Nítra-Seal®

Nitrile-Advanced Contaminant Vapor Barrier

Technical Data Sheet

Description

Nitra-Seal® is a nitrile-advanced contaminant vapor barrier designed for use under concrete slabs to control vapor intrusion (VI) at sites considered moderate to high-risk for VI. The Nitra-Seal composite system is comprised of three layers: Nitra-Base+™, Nitra-Core™ and Land Science Bond™ to create a seamless, redundant barrier that provides more protection over existing polyethylene-based barriers.

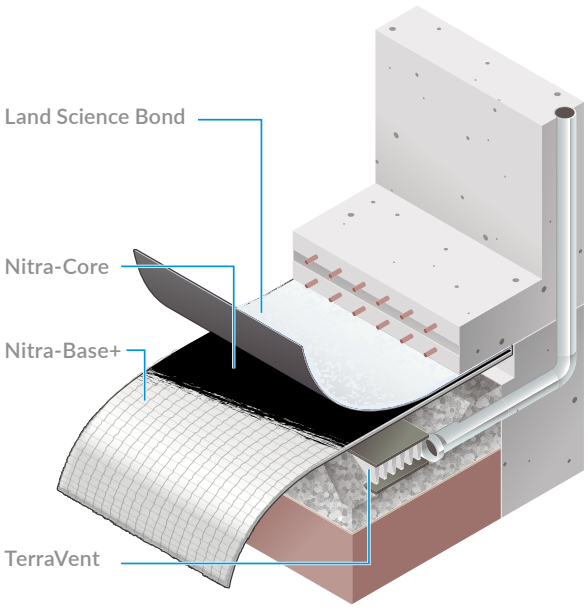
Key to Nitra-Seal's ability to minimize vapor intrusion is the inclusion of a nitrile-modified asphalt, Nitra-Core, the most chemically resistant spray-applied core available. NitraBase+, the base layer of the system is comprised of a 15 mil polyethene (PE) sheet laminated to a geotextile fabric and further strengthened with a reinforcing grid. Nitra-Base+ is sealed at the seams, penetrations, and terminations using Nitra-Core. A continuous 40-mil layer of Nitra-Core is then sprayed across the entirety of the installation for added robustness and protection. Land Science Bond, a 5 mil PE layer bonded to a geotextile, completes the Nitra-Seal system for added durability and allows the barrier system to bond to the foundation.

Nitra-Seal was developed to protect against chlorinated solvents, petroleum compounds, methane, radon and other volatile organic compounds. The installation of Nitra-Seal typically occurs after the site substrate has been prepared and the utilities placed, and prior to concrete slab placement.

Nitra-Seal System Summary

System Thickness:	80 mil			
Components:	Venting System[1]	Base Layer	Middle Layer	Top Layer
Product Name:	TerraVent	Nitra-Base+	Nitra-Core	Land Science Bond
Component Thickness:	1"	22 mil	40 mil	18 mil

1. Venting system is an optional system component



Advantages

Chemical Resistance

Nitra-Seal offers an improvement over all other PE-based composite vapor barriers due to the use of Nitra-Core, a more chemically resistant, nitrile-modified asphalt core.

Durable

The multi-layer system includes a base layer with a reinforced grid, provides a robust, highly puncture and tear resistant, vapor intrusion mitigation system.

Reliable

Nitra-Seal is installed by Land Science certified applicators who perform quality testing to ensure proper installation.

Nitra-Seal System Properties

Property	Test Method	Typical Value
Tensile Strength[1]	ASTM D751	223 lbs
	ASTM D7004	237 lbs
Elongation[1]	ASTM D751	38%
	ASTM D7004	38%
Puncture Resistance	ASTM D4833	76 lbs
Water Vapor Transmission	ASTM E96	0.031 grains/(hr·ft^2)
Water Permeance	ASTM E96	0.077 US Perms
Methane Gas Permeance	ASTM 1434	404 mL(STP)/(m^2*d*atm) [5]
Benzene Diffusion Coefficient	GeoKinetics[2]	4.9 x 10^{-18} m^2/s
PCE Diffusion Coefficient	GeoKinetics[2]	1.1 x 10^{-16} m^2/s

1. Values are an average of the machine direction and the transverse direction test results.

2. A method comparable to ISO 15105-2, performed by GeoKinetics, Inc., Irvine, CA.

Design Considerations

Nitra-Seal is an advanced composite barrier designed for use at a wide range of site types and vapor intrusion levels. Common applications include multi-family housing units, industrial locations, or sites with many penetrations.

TerraVent™ can be implemented in an active or passive mitigation capacity in conjunction with Nitra-Seal. Combining a sub-slab ventiliation network in the permeable substrate with Nitra-Seal offers the highest level of protection from contaminant vapor intrusion. Please contact Land Science to discuss whether TerraVent is recommended for your site.

Service & Support

Land Science representatives are available for site data analysis, mitigation system recommendations, barrier and venting design support, and budgetary estimates. Site conditions, project objectives, and regulatory requirements will dictate which mitigation solution is appropriate.

Weather Limitations

- Nitra-Core should be sprayed at temperatures >45°F. Contact Land Science for requirements in colder temperatures.
- Nitra-Core should not be sprayed when raining or during weather conditions that create ponding water on the membrane.
- Any ponding water on the surface of Nitra-Base+ needs to be removed prior to applying Nitra-Core.

Warranty

Land Science offers industry-leading warranty options for the full suite of vapor intrusion barrier systems. All installations come with a one-year material warranty free of charge. To qualify for extended warranty terms, the project must be reviewed and approved by the Land Science prior to any product installation by a Land Science Certified Applicator.

Nitra-Seal warranty options include Material and System warranties up to 20 years.

Contact Land Science for more information to meet your site's warranty requirements.

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