Met-L-Chek Company manufactures a complete line of Nondestructive Testing Materials. Met-L-Chek Company supplies fluorescent and visible dye penetrants, wet and dry magnetic particles and a variety of specialty testing materials. All Met-L-Chek Company products are designed to yield maximum value through quality, cost, and usability. Met-L-Chek Company products are sold under the ***Met-L-Chek***® and **Pen-Chek**® trademarks. Met-L-Chek Company products are manufactured under license in The Netherlands by NDT Europa.

MPI-80P is a black magnetic particle powder designed for white light visible wet method inspection. It is mixed with Met-L-Glo **Carrier #2** at the rate of 9.5 g/L or 1.2 oz/gallon to form a working MPI bath. It meets the requirements of **AMS-3042** and **ASTM E-1444** for visible wet method magnetic particle inspection. **MPI-80P** should be pre-slurried with a small amount of the **Carrier #2** and then added to the bath.

General Magnetic Particle Inspection

Magnetic particle inspection is used to locate discontinuities on or near the surface of ferromagnetic materials. A magnetic field is induced in the part to be examined. Discontinuities at or near the surface will cause the magnetic field to concentrate at any discontinuity. Fine magnetic particles are attracted to the magnetic field leakage over the discontinuities forming indications or mapping the discontinuities. Considerable theory, technical training, specialized equipment and trial and error is involved for effective magnetic particle inspection.

Particles

There are two types of materials generally used for magnetic particle inspection, wet method and dry method. Dry method materials are primarily used in weld inspection. Production and overhaul situations require high sensitivity, broad area detection capability best achieved with the wet method. Wet method particles are generally smaller than dry method particles and are more easily attracted to weaker leakage fields. The particles are suspended in a liquid carrier fluid which facilitates the mobility of the particles on the part surface. The particles may be visibly colored relying on contrast with the base material or contrast coating for detectability or they may be fluorescent and produce brilliant indications under UV-A illumination. Fluorescent inspection requires the inspection area be darkened to ensure detection of the fluorescent indications.

Magnetic Particle Bath

Special petroleum based carrier fluids or water, which has been treated with conditioning agents, may be used as the wet method particle bath media. The bath must be continuously agitated during use as the dense particles will settle out of solution upon standing. Materials intended for water bath use should not be placed in equipment that has been used for oil bath applications until the tank and all plumbing have been thoroughly cleaned. Similarly water or wet parts should not be introduced to baths with oil carriers as this will cause the particles to cling to the tank and agglomerate. The particle concentration must be maintained for maximum performance. The settling volume per **ASTM E-1444** should be between 0.1 and 0.4 ml/100 ml. for fluorescent particles after 60 minutes in oil and 30 minutes in water and between 1.2 and 2.4 ml/100 ml for visible particles.

Typical Physical Properties

Form: black powder
Density: 400 g/L
Flash Point: none
Particle size: 1-4μ
SAE Relative Sensitivity: 6
Corrosion of steel: none
Mercury: none
VOC's: 0 g/L
Ozone layer depleting substances: none
PCB's: none

The warranty shelf life of the product is 5 years from date of batch approval.

Product Availability

2 Kg (4.4 lb) plastic jar
4.5 Kg (10 lbs) plastic pail

Specifications

AMS-3042 **ASTM E-709**
ASTM E-1444 **API RP 5A5**
ASME SE-709, B&PV code, section V, art. 7&25.

Transport: DOT: Bulk - not regulated.

Hazards Eye Irritant
Classification: **NFPA Health-1, Flammability-0, Reactivity-0.**
EU- unknown
WHMIS(Canada) D2B (bulk)
Human health hazards: Eye irritant.

See MSDS for detailed health. safety, and disposal information.

First aid measures
Eyes: Check for contact lenses and remove. Flush eyes with clean water holding eyelids open. Seek medical attention.
Skin: Remove contaminated clothing. Wash exposed area with soap and water. Apply moisturizing lotion. Launder clothing and clean shoes.
Swallowing: Do not induce vomiting. Small amounts are not expected to cause significant harm, call a physician.
Inhalation: Remove to fresh air.

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