas to be tested should be clean and dry prior to testing to provide an optimal test surface and reduce particle suspension contamination. Particle suspension must be properly mixed and continuously agitated when in use to ensure uniformity and concentration.

14AM Aerosol: Shake the can well before use and occasionally during application to ensure proper particle suspension. Hold the can 7 to 9 inches (18 to 24 cm) from the area to be tested. Using the continuous or residual application method, spray particle suspension over the test area until it is completely covered. Inspect under ultra-violet black light. Use in a well-ventilated area. To verify particle concentration, perform a sensitivity check using a known test standard prior to inspection.

14AM Liquid: The suspension can be applied by gently spraying or flooding the area to be tested using the continuous or residual application method. Inspect under ultra-violet black light. Check particle concentration before use.

14AM Liquid Maintenance Recommendations

Magnetic particle suspensions need to be properly maintained to provide consistent results. Suspension concentration and contamination should be monitored at least once a day, or according to applicable specifications. Contaminated suspensions, or those in use for an extended length of time, should be replaced. Properly cleaning all components, parts, or inspection areas before testing helps to significantly reduce particle suspension contamination.

Particle concentration should be determined after initial bath preparation and at least once a day, or according to applicable specifications, to maintain the proper level of particles in the suspension. The most widely used method of control is by settling volume measurement in a graduated ASTM pear-shaped centrifuge tube. For testing 14AM, Magnaflux centrifuge tube 8493 is recommended: 100 ml capacity, stem graduated from 0 to 1 mL in 0.05 mL increments.

USE RECOMMENDATIONS

NDT Method	Magnetic Particle Testing, Fluorescent, Wet Method
Suspension Vehicle	Carrier II (petroleum distillate)
Required Equipment	Magnetizing device, UV light source
Temperature Range[†]	55 to 120°F / 13 to 49°C
Settling Volume	0.10 - 0.40 mL

[†] Particle integrity and mobility may decline beyond these temperature limits.

PREPARATION INSTRUCTIONS

14AM Aerosol: Use as supplied.

14AM Liquid: Use as supplied. Fill tank or container to proper level with 14AM liquid. Mix for a minimum of 15 minutes until the particles are completely and evenly dispersed in the suspension. Check particle concentration before use. Do not add additional Carrier II or mix 14AM with water.

REMOVAL

All components, parts, or inspection areas must be properly demagnetized before cleaning to ensure easy particle removal. Cleaned parts may be treated with a temporary film protective coating if longer corrosion protection is required.

STORAGE

Store in a well-ventilated area away from magnetizing equipment and heat sources. Product age, exposure to elevated temperatures, and/or exposure to a strong magnetic field may adversely affect particle redistribution. Refer to Safety Data Sheet for additional storage instructions.

PACKAGING

Aerosol can (case of 12) 01-0145-78
5 gal / 18.9 L pail 01-0145-40

HEALTH AND SAFETY

Review all relevant health and safety information before using this product. For complete health and safety information, refer to the product Safety Data Sheet, which is available at www.magnaflux.com.