



4000

DS-040.0-0312



1. PRODUCT NAME

DRYTEK® 4000

2. MANUFACTURER

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3. PRODUCT DESCRIPTION

DRYTEK 4000 is an economical, easy-to-use, self-leveling underlayment designed for use over various substrates including concrete and ceramic tile. DRYTEK 4000 provides a smooth and flat surface on which sensitive finished floor goods can be installed. DRYTEK 4000 can be placed from 1/8–3" (3–76 mm) in a single lift.

Advantages

- Pourable and pumpable
- Inorganic; will not contribute to mold/mildew growth
- Suitable surface for most finished floor goods
- Can be applied directly over concrete testing at RH of 95% or less per ASTM F2170

Suitable Substrates

- Certain Gypsum Substrates
Check with gypsum-based underlayment manufacturer for installation recommendation.
- Concrete

- Cement backer board*
- Ceramic tile and stone**
- Exterior Glue Plywood**
- Cement mortar beds
- Cement terrazzo**
- Vinyl Tile[^]
- Non-cushioned Sheet Vinyl[^]
- Linoleum[^]
- DRYTEK MVB Moisture Vapor Barrier[^]

* Consult cement backer board manufacturer for specific installation recommendations.

** See 5. Installation—Surface Preparation.

[^] See Section 5 Installation Over Vinyl Tile, Linoleum, Sheet Vinyl and DRYTEK MVB Moisture Vapor Barrier

Packaging

50 lb (22.7 kg) bag/48 bags per pallet

Color: Grey

Approximate Coverage

Yield/coverage is only an estimate and may vary depending on the amount of water, mixing equipment, temperature and field conditions.

Per 50 lb (22.7 kg) bag

Nominal Thickness	Approximate Coverage
1/8" (3 mm)	44 ft ² (4.1 m ²)
1/4" (6 mm)	22 ft ² (2.1 m ²)
1/2" (12 mm)	11 ft ² (1.0 m ²)
1" (25 mm)	5.5 ft ² (0.5 m ²)
2" (51 mm)	2.8 ft ² (0.3 m ²)
3" (76 mm)	1.8 ft ² (0.2 m ²)

Shelf Life

Factory sealed containers of this product are guaranteed to be of first quality for one (1) year[‡] if stored off the ground in a dry area.

[‡] High humidity will reduce the shelf life of bagged product.

Limitations

- For interior use only.
- Do not install when surface temperature is below 40°F (4°C) above 90°F (32°C), or when ambient air temperature is expected to fall below 50°F (10°C) during placement or before material takes final set.
- Do not install over painted surfaces.
- Do not install over certain moisture-sensitive gypsum-based surfaces. Check with gypsum-based underlayment manufacturer for installation recommendation.
- Do not exceed recommended mixing ratio as indicated in mixing instructions. Over watering will weaken product properties.
- Never mix with cement or admixtures.
- Not a wearing surface, must be covered with wear surface.
- Do not apply DRYTEK 4000 directly over waterproofing or crack isolation membranes.
- Adhesives/mastics, mortars and grouts for ceramic tile, pavers, brick and stone are not replacements for waterproofing membranes. When a waterproofing membrane is required, use a LATICRETE Waterproofing Membrane (see Section 10 FILING SYSTEMS).
- DRYTEK DM1 Reinforcement Mat or 3.2# galvanized diamond metal lath must be used when installing over wood substrates.
- Do not bond directly to luan, OSB, particle board or Masonite® surfaces.
- Not for use in submerged applications.
- DRYTEK® 4000 should not be installed over any moving joints or structural cracks (cracks greater than 1/16" [1.5 mm] in width or any crack that experiences any vertical displacement). All existing expansion joints, cold joints and control joints must be brought up through the underlayment and the finish. Failure to honor movement joints will result in cracking and/or loss of bond. Do not bond directly to luan, interior glue plywood, OSB, particle board, contaminated concrete, moisture sensitive gypsum underlayments, or dirty surfaces.
- Note: Substrate deflection under all live, dead and impact loads, including concentrated loads, shall comply with applicable building code and finish floor manufacturer requirements.

Cautions

Before using any DRYTEK product:

- Check www.drytek.com for any technical bulletins or updated information about the product and its application
- Contact your local DRYTEK Technical Sales Representative with any questions.
- Consult MSDS for more safety information.
- During cold weather, protect finished work from traffic until fully cured.

- Contains portland cement and silica sand. May irritate eyes and skin. Avoid contact with eyes or prolonged contact with skin. In case of contact, flush thoroughly with water.
- Do not take internally. Silica sand may cause cancer or serious lung problems. Avoid breathing dust. Wear a respirator in dusty areas.
- Keep out of reach of children.

