CustomTech™ TechLevel™ XP-1 Self-Leveling Underlayment



1. Product Name

CustomTech™ TechLevel™ XP-1 Self-Leveling Underlayment

2. Product Description

TechLevel™ XP1® is a high performance, calcium aluminate-based, high strength, low prep, self-leveling underlayment that levels floors prior to the installation of most floor coverings. This quick-setting underlayment can be applied to 2″ (5 cm) thick in one pour and seeks its own level in minutes. Formulated to have high compressive strength and abrasion resistance, XP-1 achieves an extra heavy rating for high impact use in food plants, hospitals, and kitchens.

Key Features

- Superior crack resistance - formula reduces shrinkage and minimizes cracks
- Abrasion Resistant - Holds up to traffic during construction
- 5,500 PSI Compressive Strength
- Exceeds ASTM requirements for resilient floor covering installations
- High flow formula has excellent handling and excellent flow retention properties
- Crack resistant
- No shotblasting required on acceptable surfaces

Uses

Suitable as an Underlayment for:

- Carpet
- Wood and parquet flooring
- Luxury Vinyl Tile/Planks (LVT/LVP)
- Vinyl composition flooring (VCT)
- Sheet vinyl and rubber flooring
- Laminated flooring
- Ceramic, mosaic, quarry or cement body tile
- Impervious porcelain and glass tile
- Cement-based precast terrazzo
- Natural stone tile
- Terrazzo

Suitable Substrates

- Absorbent and non-absorbent concrete
- Lightweight concrete
- Gypsum-based underlayment
- Existing ceramic tile
- Cement and epoxy terrazzo
- Exterior grade plywood and OSB
- Cutback adhesive residue
- Well adhered resilient flooring
- Properly prepared steel and aluminum

Composition of Product

XP-1™ is a dry, proprietary blend of co-polymers, cements and inorganic chemicals.

Benefits of Product in the Installation

- Low Prep: No shot blasting required on acceptable surfaces
- Abrasion-resistant; holds up to traffic during construction
- Can be applied from featheredge to 2" (5 cm) thick in a single pour
- Reduces bond failure and crumbling of resilient flooring
- Cures fast and develops high early-strength for quick installation
- Rated for extra heavy use on concrete and wood subfloors with joists to 24" (61 cm) per ASTM C627

Limitations to the Product

- For interior use only. Ambient, substrate and product temperature is to be between 50° F (10° C) 90° F (32° C). Chill or warm water when needed to make mixture fall between these temperatures.
- Assure that substrates are not wet from condensation in ambient conditions of high humidity. High humidity conditions may affect surface drying and subsequently final results.
- Do not bond directly to hardwood, Luan plywood, particle board, parquet, cushion or sponge-back vinyl flooring, metal, fiberglass or plastic. Contact technical services for recommendations.
- Do not use as a permanent wear surface.
- Do not use on sloped surfaces that require drainage.
- Precautions for finished flooring deflection and movement joint requirements should be considered when applying over post-tensioned concrete, pre-stressed concrete or prefabricated concrete planks. Contact technical services for further details.

Packaging

50 lb (22.68 kg) Bags

3. Technical Data

Applicable Standards

ASTM International (ASTM)

- ASTM C1708 Standard Test Methods for Self-leveling Mortars Containing Hydraulic Cements
- ASTM F2873 Standard Practice for the Installation of Self-Leveling Underlayment and the Preparation of Surface to Receive Resilient Flooring
- ASTM C627 Standard Test Method for Evaluating Ceramic Floor Tile Installation Systems Using the Robinson-Type Floor Tester
- ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes
- ASTM F1869 Standard Test Method for Measuring Moisture Vapor
- ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring

Resilient Floor Covering Institute (RFCI) Recommended Work

CUSTOM BUILDING PRODUCTS
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Practices for Removal of Resilient Floor Coverings

Tile Council of North America (TCNA) TCNA Handbook for Ceramic Tile Installation, TCNA Method EJ171

American National Standards Institute (ANSI) ANSI A108.01 and A108.02 of the American National Standards for the Installation of Ceramic Tile

Technical Chart

Property	Test Method	Typical Results @70°F (21°C) and 50%RH
Pot Life (in bucket)		>15 minutes
Healing Time (Re-heal)	ASTM C-1708	>18 minutes
Compressive Strength at 28	ASTM C-348	>5,500 psi
Flexural Strength at 28 days		1100 psi (7.58 MPa)
Walkable Hardness		2 - 4 Hours
Installed Density - Dry		111.4-118.3 lb/ft^3
Robinson Test	ASTM C-627	Extra Heavy
Time Before Installing Floor Covering		
Ceramic tile/Non-moisture sensitive floor covering		>4 Hours
Moisture-sensitive floor coverings		>16 Hours

Environmental Consideration

Custom Building Products is committed to environmental responsibility in both products produced and in manufacturing practices. Use of this product can contribute to LEED® certification

4. Instructions

General Surface Prep

USE CHEMICAL-RESISTANT GLOVES, such as nitrile,whe nhandling product.

