

NanoTech Insulator

Optimized Thermal Insulator

SELECTION & SPECIFICATION DATA

Generic Type	Waterborne Acrylic
Color	White, Various
Finish	Flat
Component	Single (One)
Solids by Volume	75%
Solids by Weight	65%
VOCs	Non-reportable VOCs
Shelf Life	12 months
Weight per 5-gallon pail	26 lb (11.79 kg)
Weight per drum	277 lb (125.65 kg)

DESCRIPTION:

NanoTech Insulator is a high-build, water-based thermal insulator coating engineered to reduce hot-surface burn risk, control condensation, and minimize conditions that contribute to corrosion under insulation. Its durable, directly bonded system can achieve up to 40 mils DFT per pass, reducing application passes, labor, and installed cost while conforming to complex equipment geometries. Independently tested for personnel protection and corrosive environments, NanoTech Insulator is ideal for factory-applied modular equipment serving AI data centers, food-processing plants, chemical facilities, and other industrial applications.

KEY FEATURES:

- High-build application: up to 40 mils DFT per pass
- Personnel-protection and condensation-control applications
- Extremely low thermal conductivity
- High emissivity and reflectance
- Water-based formulation with excellent vertical hangability
- Directly bonded system for complex equipment geometries
- Designed for use with primers on carbon steel and self-priming on non-ferrous substrates
- Bonds to generic coatings such as epoxies, alkyds, acrylics and zinc-rich primers

RECOMMENDED USES

PERSONNEL PROTECTION APPLICATIONS:

- Hot process piping and transfer lines
- Boiler exterior surfaces and associated piping
- Heat exchangers
- Steam and condensate piping
- Hot-water piping and equipment
- Process vessels and storage tanks

- Valves, flanges and manifolds
- Exhaust ducts and hot-air ductwork
- Industrial ovens and dryers
- Petroleum-refining equipment
- Paper- and pulp-mill equipment
- Food- and beverage-processing equipment
- HVAC and mechanical equipment
- Irregular surfaces where conventional insulation is difficult to install
- Pumps and pump housings
- Equipment housings and enclosures
- Asphalt-processing equipment
- Chemical-processing equipment
- Sugar-processing equipment
- Modular process skids and packaged equipment
- OEM-fabricated equipment
- Frequently accessed hot surfaces near operators, technicians and maintenance personnel

CONDENSATION CONTROL APPLICATIONS:

- Chilled-water piping
- Refrigeration piping
- Cold-process piping and transfer lines
- Air-conditioning refrigerant lines
- Air-handling units
- Cold-storage tanks and vessels
- Dairy processing equipment
- Cold-room and freezer equipment
- Drip pans and drain pans
- Data-center cooling systems
- Modular cooling and process skids
- Irregular surfaces that are difficult to insulate conventionally
- Surfaces where sweating could cause dripping, corrosion, contamination or operational damage
- Glycol cooling lines
- Ammonia refrigeration lines
- Cold-water supply piping
- HVAC ductwork
- Cooling-system components
- Food and beverage processing equipment
- Breweries and beverage production equipment
- Pumps, valves, flanges and manifolds
- Water-treatment equipment
- Industrial cooling systems
- OEM-fabricated cooling equipment
- Equipment located in humid or washdown environments

TECHNICAL & PERFORMANCE DATA

Recommended Film Thickness	40-200 mils (1-5 mm) DFT; successive coats may be applied to achieve required insulation performance.
NanoTech Zinc Primer	No primer needed over non-ferrous materials. Primer required over carbon steel substrates to prevent corrosion.
NanoTech Insulator TopCoat	Consult NanoTech Materials Technical Service.
Storage Temperature	40°F (5°C) minimum; 100°F (38°C) maximum. Do not freeze.
Mixing	Agitate well using a helicoidal paddle at high rpm for at least 10 minutes prior to use.

PERFORMANCE CHARACTERISTICS:

PROPERTY/TEST	STANDARD	REPORTED RESULTS
Thermal Conductivity	ASTM C518	0.056 W/m·K at 25°C
Environmental Exposure — Neutral Salt Spray	ISO 9227:2017; visual evaluation per ISO 4628	Visual coating condition: Rating 0; no blistering, rusting, cracking or flaking observed. This result is reported as a visual coating-condition assessment and is not presented as ISO 12944-6 qualification.
Moisture Condensation Resistance	ISO 6270-1:2017; evaluated per ISO 4628	Rating 0; no blistering, rusting, cracking or flaking
Personnel Protection	NACE TM21423-2023	41 mil DFT met the 58°C TM/5s criterion at a 135°C (275°F) substrate temperature

Technical note: Neutral salt-spray results above describe the visual condition of the coating following exposure. They should not be interpreted as ISO 12944-6 qualification because the pull-off acceptance criterion was not met.

