

### 1. PRODUCT NAME

ProSpec® Level Set 100

### 2. MANUFACTURER

Bonsal American  
8201 Arrowridge Blvd.  
Charlotte, NC 28273-5678 USA

Tech Services: 1.800.334.0784  
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### 3. PRODUCT DESCRIPTION

ProSpec Level Set 100 is a portland cement-based, self-leveling underlayment used to level and smooth floors for finished floor covering installation.

#### Features and Benefits

- Portland cement-based
- Provides a smooth surface
- Applications up to 1" (25 mm) in a single pour
- Accepts non-moisture sensitive tile and stone in 24 hours
- Accepts floor covering sheet goods in 3 days

#### Uses

- Interior only
- Level and smooth on, above or below grade concrete and solid wood floors
- For other substrates contact ProSpec Technical Services

#### Safety

READ THE SAFETY DATA SHEET (SDS) BEFORE USING THIS PRODUCT. SDS information is available on our website [www.prospec.com](http://www.prospec.com) or contact CHEMTREC (24 hours availability) 800-424-9300 for International inquiries +011-703-527-3887, or contact Bonsal American Technical Services at 800-334-0784 (8:00 AM to 5:00 PM Eastern US Time).

### 4. TECHNICAL DATA

Working Time	25 - 35 minutes
Set Time - ASTM C 191	
Final Set	80 - 120 minutes
Compressive Strength ASTM C 109 (air cured)	
28 days	> 5,000 psi (34.5 MPa)
Flexural Strength ASTM C 348	
28 days	> 900 psi (6.2 MPa)

Note: Test results obtained under controlled laboratory conditions at 72°F (22°C) and 50% relative humidity. Tested using 5.75 qts (5.44 L) water per 50 lb (22.7 kg) of powder. Reasonable variations can occur due to atmospheric and jobsite conditions.

### LEED Eligibility<sup>1</sup>

- Regional Materials (MR-c5)
- Low-Emitting Materials (IEQ-c4.3)

### Packaging

50 lb (22.7 kg) bag - Product #65550006

### Shelf Life

12 months from the date of manufacture when stored in the original, unopened container, away from moisture, under cool, dry conditions and out of direct sunlight.

### 5. INSTALLATION

**Preparation** (concrete, cutback and non-porous substrates): All materials should be stored at 40°F (4°C) to 80°F (27°C) 24 hours prior to installation.

#### Concrete Substrates:

- Clean area and remove all unsound concrete, grease, oil, paint and any other foreign materials that will inhibit adhesion.
- Substrates must be stable, solid and structurally sound.
- The concrete surface must be mechanically profiled by shot blasting, sand blasting or scarifying to achieve an ICRI CSP 3 to CSP 5 standard.
- After cleaning and profiling, test for MVER (moisture vapor emission rate - reference ASTM F1869) and concrete substrate's relative humidity (RH) – reference ASTM F2170. The requirements of the floor covering and floor adhesive manufacturers must be followed with respect to, but not limited to, levels of moisture.
- Repair deep areas, holes and nonmoving cracks with ProSpec Vinyl Concrete Patch or ProSpec Floor Patch Pro prior to application and allow curing for a minimum of 3 hours.
- Tensile strength of substrate must be > 72 psi (ASTM C-1583). If the tensile strength is < 72 psi (0.5 MPa) the substrate surface will need to be mechanically prepared, i.e. shot blasted, scarified or similar to achieve a sound surface.
- Concrete that has been power troweled must be tested to verify surface strength and adhesion.
- All surfaces require ProSpec Level Set Primer or Level Set Primer Plus (see "Priming" section).
- Isolate, using foam tape or caulking, all perimeters and sharp corners such as column bases, pedestals, supports, etc.
- Install a bond breaker where vertical surfaces meet the new topping such as self-adhering, minimum 1/4" (6 mm), foam tape or similar product.
- For installations over other substrates, contact ProSpec Technical Services.

Note: It is the responsibility of the installer/applicator to ensure the suitability of the product for its intended use.

## Preparation (cont.)

### Adhesive cutback residue over concrete

- Level Set 100 may be installed over properly prepared cutback adhesive residue that is on concrete only. All adhesive residues must be non-soluble when put in contact with water.
- Before proceeding, test the adhesive residue for water solubility. Water soluble adhesive must be removed mechanically to achieve a clean concrete surface.
- Cutback adhesive residue must be scraped to as thin a layer as possible. The properly prepared cutback adhesive residue must be sound and well bonded to the concrete surface.
- Use only Level Set Primer Plus over the cutback adhesive residue.

