

THERMA - SHIELD® | 2001

PRODUCT DESCRIPTION

THERMA-SHIELD® 2001 is a two-component, self-adhering, seamless, closed-cell spray-applied polyurethane foam insulation system formulated with a low-GWP HFO blowing agent. It is a low-VOC, FEMA Class 5 flood-resistant material with exceptional yield, thermal performance, and moisture resistance, and it is processed only with IPS A-Side (ISO).

THERMA-SHIELD® 2001 is an air-impermeable insulation at 1/2" and a Class II vapor retarder at 1", making it a strong choice for residential and commercial wall, foundation, and under-slab insulation. Compliant with ICC 1100, IAPMO ES1000, and ASTM C1029 Type II.

PRODUCT PERFORMANCE DATA

PROPERTY	TEST METHOD	VALUE
R-Value	ASTM C518	7.4 @ 1"; aged R-value 21.3 @ 3.5"
Core Density	ASTM D1622	2.0 lb/ft³
Moisture Vapor Transmission @ 1"	ASTM E96	0.74 perms
Air Permeance @ 1/2"	ASTM E2178	<0.02 L/s·m² @ 75 Pa (air impermeable insulation)
Air Barrier @ 1" (infiltration / exfiltration @ 1.57 psf)	ASTM E2357 / ASTM E2178	0.0087 cfm/ft² / 0.0000 cfm/ft²
Water Resistance @ 1"	AATCC 127-98 (@ 56.5 ft); ASTM E331 (6.24 psf)	No failure; no penetration
Closed-Cell Content	ASTM D6226	>90%
Dimensional Stability (28 days @ 158°F, 97% RH)	ASTM D2126	<9%
Compressive Strength	ASTM D1621	28 psi
Tensile Strength	ASTM D1623	45 psi
Fungi Resistance	ASTM C1338	Pass, no growth
Sound Transmission Loss (2" x 4" stud wall assembly)	ASTM E90	STC 31; OITC 24
Flame Spread	ASTM E84	Class I, ≤ 25
Smoke Development	ASTM E84	Class I, ≤ 450
Code Compliance Standard	ICC 1100; IAPMO ES1000; ASTM C1029 Type II	Compliant

PROCESSING PARAMETERS

PARAMETER	RECOMMENDED RANGE
Dynamic Fluid Pressure	1000 psi minimum
Mixing Ratio	1:1 by volume
Hose Heat	110°F-130°F
Preheat Temperature	"A" & "B" Components: 110 - 135°F
Recommended Mixing Chamber	02
Storage Temperature	50 - 80°F
Ambient Range	40°F-120°F
Ambient Temp During Spray	40°F-120°F
Moisture Content (Substrate)	<19%
Max Lift per Pass	3.5"

GENERAL PRODUCT INFO

ITEM	DESCRIPTION
Product Color	White
Packaging	55-gallon drum
Re-entry Time (worker)	2 hours
Re-occupancy	24 hours

THERMAL RESISTANCE

THICKNESS (INCH)	R-VALUE	MOISTURE VAPOR PERM
1	7.4	0.74
2	14	0.37
3	20	0.25
3.5	23	0.21
4.5	30	0.16
5.5	37	0.13
6	40	0.12
7	47	0.10
8	53	0.09
9	60	0.08

PROCESSING GUIDELINES

PRECONDITIONING:

Pre-condition material to 65 - 85°F prior to use. Cold material may thicken and cause cavitation.

MIXING:

Process through spray equipment capable of delivering the proper 1:1 ratio by volume with IPS A-Side (ISO). Read all instructions before applying this product; contact IPS Technical Services for the application guideline for the grade in use (Summer, Regular, or Winter).

PRESSURE SETTINGS:

Use a plural-component proportioner delivering a minimum of 1000 psi dynamic pressure.

TEMPERATURE SETTINGS:

Preheater temperatures: 110 - 135°F (both A & B). Adjust based on substrate, ambient temperature, and humidity. Maximum service temperature of the foam: below 180°F.

RECOMMENDED APPLICATIONS

RESIDENTIAL INTERIOR APPLICATIONS:

Wall cavities, ceilings, attics, crawl spaces, interior foundations, cathedral ceilings, and rim joists in residential construction. Attic and crawl space installations without a prescriptive ignition barrier

INDUSTRIAL APPLICATIONS:

Exterior below-grade foundation walls, the exterior side of walls, and under concrete slabs. Approved air and water-resistive barrier material when installed on the exterior side of walls. Exterior wall coverings over the foam may be restricted.

COMMERCIAL INTERIOR APPLICATIONS:

Walls, foundation walls, and the underside of roof decks in commercial construction. Exterior or interior of Type I, II, III, IV, and V construction

APPLICATION STEPS

Applied per the grade in use (Summer, Regular, or Winter); consult IPS Technical Services for the application guideline. Maximum pass thickness: 3.5"

Substrate temperature range: 40°F-120°F

Protect foam from direct sunlight, which causes dusting and discoloration. On exterior applications where a masonry veneer is to be installed, the foam may be exposed to UV light for up to 6 months. Where a coating is required over metal panel claddings, apply the coating within six weeks of the foam application.

1. Clean surfaces per "Substrate Preparation."
2. If required, apply primer and allow it to cure fully.
3. Flush the proportioner before switching materials.
4. Spray in smooth, even passes; test the pattern before spraying.
5. Allow each lift to cool before applying the next.
6. Regularly inspect foam appearance and adhesion.