All surfaces must be structurally sound, clean, dry and free from contaminants such as grease, oil, dirt, dust, curing compounds, waxes, sealers, efflorescence, or any other foreign matter. Concrete must be fully cured and absorb water. Smooth concrete surfaces, existing glazed tile, terrazzo, or polished stone may need to be roughened or scarified. Refer to Custom TechPrime™ A Acrylic Primer technical datasheet for use in lieu of mechanical preparation or when applying over Custom TechMVC™ Moisture Vapor and Alkalinity Barrier. For increased performance in demanding applications, concrete surfaces can be mechanically profiled and prepared by shotblasting, sandblasting, scarifying, diamond-grinding or other engineered approved methods (reference ICRI CSP 3 standards for ideal profile height). Any existing flooring must be well bonded and stripped of old finish.

CUSTOM® products may be used in assemblies over concrete with high moisture vapor emission levels provided that other materials such as finish flooring, adhesives or membranes are approved in these conditions. Consult the manufacturers for their limitations and requirements. Additionally, any sources of moisture are to be limited to initial concrete placement and not from sources such as water intrusion or from a lack of an effective vapor retarder/barrier.

Assembly mockups will determine suitability for these conditions on specific projects. Contact CUSTOM Technical Services for product information (800) 282-8786

Bonding To Concrete Surfaces

In addition to general surface preparation requirements listed above, concrete must be free of efflorescence and hydrostatic pressure. Concrete surfaces must have a tensile strength in excess of 200 psi (1.4 n/mm²). Concrete that was treated with curing compounds must be evaluated for suitability or mechanically removed.

Bonding to Gypsum Surfaces

Gypsum-based underlayment must be solid and structurally sound, achieving a compressive strength >2000psi (13.8 MP) Remove any unacceptable surfaces. The underlayment must be sufficiently dry and properly cured to the manufacturer's specifications for permanent, non-moisture permeable coverings. Substrate deflection not to exceed the current industry standards. All Gypsum surfaces are required to be sealed or primed prior to leveling. Apply TechPrime A Acrylic Primer directly to the gypsum or over gypsum manufacturer's sealer. Dilute TechPrime A 3-parts water to 1-part primer with clean, potable water. Apply a second application of primer diluted 1:1. Drying time depends on site conditions, but is normally less than 1 hour between coats.Leveler can be applied to the primed surface after primer dries. Gypsum based underlayment used in tile or stone applications may require waterproofing or crack isolation. For these applications we recommend applying RedGard® Waterproofing and Crack Prevention Membrane over leveler once cured.

Bonding to Plywood and OSB Surfaces

Bonding to Plywood and OSB Surfaces Plywood and OSB shall be a minimum ¾€ (19mm) tongue & groove, APA rated Type 1 exterior exposure plywood. Subfloors shall be structurally compliant to building codes and area usage including joist blocking or bracing, be sound, clean, dry, and free from contaminants that would prevent adhesion. Any loose or deflecting areas must be addressed prior to leveler installation. Floors may be prepared by sanding. Do not use sweeping compounds, or chemicals or solvents to clean the floor. It is generally accepted that wood-framed substrate deflection for Porcelain tiles is limited to <L/360; natural stone <L/720. Dimensionally weaker finishes such as natural stone, Saltillo, cement, glass tile and resilient flooring installations may require additional plywood layers based on area size/span; deflection; leveler thickness and project usage, live and dead loads. Leveler may require ½€ thickness to replace cement backerboard use under tile. To help prevent failures from substrate creep (sagging), install heavy dead loads such as stone countertops prior to leveler and tile or flooring installation. Refer to ANSI A108 AN2 €œGeneral Requirements for Subsurfaces€ and TCNA details for further information for tile installations or contact CUSTOM Technical Services. Block any open spaces to prevent leveler spilling to adjoining areas. Fill joints with a CUSTOM patching compound such as Silk Patching & Finishing Compound or prefill with TechLevel-WSF SLU mixed at the minimum water level. All wood subfloors require a primer application of undiluted TechPrime™ A Acrylic Primer.

Bonding to Cutback Adhesive

Adhesive layers must be removed. **Use extreme caution**; adhesives may contain asbestos fibers. Do not sand or grind adhesive residue, as harmful dust may result. Never use adhesive removers or solvents, as they soften the adhesive and may cause it to penetrate into the concrete. Adhesive residue must be wet-scraped to the finished surface of the concrete, leaving only the transparent staining from the glue. To determine desirable results, do a test bond area before starting. Refer to the RFCI Pamphlet "Recommended Work Practices for Removal of Resilient Floor Coverings" for further information.

Priming

Prime all surfaces with an appropriate CustomTech™ primer before application of TechLevel XP-1. Refer to Custom TechPrime™ A Acrylic Primer, or TechPrime™ E 100%-Solids Epoxy Primer technical datasheets.