### Non-Porous Substrates

- Level Set 100 may be installed over non-porous substrates such as epoxy coatings, ceramic tile, quarry tile, terrazzo and burnished concrete. The substrate must be structurally sound and free from all contaminants such as dust, dirt, grease and any foreign material that inhibit adhesion.
- Prepare the surface via mechanical means removing all loose material. Use only Level Set Primer Plus following the mixing instructions on the container. Vacuum thoroughly, removing all dust and other loose contaminants before applying the Level Set Primer Plus.

### Priming (concrete, cutback and non-porous substrates):

- Level Set Primer or Level Set Primer Plus must be applied over the entire substrate leaving no bare spots, puddles or excess primer.
- Do not apply over standing water.
- For standard concrete use: Level Set Primer to water dilution rate of 1:1.
- For highly porous concrete, 2 coats of Level Set Primer may be necessary.
  - » First Coat: Use a primer to water dilution rate of 1:3.
  - » Second Coat: Use a primer to water dilution rate of 1:1.
- For non-porous substrates and tight concrete use Level Set Primer Plus.
- Allow the primer to dry to a tacky translucent film with no milky wet spots, typically 1 - 3 hours. If the primer turns clear within 30 minutes of application the substrate is highly porous and requires a second coat.
- Level Set Primer/Primer Plus must be completely dry before installing Level Set 100.
- Primer must be reapplied if not covered with Level Set 100 within 24 hours.
- Protect primed substrate from foot traffic.

Note: Reference Level Set Primer and Level Set Primer Plus for more information.

### Wood Subfloor Preparation:

- Residential and Light Commercial Applications
- Follow Tile Council of North America (TCNA) F185 installation method for cementitious self-leveling underlayments over plywood.
- All wood subfloors must be structurally sound and have a maximum deflection of L/360. The wood must be either ¾" (19 mm) tongue and groove, APA rated exterior grade type 1 plywood or OSB equivalent.

### Wood Subfloor Preparation (cont.):

- The surface must be clean, free from any contaminants that may act as bond breakers such as dirt, paint, wall compound, varnish grease oils or wax. All loose boards must be re-nailed.
- Fill all open joints with ProSpec Floor Patch Pro or ProSpec Feather Edge.

Note: Before installing any ProSpec product the installer is responsible for ensuring that the wood subfloor is structurally sound and clean.

### Expansion and Control Joints

- Honor all existing expansion joints, control joints and moving cracks through the Level Set 100. Failure to do so could result in delamination or cracking of the Level Set 100.

### Priming Wood Subfloors:

- Vacuum the subfloor to remove all loose debris and dust. Prime the wood subfloor with Level Set Primer following the mixing and application instructions on the TDS.
- Apply a thin layer of primer using a short-nap paint roller or squeegee leaving no bare spots. Puddling of the primer must be avoided and can be corrected by lightly brushing off the excess primer.
- Metal lath is required for all wood installations. Once the primer is applied, and during the drying process, install 3.4 lbs per sq yd (1.0 kg / sqm) galvanized, expanded diamond metal lath mesh or a plastic equivalent. Staple approximately every 6" (152 mm).
- Avoid walking on the wet primer by placing the metal lath into the primer and then walking on the lath while stapling. Overlap lath 2" (51 mm) at all abutments and staple through both pieces assuring they are properly fastened into the wood substrate. Allow Level Set Primer to dry to a slightly tacky film before applying the Level Set 100.
- Apply the Level Set 100 at a minimum 3/8" (10 mm) thickness from the top of highest point of lath. Hairline cracks may occur due to excessive movement at the plywood joints.

### Refer to:

ASTM D 4259 [Abrading Concrete](#)

ACI 201.1R [Guide for Making a Conditions Survey of Concrete in Service](#)

ACI 224.1R93 [Causes and Repair of Cracks in Concrete Structure](#)

ICRI 03732 [Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays](#)

### Job Mockups

Bonsal American, Inc. requires that when its ProSpec products are used in any application or as part of any system that includes other manufacturers' products, the contractor and/or design professional shall test all the system components collectively for compatibility, performance and long-term intended use in accordance with pertinent and accepted industry standards prior to any construction. Written documentation of the tests performed shall be satisfactory to the design professional and contractor. Test results must include the means and methods of application, products used, project-specific conditions being addressed, and standardized tests performed for each proposed system or variation.