LIQUID PROPERTIES @77°F

PROPERTY	A-SIDE (ISO)	B-SIDE (RESIN)
Specific Gravity	Refer to IPS A-Side (ISO) documentation	1.2
Viscosity	Refer to IPS A-Side (ISO) documentation	600-800 cps

SUBSTRATE PREPARATION

WOOD

Ensure the substrate is dry and clean.
Moisture content must be below 19% before spraying.
Remove dust, oil, or debris.
Fill gaps with suitable backer rods or fillers.

STEEL & OTHER METALS

Verify adhesion and suitability through field testing.
Blasting or priming may be required depending on substrate condition.

CONCRETE

Must be clean, cured (28 days or more), and free of dust or oil.
Fill voids or cracks before application.

PREVIOUSLY APPLIED FOAM

Remove any old or incompatible foam or coatings.
Always test adhesion before full application.

WIRING & PLUMBING

Fully compatible with CPVC piping (Paschal Engineering Study for SPFA).
Safe with standard electrical wiring (NEMA Bulletin 95).

STORAGE & SHELF LIFE

Store indoors between 50 and 80°F.
Shelf life from date of manufacture (original, unopened containers, stored indoors): Resin 6 months; IPS A-Side (ISO) 24 months.
Do not break the product seal during storage.
Keep containers sealed, dry, and out of direct sunlight.

HEALTH & SAFETY HANDLING

When spraying or handling THERMA-SHIELD® 2001 Resin and IPS A-Side (ISO), the following protective measures and equipment are recommended:

Protective Equipment

- Wear suitable personal protective clothing
- Use chemically resistant rubber or plastic gloves
- Wear goggles or chemical safety glasses
- Wear a supplied-air, full-face, positive-pressure or continuous-flow respirator or a supplied-air hood when airborne concentrations are unknown or exceed threshold limit values; all respiratory equipment must be NIOSH approved and maintained
- Always use appropriate personal protective equipment (see SDS); an eye wash system and showers should be available

Exposure Precautions

- Avoid all contact with skin and eyes
- Do not ingest
- Do not breathe fumes, gas, mist, vapors, or spray; dense vapors can displace breathing air in confined or unventilated spaces
- In the event of exposure, refer to the Safety Data Sheet (SDS) for first-aid procedures

Spill Response

In the event of a spill, clear the area, ensure adequate ventilation, absorb the material with sawdust or a similar absorbent, and shovel it into a container. Dispose of waste material under conditions that meet federal, state, and local environmental regulations.

Disclaimer

The technical information provided herein is intended as general guidance only. Always consult the product label and Safety Data Sheet (SDS) before using this product.

HANDLING & SAFETY

- Ensure adequate ventilation during spraying.
- Always wear chemical safety glasses or goggles, chemically resistant gloves, protective clothing, and NIOSH-approved respiratory protection as required by airborne concentrations.
- Avoid contact with eyes and skin; avoid inhaling mist or vapor.
- Dispose of materials per federal, state, and local regulations.
- For full details, consult the Safety Data Sheet (SDS).
- In emergencies, call CHEMTREC: 1-800-424-9300

THERMAL BARRIERS

Foam plastic must be protected by a thermal barrier or ignition barrier as required by the applicable building code. NFPA 286 room-corner tests passed with the following thermal barrier coatings: 14 wet mils International Fireproof Technology DC 315; 14 wet mils No-Burn Plus ThB; 14 wet mils Flame Control 60-60 A; and 1 in. on vertical walls / 0.5 in. on horizontal ceilings or roofs of Staycell One Step 502. Code compliance under the 2018, 2021, and 2024 IBC and IRC for attics and crawl spaces without a prescriptive ignition barrier, and for interior finish without a 15-minute thermal barrier when coated with an approved intumescent coating: [VERIFY: listing status]. For details on approved heat and fire protection barriers, contact IPS Technical Services.

ADHESION

Substrates must be clean, dry, and free of grease, oil, dirt, and surface moisture. The moisture content of porous materials must be below 19% prior to foam application. Contact IPS Technical Services for guidance on material compatibility, surface preparation techniques, and adhesion to common construction substrates.

It is the responsibility of the builder or designer to determine the suitability of this material for each specific project. The installer must verify product compatibility at the time of application, as variations in weather, materials, and site conditions can affect product performance.

PRECAUTIONS

Polyurethane foam may present a serious fire hazard if improperly used or allowed to remain exposed or unprotected. Flammability ratings measure the product's response to heat and flame under controlled laboratory conditions and do not reflect hazards under actual fire conditions. Each person or firm engaged in the application, installation, or use of the foam should determine whether a potential fire hazard exists in the specific usage and take all appropriate precautions. Do not use in areas with a service temperature of 180°F or above. After installation, the foam must be covered with an approved thermal barrier in accordance with local building code requirements.

MAINTENANCE

Regular equipment cleaning ensures consistent performance. Follow the equipment manufacturer's guidelines for long-term maintenance and storage. Report any product or equipment issues to IPS Technical Support.

TECHNICAL SUPPORT

For application questions, troubleshooting, or training:
IPS Technical Support: 812.776.6727
Website: SPRAYIPS.COM