Performance data shown above reflects the current NanoTech Insulator source materials and the technical corrections provided for this revision. Test results should be interpreted only within the conditions, assemblies, criteria, and observations represented by the applicable test reports. Neutral salt-spray results are reported as visual coating-condition observations and are not presented as ISO 12944-6 qualification.

NanoTech Insulator THEORETICAL COVERAGE — 75% VOLUME SOLIDS

TOTAL DFT	TOTAL WFT REQUIRED	APPLICATION PASSES	DFT PER PASS	APPROX. WFT PER PASS	COVERAGE / GAL	COVERAGE / 5-GAL PAIL
1 mil	1.3 mils	Reference only	—	—	1,203 ft ²	6,015 ft ²
40 mils	53.3 mils	1 pass	40 mils	53.3 mils	30.1 ft ²	150.4 ft ²
80 mils	106.7 mils	2 passes	40 mils	53.3 mils	15.0 ft ²	75.2 ft ²
160 mils	213.3 mils	4 passes	40 mils	53.3 mils	7.5 ft ²	37.6 ft ²

Coverage values are theoretical and exclude over spray, equipment loss, surface profile, geometry, and waste.

SURFACE PREPARATION & APPLICATION

SURFACE PREPARATION

Ensure surface temperature is at least 5°F (3°C) above the dew point prior to employing cleaning or coating methods.

Ferrous: Surface should be dry and free from foreign matter. Utilize AMPP surface preparation standards in accordance with NACE 1-3 (SSPC-SP 5, SP 6 or SP 10) and immediately prime surfaces to protect against corrosion.

Non-Ferrous: The coating is self-priming and can be applied directly to the surface. Ensure the surface is clean, dry and free from foreign matter.

APPLICATION CONDITIONS

Application Temperature	40°F (4°C) minimum; 120°F (49°C) maximum (surface, ambient, material)
Dew Point	Surface temperature must be at least 5°F (3°C) above dew point.
Relative Humidity	70% maximum.
Coating Build	Excellent vertical hangability. Successive coats may be applied; cure times vary with humidity and atmospheric conditions.

APPLICATION EQUIPMENT GUIDELINES:

Airless Spray: Minimum pressure 3000 psi; minimum 2.5 GPM operating equipment; tip size .041 in or larger; remove all filters. May reduce with water not to exceed 5% by mass.

Air-Assisted / Texturizer: Graco GTX 2000 or larger; texturizer models; minimum 3.0 GPM; Graco STX air-assisted spray gun; 1 in diameter hose up to 50 ft.

Handheld Hopper: Handheld texture-spray gravity-feed hopper may be used on pipes 4 in diameter and smaller.

Brush: Synthetic bristle brush may be used. May reduce with water not to exceed 5% by mass.

Roller: 3/8 in nap woven roller.

CLEANING:

Clean equipment thoroughly with water before and after each use. For spills and spatters, immediately clean with warm water or a surfactant. Follow local and federal requirements for proper disposal.

DRYING, CURING, STORAGE, & WARRANTY

DRYING / CURING / RECOAT SCHEDULE:

TEMPERATURE	TO TOUCH	TO HANDLE	TO RECOAT*	TO TOPCOAT	TO CURE*
121°F (50°C)	20 min	4 hours	45 min	1 day	1 day
100°F (38°C)	30 min	6 hours	1.5 hours	2 days	2 days
77°F (25°C)	45 min	8 hours	5 hours	2 days	2 days
40°F (4°C)	4 hours	24 hours	10 hours	3 days	4 days

*Curing schedule is based on 50 mils WFT at 50% relative humidity applied in a single coat. Recoat times are based on overcoating with NanoTech Insulator.

STORAGE & HANDLING:

Shelf Life	12 months
Storage Temperature	40°F (5°C) minimum; 100°F (38°C) maximum
Freeze Protection	Do not subject product to freezing conditions.
Safety	Refer to the current Safety Data Sheet (SDS) and applicable job site safety requirements before use.

RECOMMENDED WARRANTY STATEMENT:

NanoTech warrants that NanoTech Insulator products supplied by NanoTech will conform in all material respects to NanoTech's current written manufacturing specifications and will be free from manufacturing defects at shipment. Coverage requires proper storage, surface preparation, application, curing, use, and maintenance in accordance with current NanoTech instructions and approved service conditions. If NanoTech confirms a covered defect, NanoTech may replace the affected product or refund its purchase price, at NanoTech's option. This is the purchaser's exclusive remedy. Labor, removal, reapplication, access, downtime, and indirect, incidental, special, or consequential damages are excluded. To the maximum extent permitted by law, NanoTech disclaims all other express or implied warranties, including merchantability and fitness for a particular purpose. Product data and recommendations are subject to revision; users must verify current requirements and suitability before specifying or using the product.

TECHNICAL SERVICE NOTE:

Number of coats and total dry film thickness depend on operating conditions and the degree of insulation, condensation control, or personnel protection required. Consult NanoTech Materials Technical Service for project-specific recommendations.