

7C Black

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Wet Method Visible Magnetic Particles

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 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.

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

FEATURES

- Clear indications under visible light
- Heavy particle buildup for quick detection
- Can be suspended in water or petroleum distillate (oil) vehicle
- Great particle mobility

SPECIFICATION COMPLIANCE

- AMS 3042
- ASTM E709
- ASTM E1444
- ASME
- MIL-STD-271
- MIL-STD-2132
- NAVSEA 250-1500-1
- NAVSEA T9074-AS-GIB-010/271

APPLICATIONS

Defect location: Surface and slightly subsurface

Ideal for:

- Reflective or light-colored surfaces
- Detecting fine and medium discontinuities
- Field testing
- Spot inspections
- In-service inspections
- Machined parts
- Light surfaces
- Difficult to reach areas

Defect examples:

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

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PRODUCT PROPERTIES

Appearance	Fine, dry powder
Color in Visible Light	Black
Odor	Odorless
Mean Particle Size*	20 microns
SAE Sensitivity**	> 6

* 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.

PREPARATION INSTRUCTIONS

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.

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.

Suspension vehicle	7C Black
1 gallon	1.25 oz
1 liter	9.4 g

REMOVAL

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

INSTRUCTIONS FOR USE

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.

The suspension can be applied by gently spraying or flooding the area to be tested using the continuous or residual application method. Inspect under white light. Check particle concentration before use.

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 7C Black, Magnaflux centrifuge tube 2461 is recommended: 100 ml capacity, stem graduated from 0 to 1.5 mL in 0.1 mL increments.

USE RECOMMENDATIONS

NDT Method	Magnetic Particle Testing, Nonfluorescent / Visible, Wet Method
Suspension Vehicle	Water or petroleum distillate (oil)
Required Equipment	Magnetizing device
Temperature Range[†]	32 to 165°F / 0 to 74°C
Settling Volume	1.2 – 2.4 mL

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

STORAGE

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.

PACKAGING

25 lb / 11.33 kg pail 01-1116-81

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