

# 14AM

## OIL-BASED FLUORESCENT MAGNETIC PARTICLE SUSPENSION

### 预混合荧光油磁悬液

14AM is a ready-to-use magnetic particle suspension liquid for locating very fine discontinuities in critical parts and applications by providing clear, bright, fluorescent green indications for excellent inspection quality and accuracy.

14AM 是一款即用型磁粉悬浮液用以检测细小缺陷, 它可以提供清楚, 明亮的绿色荧光指示, 具有出色的检测性能和准确度。

This high-performance prepared particle bath combines Magnaflux' s best-in-industry 14A magnetic particles with Carrier II NDT-approved suspension oil for quick, reliable mag particle testing with less maintenance.

这款高性能的预混合磁悬液结合了美国磁通最优秀的14A磁粉颗粒和通过认证的Carrier II 油载液, 是一款方便可靠的磁粉检测产品。

14AM is an ideal choice for high performance inspections of precision safety-critical or high-stress components, and to extend the life of valuable mag particle equipment.

14AM是检测精密的安全零部件和受力零部件的理想选择, 其性能优异并能延长磁粉探伤设备的使用寿命。

14AM meets all major industry and NDT specification requirements, including Aerospace, ASTM and ISO 9934.

14AM满足所有主流工业和无损检测的标准要求, 包括航空航天标准, ASTM和ISO9934。

#### BENEFITS 优势

##### Increases indication detection with 14A particles

###### 14A磁粉使缺陷显示更明显

- Find smaller, finer indications in critical applications using the highly sensitive, strong ferromagnetic 14A particles.

14A荧光磁粉高灵敏度、高导磁率, 适用于检测要求较高的场合, 检测细微缺陷。

- Optimized particle size and shape help particles move freely to stick to a wide variety of discontinuities with less particle clumping.

最优化的颗粒形状和尺寸可以帮助磁粉颗粒大范围的自由移动并附着在各种缺陷上, 有效避免磁粉结块。

##### Minimizes inspection time

###### 缩短检测时间

- Clear, bright fluorescent indications form quickly due to the highly fluorescent, highly mobile 14A particles.  
高荧光亮度和高可移动性的14A磁粉提供了清晰明亮的荧光显示。
- Minimal background fluorescence help indications stand out more so inspectors need to spend less time examining each part.  
最少的荧光背景可以突出缺陷指示从而帮助检测人员减少观测每个零部件所花费的时间。
- Increases inspection speed and reliability by quickly wetting the entire test surface.  
快速润湿测试表面的特性能够提高检测速度和可靠性。

##### Improve inspection consistency and reliability

###### 提高检测稳定性和可靠性

- Maintain magnetic particle system performance over greater periods of time thanks to the highly-durable, easily-dispersed 14A particles.  
14A荧光磁粉耐用性好(包裹牢固, 不易剥离), 易分散(不容易结块), 可以使得整个磁粉检测系统的在更长的时间段内性能稳定。
- Reduced particle clumping helps maintain particle concentration in the suspension bath for dependable inspections.  
不易结块的特性有助于保持磁悬液的浓度, 从而提供可靠的检测结果。

##### Decreases maintenance

###### 减少养护

- Magnetic particle baths last longer due to slow evaporation, and is less susceptible to contamination from bacteria or fungus.  
由于挥发缓慢并且不容易受到细菌和霉菌的污染影响, 磁悬液可以使用更长时间。
- Protects magnetic particles like 14A from wear and tear and keeps them evenly dispersed throughout the bath.  
在载液中受保护的14A磁粉不易磨损和剥离, 并保持均匀分散。
- Protects magnetic particle equipment from internal rust and corrosion to keep expensive machines running longer with less downtime.  
可以为磁粉探伤设备提供保护, 避免内部生锈腐蚀, 保持贵重设备长时间良好运转, 减少不必要的停机时间。

**Convenient & versatile**
**方便性以及通用性**

- Reliable, ready-to-use particle bath with 14A magnetic particles and Carrier II petroleum distillate suspension oil.  
14A磁粉搭配Carrier II油载液组成了可靠方便的即用型磁悬液。
- Can be used for virtually all magnetic particle inspections with conformance to all major international magnetic particle testing specifications.  
可以应用于所有磁粉检测,符合所有国际主流磁粉检测标准要求。
- Prevents corrosion of most alloys and eliminates post-inspection processing for corrosion protection.  
提供大多数合金的防腐蚀保护以及检测后的防腐蚀保护。

**FEATURES 特性**

- Ready-to-use  
即用型
- Low maintenance, oil-based suspension  
低养护成本,油基磁悬液
- High sensitivity  
高灵敏度
- Excellent fluorescent contrast  
高亮度、高对比度
- Excellent particle mobility  
优异的流动性
- Optimized particle size and shape distribution  
最佳的颗粒度和形状分布
- Durable particles  
耐用性好
- Good dispersion stability  
良好的分散稳定性
- Available in a variety of different formats  
可用于不同的形式
- Protects parts and equipment against corrosion  
保护零部件和设备不受腐蚀
- Provides superior wetting and surface coverage  
提供卓越的润湿和表面覆盖性能
- Very low toxicity  
极低毒性
- High flash point  
高闪点