## Mixing

### Barrel Mixing

1. Mix 2 bags of Level Set 100 at a time.
2. In a clean 20 - 25 gallon container add 5.75 qt (5.44 L) of clean, cool potable water for EACH 50 lb (22.7 kg) bag. Next add the Level Set 100, while mixing at full speed using an egg-beater mixing blade attached to a heavy-duty ½" drill (min 650 rpm). **Do not add extra water.**
3. Mix completely for a minimum of 2 minutes until lump free, adding no additional water. Avoid over watering, over mixing or moving the mixer up and down during mixing as this will entrap air, lower the strength and may cause cracking and/or pin holing. The formation of a white film on the surface is an indication of over watering.
4. To keep the job moving, it is recommended that two mixing drums be used simultaneously. This will allow one mixing container to be poured while the other is being mixed.
5. After use clean all mixing equipment thoroughly to avoid hardened product in subsequent batches.

### Pump Mixing

1. ProSpec Level Set 100 can be mechanically mixed using either an in-line continuous mixer and pump or a batch mixer and pump using 5.75 qt (5.44 L) clean potable water to EACH 50 lb bag (22.7 kg) of powder.
2. The minimum required hose length is as follows:
  - a. In-Line Mixer: 100 ft (31 m)
  - b. Batch Mixer: 75 ft (23 m)
3. For horizontal applications greater than 300 ft and vertical applications greater than 40 ft contact ProSpec Technical Services at 800-334-0784.
4. Before starting ensure the mixer and pumps are completely clean and in good working order. Refer to the manufacturer instructions for specific maintenance and cleaning.
5. Prior to Level Set 100 installation adjust the pump to ensure proper mixing and a uniform distribution of sand is achieved throughout the mix. **Do not overwater** as this will lower the strength and may cause cracking and/or pin holing.
6. To avoid segregation and over watering during installation, the water settings may require adjusting. Check the product consistency to ensure a uniform distribution of the aggregates during pumping. The conditions that can affect the overall performance are, but not limited to, length of hose, water temperature, water pressure, substrate, ambient air temperature and powder temperature.
7. On the end of the hose attach a mesh-screen sock to trap any foreign or unmixed material.
8. Always test pump using the actual maximum hose length and conditions before installation to ensure proper application and appearance is achieved.

## Application

Apply when air and substrate temperatures are between 40°F (4°C) and 100°F (38°C) within 24 hours of application. For applications outside this range of temperatures, contact ProSpec Technical Services.

1. Close all windows, doors and HVAC vents to minimize air flow.
2. Divide the areas to permit continuous placement without cold joints.

## Application (cont.)

3. Pour the blended Level Set 100 on the floor and disperse with a gauge rake. Use cleated shoes to avoid leaving marks.
4. To prevent ridges between batches, use a smoother tool and work a narrow dimension.
5. Level Set 100 has a working time of 25 - 35 minutes at 70°F (21°C).

### For Increased Thicknesses

1. Level Set 100 can be extended with aggregate for applications from 1" up to 5" (127 mm). To extend, blend the Level Set 100 with washed, dried, clean 3/8" (10 mm) pea gravel.
2. Mix first with water then add 15 lb (6.8 kg) of aggregate, per 50 lb (22.7 kg) bag of Level Set 100, mixing until the aggregate is coated, then place.
3. Wet aggregate may cause over watering and the addition of aggregate will reduce the workability and may necessitate a finish coat.
4. Allow the extended layer to dry, normally 24 - 36 hours.
5. If applying a finish coat, prime the surface with Level Set Primer mixed 1:1 with potable water per priming instructions outlined in the Level Set Primer/Level Set Primer Plus technical datasheet.
6. Level Set 100 can be applied after the primer is dry.
7. Outgassing can occur when applying multiple lifts.
8. If capping is required contact ProSpec Technical Services.

Note: When vinyl, wood or other types of floor coverings are to be installed over ProSpec Level Set 100, the requirements of the floor covering manufacturer are to be followed with respect to, but not limited to, levels of moisture.

