



CGM CIGIEMME S.p.A.



Controlli Non Distruttivi - Non Destructive Testing

Product Code
02071500

Ref. no.
R2.92

**Product Data
Sheet**

VELEMULSIOR H₂O HIGH CONCENTRATION

PRODUCT DESCRIPTION

Velemulsior H₂O High Concentration is a hydrophilic emulsifier used for the emulsification of post-emulsifiable penetrants prior to final washing. This product is formulated to minimise the background of the penetrant on rough surfaces without increasing the risk of removing it from within the discontinuities. It is supplied as a concentrate and must therefore be diluted in water with a concentration between 10 and 30%.

COMPOSITION

Mixture of water and non-ionic surfactants.

N.B.: Like all CGM products, Velemulsior H₂O High Concentration is tightly controlled to ensure batch uniformity, optimal process verification and control reliability.

SPECIFICATIONS

- Can be used in a wide range of concentrations.
- Excellent removability control.

PACKAGING TYPE

- 10 L cans

APPLICABILITY

It is ideal for:

- Melting.
- Forging.
- Parts with rough surface finish.

- Castings.
- Turbine components.
- Aeronautical parts.
- Critical components in general.
- Straw.
- Folding.
- Cold shots.
- Sheets.
- Cracks.
- Delamination.
- Porosity.

INSTRUCTIONS FOR USE

- Before use, dilute Velemulsior H₂O High Concentration emulsifier in water to a concentration of 10-30%.

Immersion method:

- After application of the penetrant by immersion and after the required penetration time has elapsed, spray the surface under inspection with clean water for 15-30 seconds.
- Immerse the test piece in the emulsification bath for the previously experimentally calculated time (normally 30-120 seconds).
- Remove the part from the tub and let it drain, then wash with clean water in the temperature range from 10°C to 40°C. If the penetrant is fluorescent, this must be done under a UV lamp to check the effectiveness of the removal.
- Dry the workpiece by placing it in a controlled recirculating hot air dryer at a temperature below +70°C, or with a classic hair dryer held at a



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distance of about 300 mm from the surface under inspection, for the minimum time necessary and never more than 30 min.

- Apply one of the CGM developers to maximise the sensitivity of the penetrant and provide a contrasting white background.
- Allow a minimum development time of 10 minutes before inspection. In any case, it is recommended to refer to the company standards or those to be applied.
- Inspect the workpiece (if the penetrant is fluorescent, use a suitable UV lamp with the required light intensity value).
- At the end of the inspection, developer residues can be removed by wiping the surface with a cloth or by washing with water. Penetrant residues can be removed by steam degreasing or soaking in solvent.
- During use, stir the bath regularly and check that the expected concentration value is maintained using a refractometer and a concentration diagram (the diagram must be created before using the emulsifier, as required by the standards).
- The concentration of the hydrophilic removal baths can be monitored using a refractometer and a concentration diagram. To create it, follow the instructions below:
 - Select three to five samples of known concentration (e.g. 10-15-20-25-30% Velemulsior H₂O High Concentration), carefully dosed and mixed.
 - Take readings of known samples using the refractometer.
 - Plot a diagram with the refractometer readings on the vertical y-axis and the Velemulsior H₂O High Concentration percentage values on the horizontal x-axis.
- The water content of the bath can also be determined using the procedure described in ASTM D-95.

PRODUCT PROPERTIES

	Velnet/Solnet	Velemulsior H ₂ O	Velemulsior H ₂ O High Concentration
Appearance	Clear colourless liquid	Colourless transparent liquid	Colourless transparent liquid
Odour	Characteristic	Odourless	Odourless
Flash point ASTM D 93-A	About 20°C	Non-flammable	Non-flammable
Density at 20° EN ISO 12185	0.79 g/cm ³	1.05 g/cm ³	1.05 g/cm ³
Solubility	NA	In water	In water
Penetrant excess removal	Method C Class 2	Method D	Method D

Typical values.



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RECOMMENDATIONS FOR THE USER

NDT method	Post-emulsifiable Liquid Penetrant Inspection
Shelf life	3 years at a temperature between 5°C and 45°C
Usage temperature	From 4°C to 52°C ASTM E165/EN ISO 3452-1
Post-emulsifiable penetrants	Magisglow 22-27-46-54
Developer	Rotrivel U – Velcontrast Dry Powder – Rotrivel H ₂ O Paste
Accessories EN ISO 3452	Type 1 reference blocks Type 2 reference blocks
UV lamp (only for fluorescent)	Labino
Refractometer	Model 101 ATC

COMPLIANCE WITH STANDARDS

- ASME Sect. V Art. 6
- ASTM E165/E165M-18
- EN ISO 3452-2
- PMUC (certificate of conformity on request)

- It requires minimal agitation.
- Its flexibility allows it to be applied in various methods.
- Minimal risk of corrosion.

BENEFITS

- It only removes penetrant excess with washing water, making post-emulsifiable liquid penetrant inspection less prone to human error.

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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