



**TECHNICAL DATA SHEET**

**NCFI SPRAY FOAM SYSTEM 12-002**

**DESCRIPTION:**

NCFI 12-002 is a two component, one-to-one by volume, self-adhering, seamless, sealant/air barrier spray applied open cell polyurethane insulation system. This NCFI system has been formulated with water as the blowing agent and does not contain CFC, HCFC, HFC or formaldehyde. NCFI 12-002 is suitable for use in Type I, II, III, IV & V construction and is used for NCFI Sealite™ insulation systems.

**DISTINGUISHING CHARACTERISTICS:**

- Excellent Air Barrier
- Eliminates Convective Air Movement in Building Assemblies
- Good Sound Barrier
- High Yields
- Good Dimensional Stability
- Meets ASTM E-84, FS ≤ 25, SD ≤ 450 @4"
- Approved per NFPA 285
- Approved in UL Fire Resistive Assemblies

For proper use of this NCFI insulating material refer to the NCFI Application Information and any of the following codes or guides:

- ICC, International Building Code, Section 2603
- ICC, International Residential Code, Section R314
- API Fire Safety Guidelines for Use of Rigid Polyurethane and Polyisocyanurate Foam Insulation in Building Construction (AX230)

**Installation Limitations**

When covered with 1/2" gypsum board	Maximum Thickness in Walls	Maximum Thickness in Ceilings
12-002	8"	12"

Limits based on UBC Standard 26-3

**TYPICAL PHYSICAL PROPERTIES:**

Core Density - ASTM C 1622	0.5 pcf
Moisture Vapor Transmission - ASTM E 96	15 perm@ 1" 4.4 perm @ 3.5"
Air Leakage @ 3" thick per ASTM E 283 @ 1.57 psf	0.0 cfm/ft <sup>2</sup>
R-Value @ 1" ASTM - C 518	R 4.1
STC - ASTM E 90	28**
OITC - ASTM E 90	23**
VOC Emissions	Negligible
Bacteria & Fungal Growth	Does not support*
Maximum Service Temperature	140°F
Flammability - ASTM E-84	<u>4 inch</u> Flame Spread ≤ 25 Smoke Dev ≤ 450

Note: The above values are average values obtained from laboratory experiments and should serve only as guide lines. Free rise core density should not be confused with overall density. Overall densities are always higher than free rise core densities and take into account skin formation, thickness of application, environmental conditions, etc.

\*NCFI 12-002 is formulated with an anti-microbial.

See back of this page for details.

\*\* As measured in 2" x 4" studwall assembly

Polyurethane products manufactured or produced from this liquid system may present a serious fire hazard if improperly used or allowed to remain exposed or unprotected. The character and magnitude of any such hazard will depend on a broad range of factors, which are controlled and influenced by the manufacturing and production process, by the mode of application or installation and by the function and usage of the particular product. **Any flammability rating contained in this literature is not intended to reflect hazards presented by this or any other material under actual fire conditions. These ratings are used solely to measure and describe the product's response to heat and flame under controlled laboratory conditions.** Each person, firm or corporation engaged in the manufacture, production, application, installation or use of any polyurethane product should carefully determine whether there is a potential fire hazard associated with such product in a specific usage, and utilize all appropriate precautionary and safety measures.

## NCFI 12-002 APPLICATION INFORMATION

### EQUIPMENT AND COMPONENT RATIOS:

It is preferred that this system be processed with Polyurethane Spray Equipment capable of the following operating parameters. NCFI 12-002R is connected to the resin pumps with NCFI 12-002A being connected to the isocyanate pumps. The proportioning pump ratio is 1 to 1. Dispensing temperature should be set at 140°F for automatically controlled machinery to give a good pattern. Operating pressure should be 1000 psi static / 800 psi dynamic and a maximum 02 and smaller mixing chambers. For additional assistance contact NCFI Polyurethanes technical services.

### STORAGE AND USE OF CHEMICALS:

Storage temperature should not exceed 85°F. Do not store in direct sunlight. Keep drums tightly closed when not in use and under dry air or nitrogen pressure of 2-3 psi after they have been opened. Cool storage of the resin extends shelf life. Exposure to temperatures above 85°F will shorten the expected shelf life. Store above 35°F, keep temperature of chemicals near 70°F for several days before use. Cold chemicals can cause poor mixing, pump cavitation or other process problems due to higher viscosity at lower temperatures. The shelf life of NCFI 12-002 is three months.

