



## What is **INSULsoy**?

**INSULsoy** is a semi-rigid, Bio-Based spray foam insulation product vastly superior to traditional systems because of its' radically reduced air and moisture barrier numbers. **INSULsoy** wind proofs walls, floors and ceiling cavities, thus preventing air movement within those structures including spaces around electrical outlets and light fixtures. Sealing at baseboards and where walls meet windows and doors is critical in maintaining comfortable climate conditions within the structure and truly controlling indoor air quality. By virtue of its low permeability to air, its adhesion to other building materials and its flexibility, **INSULsoy** provides value beyond insulation. It provides superior air leakage control, moisture control and sound control, thus becoming a one step insulation, moisture/vapor barrier, wind barrier system.

Unlike "loose fill" insulation methods that do not wind proof building cavities, the air sealing characteristics of **INSULsoy** provide virtually the same R -Value in the field as it does in the laboratory.

## Why Use **INSULsoy**?

Spray Foam must remain flexible in order to maintain its air seal. Buildings expand and contract with changes of temperature. If the foam is too rigid, it can develop cracks and lose its air sealing properties. Traditional insulation such as batts and loose-fill cellulose, slip, sag or settle leaving un-insulated gaps. Aside from offering all the same benefits of other soft foams products, **INSULsoy** is American made and therefore more affordable. **INSULsoy** eliminates the major causes of building envelope problems, air-borne moisture movement and entrapment. Heating and cooling costs are typically reduced by 30 to 50%, and smaller, less expensive heating and cooling equipment are used.

A more energy efficient home means that energy costs can usually be reduced by as much as 35-40%. This means a more comfortable home that maintains desired temperature and humidity levels.

**INSULsoy** offers some sound proofing qualities as well because **INSULsoy** creates a continuous sound barrier against airborne and reverberating noises. As an added value, **INSULsoy** can be used in interior walls around media rooms, plumbing and master suites.

Most importantly, **INSULsoy** offers improved indoor air quality. In conjunction with the mechanical ventilation system, a well sealed building envelope is the key to superior indoor air quality in which your family can live a healthier life.

What is **INSULsoy** made from?

**INSULsoy** is a soy and water-based formula that contains no formaldehyde, or ozone depleting gases like CFCs or HCFCs. Like other foam insulation products in its class, it has the texture and look of angel food cake and is made up of millions of tiny cells. These cells are filled with air and provide permanent control of air and airborne moisture movement. **INSULsoy** contains no materials that emit harmful gases. **INSULsoy** is American made.

How long does **INSULsoy** take to cure?

Less than one minute. The foam is created in seconds after spraying. You can watch it expand within seconds to 100 times its original volume. It can be covered with sheetrock within minutes.

## **MYTH BUSTERS**

Will **INSULsoy** absorb water?

No. It is hydrophobic. While water can under pressure be forced into the cells, when pressure is removed, gravity will remove the moisture without the permanent loss of insulation value.

Will **INSULsoy** entrap moisture?

No. **INSULsoy** is a breathing foam, and any moisture in the building's concrete or lumber can escape through the insulation as the building dries out, thus eliminating any risk of mildew or mold.

Will **INSULsoy** change physically over time?

No, **INSULsoy** is inert. Its physical and insulating properties are constant and permanent.

Is **INSULsoy** environmentally friendly?

Yes. The product is environmentally safe.

## What if the worst happens and the building burns?

### What are the flammability and fire-rating characteristics?

**INSULsoy** will not sustain flame. Upon removal of the flame source **INSULsoy** will “snuff” itself out. However, like fiberglass, it will be consumed by flame, and gypsum board or other acceptable thermal barriers are required by applicable building codes.

### What does the smoke contain?

Smoke from **INSULsoy**, like that of all organic materials including wood, is a complex of many gasses. The major components in the smoke from **INSULsoy** are carbon dioxide and carbon monoxide.

### How is **INSULsoy** installed?

It is sprayed onto any open surface and studded wall (including metal). A trained **INSULsoy** installer is required. With any open surface, **INSULsoy** can be sprayed on once electrical and plumbing services are in place. In seconds, **INSULsoy** expands to 100 times its initial liquid volume permanently adhering to the surfaces of the surrounding building materials and sealing all gaps.

## FOAM TRUTHS

### Is the insulation corrosive to metals?

No. **INSULsoy** is non-corrosive.

