



## Nansulate(R) Bee Protect Clear PRODUCT DATA SHEET

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### **Water-Based Thermal Insulation and Mold Resistance Coating for Bee Hives**

## Product Description

Nansulate® Bee Protect Clear is a translucent water-based coating which incorporates a nanotechnology material with an extremely low thermal conductivity. It acts as a barrier to heat transfer, and also acts as a mold resistant coating, and provides U/V resistance.

Uses include on the exterior of a bee hive to provide thermal insulation benefit and mold & moisture resistance. Nansulate® Bee Protect has shown in field studies to improve bee habitat, thus helping to increase brood and honey production. Typical application is 4 coats of Nansulate® Bee Protect Clear and 2 coats of Nansulate® Bee Protect White Top Coat on hive exterior, top and bottom. OR 6 coats of Nansulate® Bee Protect Clear can be used alternately.

- Outstanding insulation properties for a thin film coating
- Does not contain any anti-microbial additives or biocides
- Easy to apply with brush, roller, or paint sprayer (at low pressure)
- Non-hazardous, low VOC
- Provides a more temperature hive environment
- Provides mold resistance
- Holds NSF International registration in the R-2 category - safe for incidental food contact

Nansulate® Bee Protect Clear is a one-part water-based acrylic latex system. Mixing by hand or slow speed mixer recommended before use. Each coat is applied between 3-5 wet mils in thickness. Three coats is the recommended application minimum, with at least an hour dry time between coat applications. The product will reach hard dry in approx. 72 hours, and full cure in approx. 30 days (dependent upon humidity and temperature). After product is fully cured, it reaches its full insulating ability.

## Limitations

1. Do not install where long-term submersion in liquid or continuous exposure to moisture is a possibility
2. Do not install over poor surfaces, such as those with flaking paint, grease or other contaminants.
3. Do not apply exterior application unless there is no chance of rain or condensation for at least 72 hours.
4. Do not allow application to be subject to below freezing (32F, 0C) temperatures during the first 30 days after application.

## Installation

Application temperature range is 40-200F. Ensure adequate ventilation for proper drying.

Preferred application methods are by brush, roller, airless sprayer at low pressure or H.V.L.P. sprayer.

Care should be taken during mixing prior to application not to cause particle shear of the nanocomposite.

Preferred method of mixing is using a mixing paddle at slow speed for approximately 2 minutes.

DO NOT thin the product with paint thinner or other medium.

If you are experiencing cracking or peeling during dry, that indicates either excess moisture is present on your surface, or the coats have been applied more thick than the 3-5 wet mil recommendation.

Allow each coat to dry to touch (non tacky) before applying the next coat.

The product can be painted over with a water-based paint after it has dried for at least 72 hours. It can be painted over with a non-water-based paint after it has fully cured (approximately 30 days).

The product can be covered with tile, carpet, or other building material, after it has fully cured (approximately 30 days). Full cure time of approximately 30 days is for a three coat coverage in low to normal humidity.

Extra coats and higher humidity will increase dry and cure times.

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### Product Data

Theoretical Coverage Rate	450 S.F. (41.8 Sq.M.)/Gallon per 1 coat 150 S.F. (13.94 Sq.M.)/Gallon per 3 coats
Typical applied coat Thickness	3-5 wet mils (76.2-127 microns) per coat.
Typical thickness of 1 coat	2.5 dry mils (63.5 microns)
Typical thickness of 3 coats	7.5 dry mils (190.5 microns)
Shelf Life	2 years from date of manufacture
VOC content	100 grams/liter
Viscosity	3500 to 4000 (cps)

### Product Test Data

Cross Hatch Adhesion - ASTM D-3359	100% 5B
Pull Apart Strength - ASTM D-4541	2400-2450 psi
Flame Spread/Smoke Spread - ASTM E84	Class A
Mold Resistance Testing (ASTM D5590 & ASTM G21)	Zero or minimal growth
U/V Exposure	Passed 2000 hours
Permeability	5 perms/inch @ 23C
Thermal resistance (UNI EN ISO 890:1999)	28.98% increase in resistance
Thermal flow (UNI EN ISO 890:1999)	34.8% decrease in thermal flow through a substrate



### Compliance

Holds registration for NSF Nonfoods compounds, R-2 category (Registration No. 141658)  
Does not contain negative Global Warming Potential (GWP) or Ozone Depletion Potential (ODP) ingredients.  
Complies with EPA definition of 'low VOC' product.

### Storage

Store in cool, dry conditions (between 2-25 deg C (36-78 deg F). Keep away from direct heat source.  
When not using the material, always replace the lid on the container.  
Do Not Freeze.  
Shelf life is 2 years from data of manufacture. After opening, up to 12 months when stored in sealed container.

#### Product Information:

See [www.nansulate.com](http://www.nansulate.com) for the most up to date information.

#### SAFETY and WARNINGS:

**FIRST AID:** In case of skin contact, flush with plenty of water. Remove contaminated clothing. Seek medical attention if irritation develops or persists. For eye contact, flush immediately with large amounts of water. Obtain medical treatment. If swallowed, DO NOT induce vomiting, obtain medical treatment immediately. If inhalation causes physical discomfort, remove to fresh air. If symptoms persist, get medical help. **KEEP OUT OF THE REACH OF CHILDREN.** For additional safety information, refer to Material Safety Data Sheet for this product **IMPORTANT!** Spray equipment must be operated with care in strict accordance with manufacturer's instructions. Use of an approved dust/mist respirator during spray application is recommended. Wear approved dust respirator when grinding or sanding on cured product. Follow respirator manufacturer's directions for respirator use.  
**IN CASE OF SPILL:** Keep material away from drains. Absorb with inert material and dispose of in accordance with applicable regulations.

No warranty, expressed or implied, is given regarding the fitness of this product for a given application. Manufacturer's liability is limited to replacement of defective product. User accepts liability in its use of product.

#### Trademarks:

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This product is protected by patents in the U.S. and additional countries. Product manufactured in the United States of America. For warranty information call 800-767-3998 or +1 239-254-0346 or visit [www.nansulate.com](http://www.nansulate.com).

