



# New EPA Regulations Bring Changes to Insulated Garage Doors

By George Snyder

On July 2, 2015, the U.S. EPA issued a final ruling on foam-blowing agent alternatives under the Significant New Alternatives Policy (SNAP) program. The ruling requires that many blowing agents for foam insulation used in garage doors must be transitioned to alternative blowing agents with a lower Global Warming Potential (GWP).

For example, rigid polyurethane panel insulation must phase out use of hydrofluorocarbon (HFC) blowing agents by January 2020, and extruded polystyrene board insulation must switch to new acceptable blowing agents by January 2021. A decision on spray foam insulation, which was removed from the current SNAP ruling, is expected at a later date.

gas that provide the foam's insulating properties. Testing of new foam insulation manufactured with HFC replacements is important because it ensures that energy-efficiency benefits are maintained.

## A Brief History of Blowing Agents

Many of the first blowing agents were chlorofluorocarbons (CFCs). Due to their extremely high Ozone Depletion Potential (ODP), CFCs were banned in the U.S. in the 1990s and are no longer in use in developed countries.

The second generation of blowing agents were hydrochlorofluorocarbons (HCFCs). Compared to the ODP of CFCs, these options had ODP values that were 90 to 95 percent lower. However, global concerns about ozone

depletion continued; in addition, HCFCs were also high in GWP, eventually leading to their phase-out in the U.S. and many other nations.

Next came the hydrofluorocarbons (HFCs) that are still in use today. HFCs have little or no ODP, but are high

in GWP. With the increasing focus on climate change and global warming, these blowing agents have been scheduled to be phased out by the U.S. EPA and other countries.

## Blowing Agent Options for Tomorrow

Insulation manufacturers have choices when it comes to non-HFC blowing agents that comply with the new regulations. According to the EPA SNAP ruling, acceptable alternatives to HFCs are Ecomate (based on methyl

formate), pentanes (hydrocarbons), and hydrofluoroolefins (HFOs), a new class of blowing agents. Potential solutions may also include blends of these options.

## Ecomate (based on methyl formate)

Methyl formate is an environmentally benign chemical with no GWP, no ODP, and no volatile organic compounds (VOCs). Ecomate is a blowing agent based on methyl formate, which has been SNAP-approved since 2003.

Studies indicate that Ecomate offers better insulation properties than the HFC blowing agents in widespread use today and can typically replace HFCs with little or no changes in equipment, production processes, or costs. It is often used where insulation value is critical, such as in commercial refrigeration equipment.

## Pentanes

Pentanes, which are types of hydrocarbons, are low-cost blowing agent options with low GWP and zero ODP. However, they do not insulate as well as HFCs and are classified as VOCs, meaning they contribute to the production of smog. In addition, because pentanes are highly flammable, their use can require special handling and significant investments in safety equipment.

## HFOs

The new hydrofluoroolefins offer a promising solution for replacing HFCs, since they are both environmentally friendly and thermally efficient. Since they are new, HFOs have little historic performance data available and will likely require re-formulation and additional testing. Depending on eventual supply and demand, HFOs could also prove to be expensive.

In conclusion, insulated garage doors will see some important changes in the coming years. The good news is that there are proven, EPA-approved alternatives available today that can provide excellent insulation values while also helping to protect the environment. ■



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While not all garage doors are currently insulated, the increasing focus on energy efficiency is contributing to the growth of insulated doors. The foam insulation industry has been engaged in the EPA SNAP process and is already developing transition plans to meet the EPA's ruling and the needs of the garage door industry. An extensive testing program is underway to ensure compliance with all codes and performance requirements.

In foam plastics, including polyurethane and polystyrene, the blowing agent causes the foam to create small pockets of trapped