



Product Data Sheet (PDS)

Product Identification:

**Micro Milling Self Levelling Concrete
(t/a Micro Level 5000)**

MANUFACTURER:

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Product Definition

Micro Level 5000 is a self levelling concrete underlayment that is designed for use over various substrates to achieve a flat and level floor base.

It is a specially formulated dry blend of cement, fine graded aggregates, polymers and other additives that when mixed with water provides a flowable, easily manageable, fast hardening concrete which can be poured to various thicknesses ranging from 1/8" to 3/4" (3-19 mm) at a time.

Applications (Uses)

Micro Level 5000 when used to repair concrete floors achieves a smooth level concrete surface that is ideal for a variety of final floor finishes including carpet, ceramic and porcelain tile, laminate and wood flooring, stone and other commercial floor finishes.

Formulated for rapid strength development, it can withstand foot traffic in a fraction of the time compared to other concrete repair methods using traditional concrete and/or plaster. (e.g. construction grade concrete)

Although Micro Level 5000 is intended as an underlayment it can also be used to provide a level finished floor for light traffic/ residential applications which can be further treated with special pigments or floor coatings including sealants, paints, colorants, resins and dyes to improve durability and aesthetics.

Properties

- High alumina cement technology for fast setting;
- Good flow rate to allow easy spreading;

- Excellent adhesion (bond strength) to concrete with appropriate primer;
- Low shrinkage rate minimizes delaminating and hollow spots;
- Fast drying feature promotes rapid solidification to allow foot traffic in 6 hours;
- High compressive strength and resistance to surface wear;
- Provides a smooth base compatible with modern building requirements for contemporary hard and soft flooring finishes.

Product Features

Micro Level 5000 possesses the following properties

Criteria	Value
Initial Flowability	≥ 150 mm
Flowability, 20 min	≥ 150 mm
Compressive Strength, 24 hr.	≥ 3000 psi (20.6 Mpa)
Compressive Strength, 28-day	≥ 5000 psi (34.4 Mpa)
Flexural Strength, 28-day	≥ 1000 psi (6.9 Mpa)
Tensile Strength	≥ 350 psi (2.4 Mpa)
Shrinkage, 28-day	<+/- 0.01%

Advantages

- Lighter weight alternative to the traditional mortar and concrete bed methods which require larger volumes of material
- Reduces project time due to its ease of installation and fast solidification rate
- Can be covered with a wide array of modern finishing materials such as tiles, wooden planks, laminate flooring or carpet
- Accepts tile and stone in 24-48 hours
- Can be used for interior applications in both commercial and residential projects
- Self levelling feature enhances the ease of installation and reduces manpower required.
- Can be mixed using manual or mechanical means.

Surface Preparation

Proper surface preparation is a **critical** pre-requisite to ensure optimal results when using a self leveling concrete product.

Cleaning

Any sub-floor surface to be leveled should be first thoroughly cleaned. Remove dust, loose materials and particle matter, paint residue, glues, gypsum based patching materials and residues of oil and grease. Power washing can also help to further remove surface pollutants.

Priming

Using a proper bonding primer is required to ensure an enduring surface when using self levelling concrete. Using a surface bonding primer provides the following benefits:-

- prevents premature water loss which can negatively affect the final tensile strength of the self levelling concrete underlayment when fully cured.
- keeps freshly mixed self-levelling concrete flowable and allows easier spreading out.
- simultaneously ensures proper hydration of the freshly poured concrete mix and increases the bond strength of the self-levelling concrete to the base below when fully cured.
- prevents air bubbles from forming in the newly poured concrete from the outgassing of the older underlying concrete below

Micro Milling recommends using an appropriate bonding primer that is suited to a range of surface substrates and conditions. TEC® Multipurpose Surface Bonding Primer is an acrylic latex based bonding primer that is well suited for this use. **See manufacturers' recommendations and read the product data sheet prior to use.**

Surface Applications

Use a brush or roller to apply an even continuous film of primer on surface. Do not allow primer to puddle. This primer will dry in 30 minutes to 3 hours to a transparent colour as opposed to milky white when applied.

For normal floors apply the TEC® Multipurpose primer mixed to 1:3 (primer to water) ratio and allow to dry. This should be done at least 3 hours before pouring of self levelling mixture commences.

