



# CGM CIGIEMME S.p.A.



Controlli Non Distruttivi - Non Destructive Testing

**Product Code**  
02011102

**Ref. no.**  
R2.73

**Product Data  
Sheet**

## ECO WATER RED

### PRODUCT DESCRIPTION

ECO Water Red is a colour-contrasting, UV-fluorescent water-washable penetrant with excellent resolution in the detection of surface discontinuities. This penetrant belongs to the ECO line as it is a water-based product: it therefore contains no petroleum derivatives or hydrocarbon mixtures. It therefore has a low environmental impact compared to classic petroleum-based penetrants.

### COMPOSITION

Mixture of organic dyes in non-ionic surfactants and glycols.

- It contains no azo dyes.
- It contains no products of petroleum origin, nor hydrocarbon mixtures.
- It contains no acetone or other ketones.

**N.B.:** Like all CGM materials, ECO Water Red is tightly controlled to ensure batch uniformity, optimal process verification and control reliability.

### SPECIFICATIONS

- Excellent penetration characteristics.
- Intense, high-contrast colour.
- Great resolution of discontinuities.
- Wide range of applications.
- It allows the detection of defects in both white light and UV light.
- Excellent washability over a wide range of temperatures and penetration times.

### PACKAGING TYPE

- 10 L cans
- 100 L plastic drums
- 200 L metal drums

### APPLICABILITY

Applicable by conventional spraying, brushing, dipping; detection of open discontinuities on the surface.

Ideal for:

- Melting.
- Forging.
- Welding.
- Pressure vessels.
- Tubular products.
- Metal carpentry in general.
- Leak tests.
- Details in power plants.
- Products in the manufacturing environment.

Ideal for the detection of:

- Cracks.
- Leaks.

**NOTE:** Testing of plastic materials with this type of penetrant is not recommended, as the material under inspection may be stained during the test. On porous materials, preliminary tests are recommended.



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## INSTRUCTIONS FOR USE

- Ensure that the surface under inspection is clean, dry and free of oil, grease and other contaminants.
- Apply the penetrant by dipping, brushing or spraying. Completely cover the area to be inspected.
- Wait for the expected penetration time. The penetration time is primarily a function of the type of discontinuity to be detected and is specified by the relevant standard. Remember, however, that the minimum dwell time of the penetrant is about 5 minutes. A penetration time of 10 minutes is recommended, as this is adequate for most situations. However, it is suggested that reference be made to the company's standards or those to be applied.
- Remove excess penetrant from the surface using clean water in the temperature range of +10°C to +38°C for no longer than 2 min. and with a pressure not exceeding 280 kPa. When used as a fluorescent, this can be performed under a UV lamp to check the effectiveness of the removal.
- Dry the workpiece by placing it in a controlled recirculating air dryer, at a temperature below +70°C, or with a classic hair dryer held at a distance of about 300 mm from the surface under examination, for the minimum time necessary and never more than 30 min.
- Make sure the surface to be inspected is dry and apply our **Rotrivel U** developer. Allow a minimum development time of 10 minutes before inspection under adequate lighting conditions. Any indications will appear purplish red against the white background created by the developer. It is recommended to use the developer as it maximises sensitivity and provides a contrasting white background that allows easier viewing of red indications. A solvent-based developer is recommended, as it dries quickly and effectively controls the spread of the penetrant and can be applied by spraying.
- Inspection of the workpiece can also be carried out using a suitable UV lamp with the required light intensity value. Any indications will emit a pink-orange fluorescence.
- At the end of the inspection, developer and penetrant residues can be removed by wiping the surface with a cloth, washing with water or using **Velnet/Solnet**.

## TECHNICAL DATA

	ECO Water Red	ECO Water Red 2
Appearance	Purplish-red liquid	Purplish-red liquid
Odour	Virtually odourless	Virtually odourless
Density at 20°C	1,03 g/cm <sup>3</sup>	1,01 g/cm <sup>3</sup>
Kinematic viscosity at 40°C	3,178 mm <sup>2</sup> /s	4,882 mm <sup>2</sup> /s
Flash point	Non-flammable	Non-flammable
pH	≈ 6	7-8
Type and sensitivity EN ISO 3452-2	Type-III Method A, Level 1 (normal)	Type-II Metodo A, Level 2 (high)
Type and sensitivity AMS 2644	Type-II Method A(W)	Type-II Metodo A(W)
Water tolerance	Above than 5%	Above than 5%

Typical values.



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## TIME, TEMPERATURE OF USE AND USER RECOMMENDATIONS

NDT method	Water-washable Dye Liquid Penetrant Inspection
Usage temperature	From 4°C to 52°C ASTM E165/EN ISO 3452-1
Preliminary cleaning	Velnet/Solnet
Recommended penetration time*	5 to 10 min.
Recommended removal time (with water)**	15 sec. to 1 min.
Developer	Rotrivel U
Final cleaning	Water – Velnet/Solnet – Detergent H <sub>2</sub> O
Coverage	20-30m <sup>2</sup> for litre
Shelf life	3 years at a temperature between 5°C and 45°C, in a dry place out of direct sunlight
Accessories EN ISO 3452	Type 1 reference blocks Type 2 reference blocks
UV lamps	Labino

\* The times indicated refer to working temperatures between 10 and 52°C, for temperatures between 4 and 10°C the times indicated must be doubled.

\*\* The times indicated vary depending on the water temperature (10-38°C), the type of finish of the part to be inspected and the size of the defects to be detected.

## COMPLIANCE WITH STANDARDS

- ASME Sect. V Art. 6
- ASTM E165
- ASTM E1417
- EN ISO 3452-2
- PMUC (certificate of conformity on request)

vent-based developer Rotrivel U.

- If the defects are very small or there is any doubt about their presence, it is possible to amplify the signal using a UV lamp in a darkened or semi-obscured environment.
- Minimises water treatment costs.
- Easier to use due to non-flammability.

## BENEFITS

- Reliable and easy to use.
- It can be used in all conditions: in white light or UV light.
- Thanks to its high wettability characteristic, it is able to spread quickly over the entire surface under inspection.
- It generates bright red indications of strong intensity, especially when used with the sol-

## 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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