**USE RECOMMENDATIONS 使用推荐**

NDT Method 无损检测方法	Magnetic Particle Testing, Fluorescent . Wet Method 磁粉检测, 荧光, 湿法
Suspension Vehicle 载液	Carrier II (petroleum oil) Carrier II 石油馏分)
Required Equipment 设备要求	Magnetizing device, UV light source 磁化装置, 紫外线灯
Temperature range 温度范围 <sup>†</sup>	13 - 49°C
Settling Volume 沉淀量	0.10 – 0.40 mL

<sup>†</sup> Particle integrity and mobility may decline beyond these temperature limits.  
超出此温度范围,磁粉的完整性和流动性可能下降。

**SPECIFICATIONS 符合规范**

- 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 应用**

Defect location: surface and slightly subsurface

缺陷位置: 表面及近表面缺陷

**Ideal for 适用于**

- Detecting very fine to fine discontinuities 非常细微的不连续
- Critical applications 高要求的检测场合
- After secondary processing 二次加工
- In-service inspections 在役检测
- High strength alloys 高强度合金检测

**Defect examples 缺陷类型**

- Inclusions 夹杂
- Seams 裂缝
- Shrink cracks 收缩裂纹
- Tears 撕裂

- Laps 折叠
- Flakes 白点
- Welding defects 焊接缺陷
- Grinding cracks 磨削裂纹
- Quenching cracks 淬火裂纹
- Fatigue cracks 疲劳裂纹

**PRODUCT PROPERTIES 产品属性**

Appearance 外观	Oily liquid and fine particle solution 油和细小颗粒的混合物
Color in Visible Light 白光下颜色	Brown 棕色
Color in UV Light 黑光下颜色	Fluorescent yellow-green 黄绿色荧光
Odor 气味	Minimal, negligible 极少, 可忽略
Mean Particle Size 平均粒径*	6 μm
SAE Sensitivity SAE 灵敏度**	8-9
Flash Point 闪电	> 93 °C

\* As determined by industry-typical method for measuring particle size.  
 用工业上通用的方法测试颗粒度。

\*\* Representative of the number of indications on a tool steel ring as defined in ASTM E1444.  
 ASTM E1444中定义的工具钢环形试块上能显示的孔数。

**INSTRUCTIONS FOR USE 使用指南**

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.

采用合适的磁化装置和检测工艺。为到达最佳效果, 检测前, 对所有组件、工件或被检区域进行清洗和干燥, 提供一个最佳的检测面并减少对磁悬液的污染。正确的配制磁悬液, 在使用过程不断的搅拌, 确保磁悬液的均匀性和浓度。

**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 喷罐:** 在使用前及使用间隙喷罐需要摇匀以确保磁粉充分悬浮, 保持喷罐距离待测表面18至24cm处。使用连续激磁或剩磁检测方法, 喷涂磁悬液完全覆盖待测表面。请在通风良好处使用。在检测前请根据需要符合的测试标准确认磁粉浓度。

**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 液体:** 可以用连续激磁或剩磁检测的方法将磁悬液轻轻喷涂或倾倒测试表面。在紫外光灯的照射下检测, 使用前确认磁粉浓度。

**14AM Liquid Maintenance Recommendations 14AM 液体维护建议**

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.

为了获得一致的检测结果, 应采用正确的方法维护磁悬液。每天至少监测一次磁悬液的浓度和被污染程度, 或根据合适的规范进行维护。被污染的磁悬液, 或者超出了使用期限的磁悬液, 应及时更换。检测前对工件进行预清洗能有效减少磁悬液的污染。

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.

测试磁悬液的初始浓度, 然后每天至少再检测一次, 或根据合适的规范, 以保持磁悬液中磁粉处于合适的水平。最常用的控制方法是: 用ASTM中带刻度的梨形沉淀管测试磁粉沉淀量。推荐使用美国磁通沉淀管(货号8493): 容量100ml, 0~1ml范围内最小刻度0.05ml。

**PREPARATION INSTRUCTIONS 配制指南**

**14AM Aerosol:** Use as supplied.

**14AM 喷罐:** 直接使用。

**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.

**14AM 液体:** 使用液槽或者容器添加适当的14AM液体, 混合搅拌至少15分钟直到磁悬液中的磁粉充分均匀分散。使用前检查磁粉浓度。不要添加额外的Carrier II或者用水混合14AM。

**REMOVAL 清除**

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.

检测结束后, 为保证磁粉容易被去除, 应该先对组件、工件或者被检区域进行退磁。如果有较长的防腐的要求, 清洗后需要对工件进行防腐处理。

**PACKAGING 包装形式**

01-0145-78C Aerosol can (case of 12) 气雾罐 (12罐每箱)

01-0145-50C 20 L pail 20升桶

**STORAGE 储存**

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.

储存在通风良好的区域, 远离磁化装置和热源。暴露在高温或/和强磁场环境下可能对颗粒物的再分散性有不良的影响。更多的储存说明请参考 SDS (安全数据表)。

**HEALTH AND SAFETY 健康和安全**

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.cn](http://www.magnaflux.cn).

产品使用前请阅读相关的健康和安全信息。完整的健康和安全信息参考 [www.magnaflux.cn](http://www.magnaflux.cn) 上的 SDS (安全数据表)。