



FOAMULAR® Extruded Polystyrene Insulation Limiting UV Exposure

Technical Bulletin

All polystyrene-based products slowly deteriorate if exposed to UV light (sunlight) for long periods of time. Owens Corning recommends covering FOAMULAR® extruded polystyrene (XPS) rigid insulation as soon as possible following installation due to the potential for damage from ultra-violet light (UV). If FOAMULAR® insulation is not covered immediately, it is recommended that it be covered within 60 days. When exposed for up to 60 days, gradual color fading and/or dusting of the surface may occur. Fading or color loss, while noticeable, will not affect the performance of FOAMULAR® XPS insulation.

The rate at which UV affects polystyrene is a function of the intensity of the UV exposure. Therefore, the rate varies between climates such as the cloudy Great Lakes region versus the desert southwest. It can vary locally day-to-day depending on cloud cover, or it can vary depending on orientation (horizontal versus vertical).

Polystyrene insulation, when exposed, goes through stages of UV reaction:

- The first reaction to UV exposure is fading color. Polystyrene will begin to yellow and FOAMULAR® PINK® insulation will begin to pale usually in 14 to 28 days. Gradual color loss, although visually noticeable, has no effect on the physical or thermal properties of the insulation board. Strength, thermal R-value, and moisture resistance properties will remain the same regardless of fading color.
- The second stage of UV deterioration is “powder/chalking” on the FOAMULAR® insulation surface. If present, “powdering” can be felt and seen by lightly dragging a finger across the surface of the board. A very shallow trail will be left in the polystyrene surface if it has been damaged by exposure to UV light. The “powder” feel of the board is a thin layer of polystyrene cells that have been damaged by exposure to UV. When this happens, only the thin layer of cells on the surface of the board are damaged. FOAMULAR® extruded polystyrene insulation consists of millions of closed cells, made up of polystyrene cell walls. The closed cells contain a low

conductivity gas for insulation value, and they resist water intrusion and give the board its strength. Beneath the thin UV damaged layer of cells on the surface are millions of fresh cells that are undamaged. Assuming that those undamaged cell layers are not similarly exposed, very little actual loss of physical properties will be experienced. If any, the loss will be in thickness. The loss of thickness is in proportion to the loss of R-value. Surface water retention may be slightly increased due to the surface being “roughened” compared to its original smooth state, however, the net affect will be negligible.

- Over a long period of time, if the weathering process is allowed to continue to expose fresh layers, FOAMULAR® XPS insulation could begin to lose R-value as its thickness is slowly reduced by erosion. FOAMULAR® XPS insulation R-value lost, if any, will be proportional to the amount of thickness lost to degradation.

The potential for UV degradation is ended once the foam is covered because exposure to sunlight (UV) is ended.

Please contact 419-248-6557 for additional information. Email: gettech@owenscorning.com

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