A 3.8 litres (1 US gal.) of raw primer mixed using this ratio will yield 15.2 litres (4 US gal.) of mixed primer which will provide approximately 140 sq. metres (1500 sq. ft.) of coverage for one coat depending on porosity of the surface.

For very porous floors (usually older concrete) ensure all material at the top is properly bonded at the surface (min. tensile bond of 72 psi (0.5 MPa))

Treat the floor surface with first a 1:3 (primer to water) ratio and allow to soak and penetrate for 1 hour before applying a second coat of 1:2 (primer to water) ratio. Allow to dry to a clear film before pouring out self levelling concrete.

Plug all openings in the floor including gaps and cracks, repairing large holes with standard concrete repair

practices to provide as even a surface as possible. Install termination dams to prevent any seepage.

The prepared surface should be free of any large structural defects, holes or joints which would permit any leakage and loss of material.

The prepared surface should be structurally sound, stable, load bearing and rigid prior to application of self levelling product.

The surface should also be able to facilitate the weight of the underlayment and the final floor finish.

Before commencing, mark off the primed sub floor surface into sections and decide on the areas to begin pouring. (which is usually the lowest spot)

Physical & Technical Properties

Description	
Bag Size	50 lb. (22.7 kg.) bag
Description	Dry powder
Colour	Grey
Working Time	15-20 mins
Initial Set	80 mins
Walkable Hardness	5-6 hrs
Curing	None required
Applied Thickness*	1/8"-3/4" (3-19mm)

*more details on thickness and yield provided in depth coverage guide table on the next page

Mixing

Two methods may be used on a project site, mixing manually with the use of a hand held mixer or alternatively using a mechanical automated mixer into which the components are loaded.

Manual Mixing

- For manual mixing, a drill fitted with a spiral mixer which reduces entrained air into the mixture is recommended. Use on low speed (< 300 rpm) in pails or small barrels of no more than 20-gallon size.
- Measure the required amount of water accurately and place into mixing container
- Empty Micro Level dry contents into water. Mix slowly on low speed for 2-3 minutes with the spiral mixer.
- Allow to slake (rest) for 1 minute before mixing again.
- Avoid excessive mixing as this can trap air in the mixture, causing "pin-holing"(craters and spaces

left in and on the concrete surface by escaping air bubbles) which can compromise overall concrete strength and lead to possible cracking.

Mechanical Mixing (using pump)

- Ensure pumps and mixers are completely clean and in good working order.
- Measure water carefully and pour into mixer.
- Empty Micro Level dry powder into water.
- Mix well for 2-3 minutes ensuring all dry components are properly mixed in with the water.
- Prior to using, a sample should be taken and poured out as a flow test to ensure that the consistency of the mix is free from lumps or separation and is ready to use.
- The mixture should be able to be easily dispersed through the hose nozzle. Do not add water as pinholing, material segregation and soft surfaces can occur - all of which can compromise final cured strength.

Directions for use

- ✓ Micro Level 5000 should be mixed in accordance with the recommended water to powder ratio. **Do not exceed the recommended amount of water per bag ratio** as this will reduce the strength of the concrete.
- ✓ Open sacks carefully to avoid spillage and add the dry powder to water in the mixing drum or bucket. **Always add powder to water. Use appropriate PPE.**
- ✓ Once contents are added to water, mix until there are no lumps and the consistency of the mixture is smooth and even - about 2 to 3 minutes. Allow the mixture to rest for 1 minute, then mix once again briefly. Do not overmix.
- ✓ The self levelling cement mixture is now ready to be poured out for immediate use.
- ✓ For best results coverage of the subfloor should be completed within as short a time and with as few interruptions to the process as possible.

Application

- Begin to pour out the mixed Micro Level 5000 on to the primed surface and work to the required thickness using long handled gauge rakes, smoothing paddles and trowels.
- Immediately following pouring begin to spread out the mixture by lightly trowelling the surface. The use of a spiked roller will help spread the material without leaving discernible impressions

and removes any trapped air to prevent pinholes from appearing.