4. TECHNICAL DATA

Physical Properties

TENSILE BOND STRENGTH ^A	275 – 305 PSI (1.9 – 2.1 MPA)
FLEXURAL STRENGTH ^B	750 – 1000 PSI (5.2 – 6.9 MPA)
COMPRESSIVE STRENGTH ^C	3300 – 3600 PSI (22.8 – 24.8MPA)

Specifications are subject to change without notification. Results shown are typical but reflect test procedure used. Actual field performance will depend on the type of tile/stone used, installation methods and site conditions.

A. Tensile Bond Strength per ASTM C 1583 test at 28 days, DRYTEK®/Primer system over concrete substrate.

B. Flexural Strength at 28 days per ASTM C 348 – center point loading.

C. Compressive Strength per ASTM C 109 (air dry) – test at 28 days, 2" (50 mm) cubes, air dry.

Working Properties

Working Time	15–20 minutes
Time To Traffic	3–4 hours
Install Floor Goods	from 3 hours to 3 days depending on floor finish
Wet mortar density	17.1 lb/gal (2.05 g/cc)

5. INSTALLATION

Surface Preparation

Installation Over Concrete Slabs

- ALL CONCRETE SURFACES MUST BE SHOT BLASTED/MECHANICALLY ABRADED if minimum 72 psi (0.5 MPa) bond strength is not achieved as per ASTM C1583.
- All surfaces must be primed with DRYTEK Multi-Purpose Primer or DRYTEK 104S Epoxy Primer and should be between 40°F (4°C) and 90°F (32°C). Surfaces should be structurally sound, clean and free from all dirt, oil, grease, adhesives, paint, sealers or curing compounds.
- Expansion joints shall be provided through the tile work from all construction or expansion joints in the substrate. Follow ANSI specification A108.01-3.7 "requirements for movement joints: preparations by other trades" or TCNA detail EJ-171 "Movement Joints–Vertical & Horizontal". Do not cover expansion joints with mortar.

Installation Over Wooden Sub-Floors

- Installer must verify that deflection under all live, dead and impact loads of interior plywood floors does not exceed industry standards of L/360 for ceramic tile and brick or L/480 for stone installations where L=span length.
- Minimum construction for interior plywood floors:

SUBFLOOR: 5/8" (15 mm) thick exterior glue plywood, either plain with all sheet edges blocked or tongue and groove, over bridged joists spaced 16" (400 mm) o.c. maximum; fasten plywood 6" (150 mm) o.c. along sheet ends and 8" (200 mm) o.c. along intermediate supports with 8d ring-shank, coated or hot dip galvanized nails (or screws); allow 1/8" (3 mm) between sheets and 1/4" (6 mm) between sheets edges; all sheet ends must be supported by a framing member; glue sheets to joists with construction adhesive.

UNDERLAYMENT: 5/8" (15 mm) thick exterior glue plywood fastened 6" (150 mm) o.c. along sheet ends and 8" (200 mm) o.c. in the panel field (both directions) with 8d ring-shank, coated or hot dip galvanized nails (or screws); allow 1/8" (3 mm) to 1/4" (6 mm) between sheets and 1/4" (6 mm) between sheet edges and any abutting surfaces; offset underlayment joints from joints in subfloor and stagger joints between sheet ends; glue underlayment to subfloor with construction adhesive.

- Prime cleaned and properly prepared surface with DRYTEK Multi-Purpose Primer or DRYTEK 104S Epoxy Primer as described in "Priming" section.
- Allow primer to dry accordingly. Install 3.2# galvanized diamond metal lath over entire exterior glue plywood floor. Ensure proper fastening to eliminate any loose sections. Do not install over wet primer. Note: Galvanized diamond metal lath can be omitted when installing DRYTEK 4000 over LATICRETE® Floor HEAT.

When using DRYTEK DM1 Reinforcement Mat

1. Place DRYTEK DM1 Reinforcement Mat on substrate with the fabric side down/matrix side up.
 2. Staple DRYTEK DM1 Reinforcement Mat every 12" to 16" (300 – 400 mm) on center.
 3. Dilute DRYTEK Multi-Purpose Primer at a 3:1 primer to water ratio and spray apply to DRYTEK DM1 Reinforcement Mat. Allow DRYTEK Multi-Purpose Primer to dry accordingly.
 4. Mix and pour the specified DRYTEK self-leveling underlayment at 3/4" (19 mm) depth. Refer to DRYTEK DM1 Reinforcement Mat data sheet 050.0 for more information.
- Install DRYTEK 4000 over floor in accordance with "Application" section below.