### Does **INSULsoy** support bacteria or fungal growth?

No. **INSULsoy** does not retain water; nor offer any food value, therefore it does not support bacteria or fungal growth.

What about insects and vermin?

**INSULsoy** offers no food value, but it would not present a sufficient barrier to their entry if they decided to chew through it.

What are the acoustic properties of **INSULsoy**?

As an effective air seal, **INSULsoy** eliminates the air gaps through which sound travels and is superior in controlling mid-range frequencies, which include the most common sounds; the human voice, stereo music and plumbing noise.

Does **INSULsoy** contain Urea Formaldehyde?

No.

Does **INSULsoy** break down, sag or shrink?

No. **INSULsoy** is stable. It does not shrink, settle or sag.

## Let's Talk R Value and What that really Means

What is the R-Value of **INSULsoy**?

R-value is derived from a controlled laboratory test of an insulation's resistance to conductive heat flow. **INSULsoys'** R-value is 3.7per inch for **INSULsoy 500** and 6.0 per inch **INSULsoy 1700**.

Is there a difference in the R-Value of an **INSULsoys'** installation in wall and ceilings?

R -Values of insulating materials are measured in laboratories and are designated a nominal R -Value per inch. In the wall or ceiling of a building, most factory made insulation materials suffer a reduction in performance due to air leakage and infiltration. The insulating value of many building components may be as low as 50% of the nominal R-Value of the insulation they contain.

By contrast, the insulation of a wall containing **INSULsoy** will perform closely to the laboratory tested R -Value of the material and seals the wall cavity from air infiltration as well.

## At What stage is **INSULsoy** installed?

**INSULsoy** is installed after the windows, doors and roof are in and the electrical, framing and plumbing inspections are complete, and after any other electrical or mechanical system located behind the drywall is installed. It is the last installation to take place before drywall installation.

## What makes A Better Building?

### Can **INSULsoy** eliminate moisture problems?

Yes. Because air leakage is the culprit, the only way to eliminate moisture problems is to air-seal the building envelope. By eliminating air movement through walls, floors and ceilings, moisture laden air cannot pass through and affect the indoor environment thus allowing you to control humidity levels to within the 45% to 50% range; a level at which moulds, mildew, dust mites and many allergens cannot be sustained.

### What are some of the value-added benefits?

*Sound and odor control:* On its own, **INSULsoy** is not intended to be a sound proofing solution, but it is an effective barrier to airborne sounds and thereby offers sound proofing properties. Its superior fit reduces airborne sound transfer through roof, floor and walls which means it does double duty and becomes part of a cost-effective sound proofing solution.

## Thermal Envelopes

Standard residential and commercial building construction has traditionally designed vented attics without regard for regional and climatic conditions. Also, many vented attics are not designed and constructed in accordance with properly proportioned eave and ridge venting. This can accentuate the problem of extreme attic conditions.

In warm, humid climates, attic temperatures can reach well in excess of 150 degrees. This, coupled with the infiltration of moisture laden air and attic pressurization, can cause a myriad of problems for energy efficiency, indoor air quality, condensation and comfort. An attic cannot be vented enough to minimize these conditions. Attic fans can cause infiltration problems and negative air pressures in the envelope. The ambient outdoor conditions would be preferable to the extreme attic conditions that are created.

The **Thermal Envelope** utilizes an un-vented (sealed) attic design that places the insulation at the roof plane in lieu of at the ceiling, thereby bringing the entire building envelope within the thermal and air barrier. Research has proven that there are many benefits to this method. By locating the thermal

and moisture barriers at the same plane, it eliminates the opportunity for moisture to enter the attic and condense on cold mechanical systems.

Moisture will not condense within **INSULsoy** spray foam insulation making it the ideal material for this application. The Florida Solar Energy Center ([www.fsec.ucf.edu](http://www.fsec.ucf.edu)) attributes 65% of the infiltration in the average Florida (USA) home to the attic. This, coupled with duct leakage, can place an insurmountable burden on the mechanical systems to maintain indoor air quality and occupant comfort.

Frequently, the result is a “sick building or home,” leading to occupant illness. There are many contributing factors; however, the most significant element is the failure of the building envelope. If we first address how we correctly build the “closed-box,” we can then better engineer the mechanical systems within that “box.”