### SAFE HANDLING OF LIQUID COMPONENTS:

Use caution in removing bungs from the container. Loosen the small bung first and let any built up gas escape before completely removing. Avoid prolonged breathing of vapors. In case of chemical contact with eyes, flush with water for at least 15 minutes and get medical attention. For further information refer to "MDI-Based Polyurethane Foam Systems: Guidelines for Safe Handling and Disposal" publication AX-119 published by the Center for the Polyurethanes Industry 1300 Wilson Blvd, Suite 800, Arlington, VA 22209.

### AGITATION INSTRUCTIONS FOR 12-002:

The 12-002 R-side component tends to separate. Prior to use, agitate contents of the resin drum using an electric driven bung mount stainless steel agitator for a minimum of 20 minutes on high speed. Mixer should extend to within 3 inches of the bottom of the drum and be installed in specially marked, center bung opening on drum. A paddle mixer is sufficient to use if the mixing is vigorous enough to generate at least a 6-inch vortex on the top of the resin. NCFI recommends using an electric motor mixer and the minimum motor requirement is 3/4 hp and 1725 rpms. Agitation prior to spray application is sufficient once a vortex is achieved on the top of the resin for a minimum of 20 minutes. Continue agitation of the drum during spray application with enough speed to

maintain the vortex. If recirculation of the resin component is used to heat or help mix the blend, recirculation temperatures should not exceed 80°F. Exposure to excessive temperatures for periods of time will degrade resin performance.

### SPECIAL HANDLING NOTICE

Care should be taken to avoid the introduction of any other chemical system (such as closed cell spray foams) into the R side drum of 12-002. We strongly recommend, at a minimum, the use of a dedicated stainless steel transfer pump for this material to avoid the possibility of cross contamination. User should expect that there will be a degree of waste in spraying out the changeover between closed cell to open cell foams. Under no circumstances should the user bleed out spray lines of these incompatible foams back into the drum.

### PREPARATION OF SURFACE TO BE SPRAYED:

All surfaces to be sprayed should be clean, dry, and free of dew or frost. All metal to which foam is to be applied must be free of oil, grease, etc.

### OPTIMUM ADHESION TEMPERATURE OF SURFACE TO BE SPRAYED:

On general work where the surface to be sprayed will remain at ambient temperature or cooler, the surface should be between 50°F and 120°F. In this range the warmer the surface the better the adhesion. In some cases the surface may require a primer. When surfaces are cooler, the spray applicator should spray a test area approximately 20 square feet and check for proper adhesion and cell structure. If both are satisfactory, then the spray application may continue.

### VAPOR BARRIER PROTECTION:

In most instances a vapor barrier/retarder must be used with the application of NCFI 12-002. Please consult the local building codes for information or contact NCFI Polyurethanes for recommendations.

### CODE-COMPLIANT FIRE RESISTANCE:

Where foam is sprayed over large areas of building interiors, building codes require the installation of an approved thermal barrier between the foam plastic insulation and the occupied space. 1/2" gypsum board or other tested and approved material may be installed as a thermal barrier. Refer to specific building codes for details. Contact NCFI Polyurethanes for specific alternate approvals for 12-002.

\*NCFI 12-002 is formulated with an anti-microbial ingredient to inhibit the growth of molds that may affect this product. The anti-microbial properties do not protect occupants of spaces insulated with 12-002 from potential deleterious effects of molds, mold spores, or disease organisms that may be present in the environment.

The information on our data sheets is to assist customers in determining whether our products are suitable for their applications. The customers must satisfy themselves as to the suitability for specific cases. NCFI warrants only that the material shall meet its specifications; this warranty is in lieu of all other written or unwritten, expressed or implied warranties and NCFI expressly disclaims any warranty of merchantability, fitness for a particular purpose, or freedom from patent infringement. Accordingly, buyer assumes all risks whatsoever as to the use of the material. Buyer's exclusive remedy as to any breach of warranty, negligence or other claim shall be limited to the purchase price of the material. Failure to adhere strictly to any recommended procedures shall relieve NCFI of all liability with respect to the material or the use thereof.