

7C Black

WET METHOD VISIBLE MAGNETIC PARTICLES

湿法非荧光磁粉

7C Black is a highly-sensitive magnetic particle powder for nonfluorescent (visible) wet method magnetic particle testing. Particle suspensions prepared with 7C Black provide clear, strong indications and are ideal for locating fine and medium discontinuities on finished parts.

7C 黑磁粉是一款高灵敏度磁粉用于非荧光湿法磁粉检测, 7C黑磁粉制备的磁悬液缺陷显示清晰, 适合检测成品零件上中等大小以及更加细小的缺陷。

7C Black can be mixed with water or oil and used to find inclusions, seams, shrink cracks, tears, laps, flakes, welding defects, grinding cracks, quenching cracks, fatigue cracks and other defects.

7C 黑磁粉能够与水或油混合后用于检测夹杂, 接缝, 收缩裂纹, 应力裂纹, 堆叠, 白点, 焊接缺陷, 磨削裂纹, 淬火裂纹, 疲劳裂纹以及其他多种缺陷。

Use with WCP-2 white contrast paint to improve probability of detection and sensitivity.

配合WCP-2白色反差增强剂可以显著提高检测的灵敏度和找到缺陷的几率。

FEATURES 特性

- Clear indications under visible light
可见光下缺陷显示清晰
- Heavy particle buildup for quick detection
重颗粒聚集迅速便于快速检测
- Can be suspended in water or petroleum distillate (oil) vehicle
能够悬浮于水或油载液中
- Great particle mobility
极好的磁粉颗粒移动性

SPECIFICATIONS COMPLIANCE 符合规范

- AMS 3042
- ASTM E709
- ASTM E1444
- ASME
- ISO 9934-2
- 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

- Reflective or light-colored surfaces 反光或者浅色表面
- Detecting fine and medium discontinuities 检测细小和中等的 discontinuities
- Field testing 外场检测
- Spot inspections 现场检测
- In-service inspections 在役检测
- Machined parts 机加工零件
- Light surfaces 光滑表面
- Difficult to reach areas 难以检测位置区域

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	Fine, dry powder 干燥、细粉末
Color in Visible Light 白光下颜色	Black 黑色
Odor 气味	Odorless 无味
Mean Particle Size 平均粒径*	20 µm
SAE Sensitivity SAE 灵敏度**	> 6

* 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。

PREPARATION INSTRUCTIONS 配制指南

Oil Bath: Weigh out the appropriate amount of 7C Black and add to the appropriate amount of Carrier II. Mix for a minimum of 15 minutes, until the particles are completely and evenly dispersed in the suspension. Check concentration before use.

油浴: 称量适量7C黑磁粉并加入适量Carrier II油载液, 混合搅拌至少15分钟, 直到磁粉颗粒彻底均匀分散在磁悬液中, 使用前检查磁粉浓度。

Water Bath: In water-based suspensions, conditioning agents are required to improve particle suspendibility, mobility, and surface wetting. Measure out the appropriate amount of water conditioner, add to water and mix for 5 minutes. Next, measure out the appropriate amount of 7C Black magnetic particles and add particles to the conditioned water. Add particles directly over the pump for more rapid dispersion. Mix for 15 minutes or until the particles are completely dispersed. Check particle concentration before use.

水浴: 水浴磁悬液需要添加调节剂来提高磁粉的悬浮性, 移动性, 和表面润湿性能。称量适量的水质调节剂, 加入水中并搅拌5分钟。下一步称量适量的7C黑磁粉, 加入到有调节剂的水中。直接通过泵来添加磁粉可以快速分散。搅拌15分钟或直到磁粉彻底分散。使用前检测磁粉浓度。

Suspension vehicle 磁悬载液	7C Black
1 L	9.4 g

REMOVAL 清除

All components, parts, or inspection areas must be properly demagnetized before cleaning to ensure easy particle removal.

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。

INSTRUCTIONS FOR USE 使用指南

Use 7C Black 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。

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.

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在测试表面。在紫外光灯的照射下检测, 在使用前确认磁粉浓度。

Maintenance Recommendations 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 7C Black, Magnaflux centrifuge tube 2461 is recommended: 100 ml capacity, stem graduated from 0 to 1.5 mL in 0.1 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2461): 容量100ml, 0~1.5ml范围内最小刻度0.1ml。

USE RECOMMENDATIONS 使用推荐

NDT Method 无损检测方法	Magnetic Particle Testing, Nonfluorescent /Visible, Wet Method 磁粉检测,非荧光磁粉,湿法
Suspension Vehicle 载液	Water or petroleum distillate (oil) 水或石油提炼物(油)
Required Equipment 设备要求	Magnetizing device 磁化装置
Temperature range 温度范围†	0 - 74°C
Settling Volume 沉淀量	1.2 – 2.4 mL

† 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。

STORAGE 储存

Store unused product in the original container. Keep container closed when not in use. Protect from sunlight. Store in a well-ventilated area away from magnetizing equipment. Cool, dry storage location is preferred. Refer to Safety Data Sheet for additional storage instructions.

储存未使用的产品需要保持在原包装内,不使用时保持包装容器闭合,防止日光照射,通风良好处储存,远离磁化设备,凉爽干燥的储存环境最适宜。更多的储存说明请参考SDS(安全数据表)。

PACKAGING 包装形式

01-1116-10C	1 kg pail 1公斤瓶
01-1116-20C	5 kg pail 5公斤桶

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.

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上的SDS(安全数据表)。