

InsuGrout 350

High strength, non-shrink cementitious grout.

DESCRIPTION

InsuGrout 350 is a ready to use product in powder form, which requires only the on-site addition of water to produce a high strength (compressive strength >90 N/mm²) non-shrink grout of predictable performance.

TYPICAL APPLICATIONS

InsuGrout 350 is formulated for use at any consistency from fluid to plastic, and may be used with confidence for bedding, grouting and precision bearing operations such as:

- Gas or steam turbines.
- Generators.
- Presses.
- Crane rails.
- Milling machines.
- Precast elements .
- Anchor bolts.
- For use as a high strength plastic pack repair mortar for minor structural repairs from 35-75mm thickness.
- Can be used as a high-strength castable “micro-concrete” for large scale structural repairs to core walls, columns, beams etc. where high strength and fluidity are required.

ADVANTAGES

- Non shrink.
- Adjustable consistency.
- Proven and predictable performance.
- Excellent workability retention even at high ambient temperatures.
- High bond strength to steel and concrete.
- High early strength development even at fluid consistency.
- Good fatigue and impact resistance.
- Impermeable.
- High compressive strength.
- Can be bulked out with aggregates when repair thicknesses etc. exceed ±150mm or when large volume void filling is required - aggregate supplied in 20 kg bags, subject to approval by Insumat, Technical Services Department.

Water addition rate can be extended up to a maximum of 3.25 L when additional aggregates are used. Site trials MUST always be conducted to verify the achievable compressive strength.

PACKAGING

InsuGrout 350 is supplied in 25 kg moisture-resistant bags.

STRENGTH DEVELOPMENT

The strength of grout is dependent on many factors which include mixing, water addition, curing, temperature and humidity. The table below gives typical average strengths of InsuGrout 350 at 25°C, when mixed with 3.25 L of water.

TYPICAL PROPERTIES

Water addition	3.25 L / 25kg
Compressive Strength BS 1881 Part 116	
1 day	>35N/mm ²
7 day	>70 N/mm ²
28 day	>90N/mm ²
Water penetration BS EN 12390 Part 8	<10 mm @ 5 bar penetration
Rapid chloride permeability ASTM C1202 / AASHTO 277	Very low
Flexural Strength @ 28 days BS 4551 Part 1 1998	11 N/mm ²

APPLICATION GUIDELINES SURFACE PREPARATION

The surface onto which the grout is to be applied should be scabbled to remove laitance and expose aggregate. Do not use bush hammers or similar preparation equipment that can crush the aggregate but leave it in place. The surface must be free of oil, dust, dirt, paint, curing compounds, etc. Soak area to be grouted with water for 24 hours prior to grouting to minimise localised absorption and to assist in the free flow of the grout. Surfaces should be damp but free of standing water.

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Particular attention should be paid to bolt holes to ensure that these are water-free. Use oil free compressed air to blow out bolt holes and pockets as necessary. Base plate, bolts, etc. must be clean and free of oil, grease and paint etc. Set and align equipment. If shims are to be removed after the grout has set; lightly grease them for easy removal. Ensure formwork is secure and watertight to prevent movement and leaking during the placing and curing of the grout. The area should be free of excessive vibration. Shut down adjacent machinery until the grout has hardened. In hot weather, base plates and foundations must be shaded from direct sunlight. Bags of grout should be stored in the shade prior to use. In cold weather, the temperature of base plates and foundations should be raised to $>10^{\circ}\text{C}$.

MIXING

In hot weather use cool water to bring the mixed grout temperature to $<30^{\circ}\text{C}$. In cold weather use warm water to raise the mixed grout temperature to $>10^{\circ}\text{C}$.

Damp down the inside of the grout mixer with water prior to mixing the initial batch of InsuGrout 350. Ensure the mixer is damp but free of standing water. Add the pre-measured quantity of water. Slowly add the InsuGrout 350, mixing continuously. Mix for at least five minutes until a smooth, uniform, lump free consistency is achieved.

PLACING / APPLICATION

Lengths of metal strapping laid in the formwork prior to placing may be necessary to assist grout flow over large areas and in compacting and eliminating air pockets. Pour the grout continuously. Maintain a constant hydrostatic head, preferably of at least 15 cm. On the side where the grout has been poured, allow 10 cm clearance between the side of the form and the base plate of the machine.

On the opposite side allow 5-10 cm clearance between the formwork and the base plate.

InsuGrout 350 are suitable for use with most types of pumping equipment. Immediately after InsuGrout 350 grout is placed, cover all exposed grout with clean damp hessian, and keep moist until grout is firm enough to accept a curing membrane. Should the grout shoulders require finishing work, this should be carried out prior to application of the curing membrane. We recommend the use of a curing membrane from our Insukure E range.

SHOULDERS

Due to differences in temperature between the grout under the base plate, and exposed shoulders that are subject to more rapid temperature changes, debonding and / or cracking can occur. Avoid shoulders wherever possible. If shoulders are required, they should be firmly anchored with reinforcing to the substrate to prevent debonding.

BLEED WATER

No bleed water is apparent (ASTM C-232) at recommended water addition rates.

COVERAGE / YIELD

12.5 L / 25 kg bag at 3.25 L water addition. 80 x 25 kg bags / m^3

STORAGE AND SHELF LIFE

Store out of direct sunlight, clear of the ground on pallets protected from rainfall. Avoid excessive compaction. The shelf life is 12 months when stored as above in original sealed bags. Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging. For specific storage advice consult Insumat Technical Services Department.

HEALTH AND SAFETY

As with other products containing Portland cement, the cementitious material in InsuGrout 350 grout may cause irritation. Avoid contact with eyes and prolonged irritation. In case of contact with eyes, immediately flush with plenty of water for at least 15 minutes. Call a physician. In case of contact with skin, wash skin thoroughly.

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PRECAUTIONS

The temperature of both the grout and elements coming into contact with the grout should be in the range of $>10^{\circ}\text{C}$ to $>35^{\circ}\text{C}$. Do not use water in an amount or at a temperature that will produce a consistency more than fluid or cause mixed grout to bleed or segregate.

InsuGrout 350 should be laid at a minimum thickness of 20mm and to a maximum depth of 150mm.

To simulate on-site conditions, it is necessary to restrain cubes for the first 24 hours immediately after casting.

DO NOT OVERWORK AND AVOID USING MECHANICAL VIBRATION. UNDER NO CIRCUMSTANCES SHOULD InsuGrout 350 BE RETEMPERED BY THE LATER ADDITION OF WATER.

It is essential that a mechanically powered grout mixer is used to obtain the optimum properties.

NOTE

Field service, where provided, does not constitute supervisory responsibility. For additional information, contact Insumat's representative.

Insumat reserves the right to have the true cause of any difficulty determined by accepted test methods.

QUALITY STATEMENT

All products manufactured by Insumat Egypt, are manufactured to procedures certified to conform to the quality, environment, health & safety management systems described in the ISO 9001:2015, standard.

* Properties listed are based on laboratory controlled tests.

Actual measured data may vary due to circumstances beyond Insumat's control.

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