- Do not cover existing expansion and control joints.
- While mixture is still wet, ensure all gaps and depressions are properly filled, with no hidden air pockets. Cover all high spots.
- Focus on one section of floor before going on to the next closest section. Begin pouring in this new section while the first section is still wet and the edges still moist. This ensures levelness and promotes bond strength across the different poured floor sections
- Work quickly to smooth out all sections to the desired finish while mixture is still wet and workability is good. This will help ensure a seamless level finish.
- Micro Level 5000 has a working time of 15-20 mins. Time may vary slightly, depending on ambient temperature and humidity.
- Do not exceed the recommended ¾" (19mm) thickness limit per pour

To build up additional height /thickness repeat the above process as required. Alternatively Micro Level 5000 can be extended up to a maximum ratio of 1:1 (50 lbs. ML 5000 to 50 lbs. well-graded, washed, dry pea sized gravel ½" (3mm) or larger) which can be used up to 5" (12 cm) thickness in a single pour.

Coverage

Coverage will vary depending on the thickness to which Micro Level is applied.

Mixing Ratio		
Water / Powder / Yield		
4.8-5.3 US. Qts. (4.6-5.0 litres)	50 lb. / (22.7kg) bag	0.5 cu ft.

Depth / Yield / Coverage Guide		
Pour Depth Range - ⅛" - ¾" (3-19mm)		
Nominal Thickness	Approx. Coverage 50lb./ (22.7kg) bag	Water
⅛" (3mm)	44-48 ft ²	4.8-5.3 US. Qts. / (4.6-5.0 litres)
¼" (6mm)	22-24 ft ²	
⅜" (9mm)	15-16 ft ²	
½" (12mm)	11-12 ft ²	
⅝" (16mm)	8½-9½ ft ²	
¾" (19mm)	7½-8 ft ²	

Curing

Micro Level 5000 is **self-curing** and dries to a walkable hardness in 6 hours.

It does **not** require a damp curing method or applying curing and sealing compounds during or after it is mixed and poured out.

- While installing and for 24 hours after, protect areas from rain, high winds and direct sunlight. Do **not** install in direct sunlight
- Work should be undertaken within the temperature range of 5° -35° C (40° -95° F)
- Regular foot traffic can resume in 24 hours. Further construction activity can resume in 48 hours.

Expansion Joints/ Control Joints

Do not cover existing expansion joints or control joints. Expansion and control joints should be extended from the sub floor up through the newly leveled floor and any subsequent tile or other floor covering.

These joints should be then filled with an appropriate elastomeric sealant or silicone.

Limitations

- For interior use only.
- Unsuitable as a commercial/ heavy duty final wearing surface without further treatment.
- Do not use extra water, re-temper or use additional agents or additives.
- Do not use with binders or curing agents
- Do not install over unstable substrates such as gypsum, regular plywood, particle board, compressed board, asbestos or chip board.
- Avoid dragging heavy or sharp metal objects directly across recently poured surface.

Clean Up

While material is still fresh, wash tools, hands and all equipment used with clean soapy water. If material is hardened, remove manually.

Storage

Micro Level should be stored on pallets in original, closed packages in a dry and cool place, and should not be exposed to water, direct sunlight and damp prior to use. Do not store opened bags.

Packaging

Micro Level is packaged in 50 lbs. (22.7 kg) dual-ply paper sacks with additional moisture barrier provided by an inner protective plastic lining.

72 bags per pallet

Shelf Life

The shelf life of the product is 6 months from the date of manufacture.

Safety Data

1. Contains free silica. Always wear appropriate protective equipment - respirator, gloves, eyewear and boots when handling and opening bags and during mixing and pouring.
2. Use appropriate lifting and bending techniques when handling unopened bags.

Before commencing work, read the information provided on the packaging and the product SDS sheet at our website www.micromillingtt.com under the Micro Level 5000 product page.

Always keep product out of the reach of the children.

Warranty

Micro Milling Limited assumes no responsibility for personal injury or property damage to vendees, users or third parties caused by the material. Such vendees and/or users assume all risks associated with the use of the material.

Further, the manufacturer warrants that this product shall be of saleable quality when used and applied in accordance with the stated instructions. This product is not warranted as suited to any purpose other than the general purpose for which it is intended.

Manufacturer's Caution

This Product Data Sheet has been prepared in good faith on the basis of information available at the time of publication. It is intended to provide users with product information and guidelines for the proper use and application of our Micro Level 5000 product under normal environmental and working conditions. Because each project is different Micro Milling Limited cannot be responsible for the consequences of variations in such conditions or for unforeseen factors.

Disclaimer

Micro Milling Limited is not responsible for workmanship not in accordance with its instructions and ASTM/TCNA guidelines

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