



**Magnetic Particle Inspection (MPI) can be used for the detection of surface and near-surface flaws in ferromagnetic materials. To conduct an inspection, a permanent magnet, electromagnets, or electromagnetic coils are used to apply a magnetic field to the item under test. If there is a flaw present with the item, then the magnetic flux is distorted and will 'leak'.**

Fine magnetic particles (normally used in spray form in carrier fluid) are applied to the surface of the specimen. They are then attracted to the area of flux leakage, creating a visible flaw indication. It is recommended that the inspection surface is magnetised in at least two perpendicular directions at 90 degrees to each other. This is to ensure the item is fully inspected in both planes.

The most common method (shown on the right) involves using white contrast paint with a black magnetic particle ink.

Alternatively, a dry powder can be used as another option to wet inks when dealing with hot surfaces. The most sensitive technique available is to use fluorescent particles which are viewed under UV (black) light. This is generally used for finer imperfections in ferromagnetic materials.

#### **Services available from ITCL:**

Multiple technique fluorescent and colour contrast in-house and on-site inspection

- Approved procedures for control checks
- Approved procedures to specific industry standard
- Inspectors fully qualified to PCN, SNT-TC 1A, CSWIP/BGAS
- Comprehensive 24hr in house and onsite service