Movement Joint Placement

Joints or Cracks in Substrate

Expansion joints and cold joints, as described in ANSI A108.01, should be carried from the substrate up through the tile or flooring surface and filled with an appropriate elastomeric sealant, such as

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Custom's® Commercial 100% Silicone Sealant. For the proper treatment of control or saw cut joints and cracks for flooring, refer to ASTM F710. For tile installations, refer to TCNA Details EJ171, F125 & F125A. Contact Custom Technical Services for additional information.

Mixing Ratios
Mix the entire 50 lb. (22.68 kg) bag of powder with 5.25 - 5.75 quarts (5 - 5.4 L) of clean, cool water.

Mixing Procedures
Barrel:

Mix 50 lb. (22.68 kg) bag of powder with the appropriate amount of clean, cool water. Slowly add powder to water while mixing with a heavy-duty 1/2" (13 mm) electric drill and an €œeggbeater€ mixing paddle at minimum 650 RPM. Thoroughly mix for 2 minutes to a lump- free consistency. Do not overmix. Overmixing or moving the mixer up and down during the mixing process could trap air, which could shorten the pot life or cause pin holing during application and curing.

Pumping:

TechLevel XP-1 can be pumped with a mixing pump. Adjust the water setting to obtain the optimum workability. Do NOT over or underwater. Pump the mix and use spreader to evenly distribute the materials to desired thickness.

Application of Product
Pour the mixed product and spread with a long-handled gauge rake to the desired thickness. Directly after the topping has been dispersed, use a smoothing blade to break the material's surface rheology and blend any inconsistencies to create a more uniform or homogeneous appearance. Keep a wet edge when pouring multiple mixes in the same area.

If a second layer is required, install immediately after the first layer has set to a walkable hardness. If the first layer has dried over 12 hours, re-prime before second application.

*** Always install a test area to confirm proper bonding as well as a desired appearance.

IMPORTANT NOTES: Self leveling cement based products may exhibit slight cracking due to structure and substrate moment; shrinkage; and creep. Sharp or reentrant wall corners can contribute to crack formation. These cracks are considered normal. Other causes of cracking are due to high ambient or substrate temperatures; wind or air flow; water ratios and mixing technique. When surface is sealed with clear or semi-transparent coatings, these cracks may become more visible.

Curing of Product
Install non-moisture-sensitive ceramic tile or stone in 4 hours; all other floor coverings should be installed after 16 hours Cure time can vary with temperature and humidity. Confirm moisture limitations of flooring and adhesives before installing over leveler.

Cleaning of Equipment
Clean with water before material dries.

Health Precautions
This product contains Portland cement. Avoid eye contact or prolonged contact with skin. Wash thoroughly after handling. If eye contact occurs, flush with water for 15 minutes and consult a physician. Use with adequate ventilation; do not breathe dust and wear a NIOSH approved respirator. If ingested, do not induce vomiting; call a physician immediately.

Conformance to Building Codes
Installation must comply with the requirements of all applicable local, state and federal code jurisdictions.

5. Size & Availability

Contact the manufacturer or visit custombuildingproducts.com for information about product cost and availability.

LOCATION	ITEM CODE	SIZE	PACKAGE
USA/Canada	TLXP150T	50 lb (22.68 kg)	Bag

6. Product Warranty

Custom® Building Products warrants to the original consumer purchaser that its product shall be free from defects in material and workmanship under normal and proper usage for a period of one year following the date of original purchase. Custom's® sole liability under this warranty shall be limited to the replacement of the product. Some states, countries or territories do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty will not extend to any product which has been modified in any way or which has not been used in accordance with Custom's® printed instructions. Custom® makes no other warranties either expressed or implied. This warranty gives you specific legal rights, and you may have other rights that vary from state to state or from one country/territory to another. For details and complete warranty information, visit custombuildingproducts.com.

7. Product Maintenance

Properly installed product requires no special maintenance.

8. Technical Services Information

For technical assistance, contact Custom Building Products.

9. Filing System

Additional product information is available from the manufacturer upon request.

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Coverage Chart

TYPICAL SQUARE FOOT COVERAGE PER 50 LB BAG (SQUARE METER PER 22.68 KG)

THICKNESS	COVERAGE
1/8" (3 mm)	46 48 ft² (4.2 4.4 M²))
1/4" (6.35 mm)	23 24 ft² (2.1 2.2 M²)
1/2" (12.7 mm)	11.5 12 ft² (1.05 1.1 M²)
1" (25.4 mm)	5.75 6 ft² (0.52 0.55 M²)
1.5" (38.1 mm)	3.8 4 ft² (0.35 0.37 M²)
2€ (50.8 mm)	2.87 3ft² (0.26 0.275 M²)

Chart for estimating purposes. Coverage may vary based on installation practices and jobsite conditions. For more sizes, use the material calculator at CustomBuildingProducts.com or contact CUSTOM Technical Services at 800-282-8786.