

MC-Grout UW

Non-shrink cementitious grout for underwater applications.

- PRODUCT PROPERTIES:**
- Resistant to cement washout during underwater placement.
 - High volume stability and displacement efficiency in submerged conditions.
 - Non-shrink properties.
 - No segregation or bleeding.
 - Excellent resistance to impact, vibration, and thermal variation.
 - Non-corrosive to embedded steel or reinforcement.

- AREAS OF APPLICATION:** **MC-Grout UW** is a highly flowable grout suitable for pumping or gravity placement under water, used in the repair and strengthening of concrete structures such as:
- Bridge piers
 - Abutments
 - Concrete piles
 - Spillways
 - Concrete dams, etc.

- APPLICATION NOTES:**
- **MC-Grout UW** can be applied by pouring or pumping using a flexible hose (minimum 50 mm diameter) at the lowest point of the formwork or cavity.
 - Continuous and controlled flow must be maintained during the entire grouting process; therefore, the mixing water content should be carefully controlled.
 - The hose can be lifted gradually to reduce pressure but must not be raised above the grout surface.
 - The recommended thickness of **MC-Grout UW** mortar layer in one construction is from 20 mm to 200 mm (underwater), if above water the maximum thickness is 100 mm. In case the construction exceeds this thickness, it must be divided into several times, or it is necessary to add aggregate to the mixture to avoid heat generation.
 - If the construction thickness exceeds 100 mm (above water) or 200 mm (under water), to avoid heat generation in the mixture, it is necessary to mix cold water or add aggregate (up to 40% of the powder by weight), or use both methods to release heat.
 - **Substrate preparation:** The substrate must be clean, sound, and free of oil, grease, laitance, or other contaminants. Damaged or delaminated concrete should be removed until sound concrete is exposed. For permanently submerged surfaces, clean and roughen with sandblasting or high-pressure water jetting. For temporarily wet surfaces, mechanical roughening or similar preparation is acceptable.
 - **Mixing:**
 - Add the required amount of clean water (depending on the consistency) into a clean container. Slowly add the entire amount of **MC-Grout UW** to the container while mixing.
 - Mix the mixture thoroughly for 3 minutes to achieve a homogeneous mixture. Use a low speed mechanical mixer (400-600 rpm), combined with the appropriate mixing size.

- Continue mixing until a homogeneous mixture is achieved. Allow the mixture to stop briefly to allow air to escape. Do not add water to increase the flow of the mixture when it has hardened during the residence time.
- **Curing:**
 - No curing is required for submerged surfaces.
 - For above-water applications, proper curing is essential. Use PE sheeting, wet burlap, or curing compound such as MC-Emcoril Protect.
- **Cleaning:** Tools and equipment should be cleaned immediately with water after application. Once hardened, the material can only be removed mechanically.
- **Important Notes:**
 - Do not use as a patch repair mortar or as a surface coating on unrestricted horizontal surfaces (e.g. free-flowing areas without formwork).
 - Do not exceed the recommended water dosage.
 - Cement source variation may cause slight color differences in the hardened grout.
 - Avoid direct sunlight and strong wind during placement.
 - Do not apply **MC-Grout UW** when ambient temperature is below 5°C.
- **Health & Safety remark:**
 - Contains no toxic substances; safe when handled with standard construction safety practices (e.g. gloves, safety glasses, etc.).
 - Avoid contact with food and utensils. Avoid prolonged skin contact. In case of contact, rinse thoroughly with clean water. In case of eye or mouth contact, flush with water and seek medical attention immediately.

TECHNICAL DATA:

| Characteristic | Unit | Value | Comments |
|----------------------------|---------|-----------------------|-----------------------|
| Bulk density | Kg/L | 1.95 | |
| Mixing water content | % | 25 - 28 | 5.0 – 5.6 liters/20kg |
| Flow (cone method) | mm | ~200 | ASTM C230/230M |
| Setting time (underwater) | day | ~3 | |
| Setting time (above water) | day | ~1 | |
| Compressive strength | 3 days | ~ 20N/mm ² | ASTM C109 |
| | 7 days | ~ 27N/mm ² | |
| | 28 days | ~ 40N/mm ² | |
| Recommended thickness | mm | Min 10 | |
| Application temperature | °C | 10 - 40 | |

**All values are determined under standard laboratory conditions (25 ± 2°C and 60% RH). Field performance may vary. Suitability trials should be conducted under project-specific conditions.*

PRODUCT CHARACTERISTICS:

| | |
|-------------------|---|
| Appearance | Grey powder |
| Packaging | 20 Kg/ bag. |
| Storage | Store in a dry, shaded, and ventilated area at 10 – 30°C. |
| Shelf life | 08 months from manufacturing date in original unopened packaging. |

Note: The information provided here is based on our experience and correct to the best of our knowledge. It is, however, not binding. It will need to be adapted to the requirements of the individual building projects, to the specific application and to non-standard local conditions. Our data refers to the accepted engineering rules, which have to be observed during application. Given these preconditions we shall be liable for the accuracy of the information given as outlined in our sales and delivery terms and conditions. Recommendations by our employees that deviate from this information are only binding for us if they have been confirmed in writing. In all cases, the generally accepted rules and practices reflecting the current state of the art must be adhered.

Edition **01/2025**. Some technical changes have been made to this print medium. Older editions are invalid and may not be used.