### Refer to:

- RFCI (Resilient Floor Covering Institute publication) MRP: [Addressing Moisture Related Problems Relevant to Resilient Floor Coverings Installed Over Concrete](#)
- NOFMA (National Oak Flooring Institute) publication: [Installing Hardwood Flooring, Rev. 3/10/98](#)
- TCNA (Tile Council of North America) Handbook: [Ceramic Tile Installation](#)
- American National Standard Specifications: [Installation of Ceramic Tile](#)

Note: ProSpec Level Set 100 will not correct or compensate for a structurally defective substrate. Faults in the substrate can appear in the underlayment. The use of alkali resistant glass fabric or galvanized metal reinforcing (Federal Specification QQL 101C) can be helpful in reducing reflective cracking.

## Curing

- Protect from excessive drying due to temperature, air movement and direct sunlight.
- The use of damp curing or the use of curing compounds is not recommended.
- Turn off all forced air ventilation and radiant heating systems whenever possible for up to 24 hours after installation.

Note: Level Set 100 is not a wearing surface and should be protected from construction trade traffic until the final floor covering is applied.

## Cleaning

Use clean potable water to clean tools immediately after use.

## Limitations

- Do not use on exterior surfaces.
- Do not trowel.
- Do not use as a wearing surface. For a wearing surface, use ProSpec Level Set Wear Topping.
- Do not overwater, retemper or add additional additives
- Do not use dissimilar underlayments or toppings.
- Do not install over dimensionally unstable substrates such as gypsum, gypsum-based patching compounds, particle board, luan, asbestos or chip board.
- Do not allow heavy or sharp metal objects to be dragged directly across the Level Set 100 surface.

## Coverage

Per 50 lb (22.7 kg) bag

Nominal Thickness	Approximate Coverage
1/8" (3 mm)	50 - 60 ft <sup>2</sup> (4.6 - 5.8 m <sup>2</sup> )
1/4" (6 mm)	25 - 30 ft <sup>2</sup> (2.3 - 2.8 m <sup>2</sup> )
1/2" (12 mm)	12 - 15 ft <sup>2</sup> (1.1 - 1.4 m <sup>2</sup> )

## 6. TECHNICAL SERVICES

### Technical assistance:

Information is available by calling ProSpec Technical Services Hotline (Hours - 8:00 AM to 5:00 PM EST):

Toll Free: 1.800.334.0784

Fax: 1.704.945.0309

### Technical and safety literature:

To acquire technical and safety literature, please visit our website at [www.prospec.com](http://www.prospec.com).

1 ProSpec products can contribute to LEED credits within the Material Resource, (Recycled Content & Regional Materials) and Indoor Environmental Quality (Low Emitting Materials).

## **DANGER**

Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May cause cancer. May cause respiratory irritation. Causes damage to organs through prolonged or repeated exposure.

Do not eat, drink or smoke when using this product. Wash skin thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Do not breathe dust. If swallowed: Immediately call a poison center/doctor. Rinse mouth. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. If on skin: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice/attention. If exposed or concerned: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell. Store locked up. Store in a well-ventilated place. Keep container tightly closed. Dispose of contents and container in accordance with all local, regional, national and international regulations.

This product contains Crystalline Silica, Quartz and may also contain trace amounts of other chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

55 % of the mixture consists of ingredient(s) of unknown acute toxicity.

## **ENVIRONMENTAL ADVISORY**

Uncured or crushed cured cement is an environmental hazard, which may adversely affect fish and wildlife. Dispose of construction debris containing cement, including empty bags, at a permitted municipal disposal firm. Do not use crushed concrete as a fill near an aquatic habitat.

Bonsal American, Inc. (Bonsal) warrants that this product is free from defects in material and workmanship, and will perform per the Bonsal American® product literature in effect at the time of purchase. This warranty is for one (1) year from the date of purchase. Any implied warranty of merchantability or fitness for a particular purpose is limited to the duration of this express warranty. This warranty applies only if the product is used, in strict accord with Bonsal American published instructions. The sole and exclusive remedy under this warranty is replacement of the defective product or refund of the purchase price, at Bonsal's option. CONSEQUENTIAL, SPECIAL AND INCIDENTAL DAMAGES ARE NOT RECOVERABLE UNDER THIS WARRANTY. All claims under this warranty must be submitted to Bonsal by calling (800) 334-0784. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

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