

Beckett Burners

BioHeat® ready!



Beckett is pleased to announce we will warranty our burners for use with BioHeat blends, up to B5, meeting the fuels standards below.

Fuel standards:

Know your fuel! The biggest cause of problems is off-spec blend stocks. B5 fuels must be made from the following materials:

- 5% biodiesel (B100) meeting the requirements of ASTM D6751. (D6751 is the standard specification for Biodiesel Fuel Blend Stock for Bioheat blends.)
- 95% petroleum fuel (No. 2 or No. 1) meeting the requirements of ASTM D396. (D396 is the standard specification for Fuel Oils.)
- Use suppliers that are BQ-9000 certified where possible. (BQ-9000 is a Quality Assurance system for certifying, distributing, blending, and maintaining the quality of biodiesel / bioheat products.)
- Insist on certification – certificates for the base fuel, the biodiesel blend stock and the finished blend.

Beckett also recommends the following safeguards:

Additives:

Stability leads the list of things to watch for. During storage and handling, fuels may react with their surroundings and with materials in their environment to form undesirable by-products that can interfere with proper operation. Properly made B100 blend stocks are required to meet oxidation stability requirements to help minimize this effect. Good additive systems for petroleum fuels incorporating stabilizers, dispersants, and metal deactivators (FuelArmor™ or similar additive) will help to protect the fuel and fuel storage system. They can be especially helpful during the transition period.

Filtration:

Filter plugging has been reported during the transition from all-petroleum fuel to Bioheat® blends, although it does not always occur. Watch for filter plugging (especially on older, untreated systems) and change filters as required during the early stages of the conversion.

Tanks:

Older tanks that have not been serviced in many years may be more susceptible to problems unless known clean fuels, or regularly and consistently treated fuels have been used. Inspect for tank bottom solids (sludge) and water if unsure, or treat with a good additive before and/or as a part of the conversion.

Yellow metals:

Copper and its alloys (brasses, bronzes) are known to cause (catalyze) reactions with all organic materials, including petroleum fuels, and more so with biodiesel. These materials have been used in heating systems for decades, and have a good track record. They do not enter into a reaction with the fuel and, therefore, are not consumed (unlike metal exposed to a strong acid) but this catalytic activity can cause the formation of precursors to sludge. Contact with copper should be minimized where possible, particularly when evidence of instability is found. If this is necessary, there are a number of actions that can be taken:

- Two-pipe systems should be converted to single-pipe. Where air in the oil is a problem, install a deaeration system (a Tigerloop™ or similar device) to minimize the problem.
- Heat related after-drip can heat the fuel at the nozzle, making the problem worse. Add a valve or integrated pump / valve (a CleanCut® or similar pump) to give a clean cut-off. Add a post-time control (a GeniSys® 7505P or similar control) to help cool the nozzle during the off-cycle in persistent circumstances.



Why are we hearing so much about Biofuels today?

Biofuels—made from plant or animal oils— have the potential to offer many benefits for the country, for oilheat dealers and for homeowners. They include:

- Expanding the fuel supply for transportation and heating – and a resulting reduction in price pressure.
- Reducing our dependency on international sources of petroleum.
- Growing crops for biofuel production ‘recycles’ carbon back into the plant material, eliminating an environmental objection to fossil fuels.

Exactly what is a Biofuel?

“Biofuel” is a broad term for a variety of fuels derived from living sources. One distinction is between:

Biodiesel – products typically derived from “oily” products such as soybeans (US) or rapeseed (Europe) that behave much like middle distillate products like heating oil and diesel. They are made by a chemical process and purified before being sold.

Ethanol – products derived from sources such as sugar cane, corn and grasses that are converted into gasoline-like products by a distillation process.

However, there are many other distinctions, such as source, previous use and the percentage blends with traditional petroleum products.

What about blends of biodiesel and petroleum fuels?

You will hear about B5, B20, or B100. The number represents the percentage of biodiesel in a blend of petroleum. For example, B5 is a blend of 5% biodiesel and 95% standard heating oil.

Is biofuel fully approved for use in heating systems?

No. Underwriters Laboratories (UL) requires that fuel for oil heaters comply with ASTM D396, which does not allow for the use of biodiesel blends. Beckett and other leaders in the heating industry are working to amend ASTM D396 to include biodiesel blends up to 5% (B5).

What are the next steps in getting biodiesel approved?

The clearest path for full biodiesel approval in burner systems is to revise ASTM D396 to include biodiesel blends. Industry groups have completed much testing under a UL fact-finding investigation, and found that they yielded acceptable results from a combustion standpoint. However, a number of questions remain about the compatibility of both B5 blends and neat B100 blend stock with materials commonly found in oil burner systems.

What research is planned to further the case that B5 should be included in ASTM D396?

Additional investigation above and beyond the recently completed fact-finding study is being discussed, and would include a more comprehensive investigation of biofuels from a variety of source materials. Testing could include compatibility with a wider cross-section of materials from oilheat systems and basic B5 stability (storage life). Ideally, the investigation would break the oilheat system into specific, manageable blocks so that any next steps could be defined.

What is Beckett doing to help?

Beckett is actively involved in many aspects of the approval and testing process to help develop safe, reliable standards for biodiesel blends.

Refer to the front of this sheet for Beckett’s position on using B5 BioHeat® in Beckett burners.

The Beckett logo is written in a stylized, red, cursive font.

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