



# CGM CIGIEMME S.p.A.

Controlli Non Distruttivi - Non Destructive Testing



**Product Code**  
01011400

**Ref. no.**  
P4.14

**Product Data  
Sheet**

## MAGNETIC POWDER P4.14

### PRODUCT DESCRIPTION

The colour-contrasting red magnetic powder P4.14 is used for dry magnetic particle inspection and allows inspection under both white and UV light.

### COMPOSITION

Iron powder with high magnetic permeability, atomised, processed in a hydrogen oven and coupled with coloured and fluorescent pigments.

**N.B.:** As with all CGM products, the P4.14 magnetic powder is tightly controlled to ensure batch uniformity, optimal process verification and control reliability.

### SPECIFICATIONS

- Ready to use.
- It forms clearly visible and clear indications.
- Excellent contrast with the surface under examination.
- Excellent particle mobility.

### PACKAGING TYPE

- 5 kg containers
- 25 kg metal drums

### APPLICABILITY

Ideal for the detection of surface and sub-surface discontinuities such as:

- Inclusions.
- Straw.
- Withdrawal cracks.

- Tears.
- Recalculations – Folding.
- Flakes.
- Welding discontinuity.
- Grinding cracks.
- Hardening cracks.
- Fatigue cracks.

In:

- Melting.
- Forging.
- Welding.
- Parts with a rough surface.
- Large parts.
- In-service controls.

### INSTRUCTIONS FOR USE

**TIP:** always operate according to a procedure authorised by a 3<sup>rd</sup> level in Magnetic Particle Inspection.

- Ensure that the part to be inspected is clean to avoid false indications and contamination of the magnetic suspension.
- Use a powder application device as per the control procedure.

### Continuous method

This is the method normally required by standards.

- Apply the magnetic powder so that it forms a cloud that is deposited on the surface of the workpiece and simultaneously apply the magnetising current.
- Stop the application of magnetic powder be-



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N. Registro Imprese, C.F. e P.I.: 05732470967 - N. REA: Mi -1843908 - Capitale Sociale: EURO 500.000.00 I.V.

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fore interrupting the current flow.

- If powder accumulation is excessive, gently blow away excess powder.
- Inspect the workpiece under white light of the intensity required by standard/procedure.
- Inspection of the workpiece can also be carried out using a suitable UV lamp. Any indications will emit a bright orange fluorescence.

## Residual magnetism method

This method is only allowed in certain cases. Refer to the standard to be applied.

- Apply the magnetising current to the part to be inspected.

- Afterwards (even after some time), apply magnetic powder.
- Inspect the workpiece under white light of the intensity required by standard/procedure.
- Inspection of the workpiece can also be carried out using a suitable UV lamp. Any indications will emit a bright orange fluorescence.

After the inspection and before final cleaning, it is advisable to demagnetise the inspected part to the residual magnetisation value specified in the inspection procedure. This also ensures easier removal of residual magnetic powder particles.

## PROPERTIES AND PRODUCT COMPARISON

	P4.10	P4.12	P4.14	P4.16	P4.18	P4.24
Colour	Grey	Blue	Red	Black	Yellow-green	Yellow
Bulk density ASTM B 212	3.40 g/cm <sup>3</sup>	3.50 g/cm <sup>3</sup>	3.60 g/cm <sup>3</sup>	3.70 g/cm <sup>3</sup>	3.70 g/cm <sup>3</sup>	3.45 g/cm <sup>3</sup>
Max. usage temperature	300°C	300°C	180°C	300°C	180°C	180°C
Average particle size (D <sub>50</sub> ) EN ISO 9934-2	90 µm	85 µm	75 µm	75 µm	75 µm	90 µm
Colour UV fluorescence	NA	NA	Bright orange	NA	Bright green	Bright yellow-green

Typical values.



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## RECOMMENDATIONS FOR THE USER

NDT method	Visible Magnetic Particles Inspection, dry method
Shelf life	3 years at a temperature between 5°C and 45°C, in a dry place out of direct sunlight
Application device	Powder lance or spraying devices
Preliminary cleaning	Velnet/Solnet
UV lamp	Labino
Recommended accessories according to regulations ASTM E1444 ASTM E709 EN ISO 9934-2	Sedimentation glass tube – Magnetic stripe card type 2000 – Reference block type 1 (MTU) – Reference block type 2 – Flexible laminated strips – Tool Steel Ring type AS 5282 and type Ketos 01 – Octagonal plate

## COMPLIANCE WITH STANDARDS

- ASME V Art. 7
- ASTM E709
- ASTM E1444
- EN ISO 9934-2
- AMS 3040
- PMUC (certificate of conformity on request)

## HEALTH AND SAFETY

Read all health and safety information before using this product. This information can be found in the Safety Data Sheet, available on request.

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