Installation Over Cutback Adhesive (over concrete only)

- Mechanical removal of cutback (i.e. grinding, sanding, blasting) can be hazardous, as old cutback adhesive may contain asbestos. Consult adhesive manufacturer and any governmental agencies for proper removal of any adhesive containing asbestos.
- DRYTEK 4000 can be installed over a thin layer of non-water soluble cutback or other non-water-soluble adhesive residue.
- For adhesives that do not contain asbestos remove the non-water soluble cutback adhesive to a thin residue by razor scraping or equivalent and then remove any loose particles by thoroughly sweeping, vacuuming and then wet mopping the substrate.

- Since the weakest link of the system will be the bond of the adhesive to the substrate, it is important that the adhesive be very thin, firm and have a good bond to the substrate. After scraping the non-water soluble cutback down to a thin "transparent" residue, and if the floor then passes the 72 psi (0.5 MPa) pull strength test pour DRYTEK 4000 without shot blasting. If the floor does not pass the 72 psi (0.5 MPa) pull strength test you must thoroughly shot blast the floor to a CSP of 3–5. It is the responsibility of the installation contractor to ensure the substrate is properly prepared prior to the installation of any DRYTEK® material.
- Water soluble vinyl adhesives must be completely removed (e.g. shot-blasted) from the floor surface.

Installation Over Vinyl Tile, Linoleum, Sheet Vinyl and DRYTEK® MVB Moisture Vapor Barrier (over concrete only)

- All vinyl tile, linoleum, non-cushioned sheet vinyl and DRYTEK® MVB Moisture Vapor Barrier must be well adhered to the substrate and free from any bond breaking or bond inhibiting surface contaminants. Ensure bond strength of the vinyl tile to the substrate is a minimum 72 psi (0.5 MPa). If the floor does not pass the 72 psi (0.5 MPa) pull strength test you must remove the tile and thoroughly shot blast the floor to a CSP of 3–5. It is the responsibility of the installation contractor to ensure the substrate is properly prepared prior to the installation of any DRYTEK material. Cementitious decorative coatings are excluded from this application. Consult Technical Services prior to any installation over vinyl tile. See "Priming" section for specific instructions over vinyl tile, linoleum, sheet vinyl and DRYTEK MVB Moisture Vapor Barrier.

Installation Over Existing Ceramic Tile, Stone or Cement Terrazzo

- All tile and stone must be well adhered to the substrate and free from any bond breaking or bond inhibiting surface contaminants. Ensure bond strength of the tile or stone to the substrate is a minimum 72 psi (0.5 MPa). If the floor does not pass the 72 psi (0.5 MPa) pull strength test you must remove the tile or stone and thoroughly shot blast the floor to a CSP of 3–5.
- Mechanically abrade existing ceramic tile and stone with a carborundum disk. Wash and rinse thoroughly with clean water. Allow to dry. Skim coat existing ceramic tile, cement terrazzo or stone with DRYTEK Premium Skimcoat Patch Underlayment (min.1/8"[3 mm] thick continuous coating). Allow to dry.
- Prime surface according to "Priming" section and install DRYTEK 4000 according to "Application" section.

Priming

Use DRYTEK Multi-Purpose Primer or DRYTEK 104S Epoxy Primer with every application of DRYTEK self-leveling products. Shake DRYTEK Multi-Purpose Primer thoroughly before using. Pour, mop or spray DRYTEK Multi-Purpose Primer onto the surface and distribute evenly using a bristle broom to ensure complete saturation of the entire surface. Remove any puddles or areas where DRYTEK Multi-Purpose Primer is especially thick. Allow DRYTEK Multi-Purpose Primer to dry to a clear film (usually 3 – 5 hours), but no more than 24 hours prior to application of DRYTEK 4000. DRYTEK Multi-Purpose Primer should

not be applied when the surface temperature is below 40°F (4°C) or above 90°F (32°C). Insufficient drying time or poor film formation of DRYTEK Multi-Purpose Primer due to low temperature and/or high humidity may result in pinholes in the surfacing layer. Maintain adequate ventilation during and after application of DRYTEK Multi-Purpose Primer to help ensure quicker drying. If DRYTEK Multi-Purpose Primer dries within 45 minutes, substrate is excessively dry and will require another application as directed on DRYTEK Multi-Purpose Primer data sheet (047.0).

For installation of DRYTEK Multi-Purpose Primer over sheet vinyl, linoleum, VCT/VAT, or DRYTEK MVB Moisture Vapor Barrier; apply DRYTEK Multi-Purpose Primer (diluted 1:1 with water) over entire substrate then lightly scatter DRYTEK self-leveling underlayment powder over the wet primer and broom to form a light slurry. Allow slurry to dry prior to applying DRYTEK self-leveling product.

NOTE: Keep primed surface clean. Do not allow any foot traffic onto primed surface. DRYTEK Multi-Purpose Primer is milky when wet and clear when dry. DRYTEK Multi-Purpose Primer allowed to sit on substrate for more than 24 hours without a DRYTEK self-leveling product being installed must be re-primed.

Mixing

DRYTEK 4000 should be mixed with 4.0 – 4.5 quarts (3.8–4.3 ℓ) of water per 50 lb (22.7 kg) bag. Do not over water. For manual application, add product to water and mix for 2–3 min with a heavy duty drill (650 rpm) to obtain a lump free mix. DRYTEK 4000 can also be used in most pump equipment. Please consult with a DRYTEK representative to verify equipment compatibility. A slump test should always be performed to ensure that mix is homogeneous and free from separation. The ideal slump range for DRYTEK 4000 is 10–11" (250 – 280 mm) using a DRYTEK Flow Test Kit.

Application

Perimeter Isolation Strip

Note: It is recommended to install a perimeter isolation strip before the installation of DRYTEK 4000. Attach the perimeter isolation strip to the perimeter wall of the entire subfloor, as well as around the perimeter of any protrusions, in order to isolate the floor and wall/restraining surfaces. Temporarily fasten perimeter isolation strip in place with staples or masking, duct, or carpet tape. The perimeter isolation strip can then be removed after the tiles have set firm. The joints can then be filled with LATICRETE® Latasil™.

Pour or pump the DRYTEK 4000 over the primed substrate and spread with a spike roller or gauging rake. Use a smoothing paddle to combine pours and to obtain a flat smooth surface. Floor will be ready for foot traffic in 3–4 hours. Follow manufacturer's recommendations for installing vinyl tile, linoleum, carpet, or wood parquet over concrete. Before installing wood or resilient flooring, consult manufacturer for recommendations on substrate moisture content requirements. Allow DRYTEK 4000 to dry in accordance with those recommendations.

Topping

A finish coat of a DRYTEK self-leveling wear surface (such as DRYTEK 7400 or DRYTEK 9400) may be applied to DRYTEK 4000 after material has set (3–4 hours). It is extremely important that DRYTEK 4000 is primed with two coats of DRYTEK Multi-Purpose Primer following instructions for highly absorptive substrates prior to

application of a DRYTEK self-leveling wear surface. (Refer to DRYTEK Multi-Purpose Primer data sheet [047.0] chart for dilution ratios on installations over highly porous surfaces)

Flooring Installation

Floor goods can be applied to surface from 3 – 72 hours after application, depending on thickness, drying conditions and type of finished floor. Due to the relatively low pH level of DRYTEK self-leveling underlayments, finished floor goods can be applied rapidly without risk of adhesive bond failure. Always test performance suitability and compatibility of finished floor systems prior to their application. Sample surfaces should be installed as a field test so as to be representative of entire surface and tested for intended use. Always refer to finished floor manufacturer's recommendations regarding installation instructions, restrictions and compatibility.

6. AVAILABILITY AND COST

Availability

For Distributor information, call:

Telephone: +1.203.393.0010

For on-line Distributor information, visit DRYTEK at www.drytek.com.

Cost

Contact a DRYTEK Technical Sales Representative in your area.

7. WARRANTY

See 10. FILING SYSTEM

DS 230.16: DRYTEK 3 Year Product Warranty

8. MAINTENANCE

No maintenance required.

9. TECHNICAL SERVICES

Technical Assistance

Information is available by calling the DRYTEK Technical Service Hotline (hours 8:00 AM to 5:30 PM EST):

Telephone: +1.877.DRYTEK1, ext. 247 or;
+1.877. 379.8351, ext. 247

Fax: +1.203.393.1948

Technical and Safety Literature

To acquire technical and safety literature, please visit our website at www.drytek.com.

10. FILING SYSTEM

Additional product information is available on our website at www.drytek.com. The following is a list of related documents:

DS 230.16: DRYTEK® 3 Year Product Warranty
DS 6200.1: LATICRETE® Latasil™
DS 050.0: DRYTEK DM/1
DS 048.0: Drytek 104S Primer
DS 053.0: Drytek MVB
DS 605.0: LATICRETE Floor Heat
DS 042.0: DRYTEK 7400
DS 045.0: DRYTEK 9400
DS 047.0: DRYTEK Multi-Purpose Primer
DS 046.0: DRYTEK Premium Skimcoat Patch Underlayment

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