DECARBONIZING BEGAN WITH BIOHEAT® FUEL

Bioheat® fuel reduces lifecycle greenhouse gas emissions by replacing a portion of petroleum heating oil with renewable biodiesel.
As renewable content increases, emissions can be reduced further while homeowners continue using existing heating and fuel-delivery systems.

- **Decades of laboratory and site research**
- **Codes and Standards Compliance**
- **Extensive Technician Education**
- **100% Renewable Fuel Heating Appliances & Systems**
- **Millions of Homes Already Lowering Carbon Emissions with Bioheat@ fuel**
- **Delivery and Service Infrastructure Already Exists**
- **Reliable and Sustainable Agricultural Feedstocks for Low-Carbon Renewable Fuels**



A PROVEN PATHWAY TO LOWER-CARBON HOME COMFORT

Laboratory research and field demonstrations have built the technical foundation for renewable liquid heating fuels.

- **Decades of laboratory and field evaluation**
- **Research confirms fuel stability, system compatibility and quality**
- **Extensive field technician training on renewable fuels**

BIOHEAT.

LEARN MORE

BetterWithBioheat.com/LowCarbonNow

DECARBONIZING BEGAN WITH INFORMATION

DECADES OF LABORATORY & FIELD TESTING



RESEARCH GUIDED EVERY STEP FROM FUEL QUALITY TO FIELD PERFORMANCE

DECADES OF TESTING INFORM THE PATH TO LOWER-CARBON HOME HEATING

Laboratory testing and field demonstrations demonstrate the successful use of 100% renewable heating fuels with little to no customer costs.

LABORATORY EVALUATION

Extensive R&D by esteemed research organizations, such as: NORA, Clean Fuels Alliance, Brookhaven National Laboratory and heating system manufactures has advanced Bioheat® fuel and supported its use at increasingly higher blend levels.

Laboratory and engineering studies examined combustion performance, emissions, fuel stability, storage and equipment compatibility, establishing a strong technical foundation for dependable, lower-carbon heating.

Renewable heating fuels also achieved important standards milestones: ASTM D396 now includes biodiesel-blend grades through B50 for domestic and small industrial burners, while fuel-system components have met applicable UL standards for blends up to B100 and R100.

Together, these demonstrated the industry's progress and support the wider adoption of renewable liquid heating fuels.

FIELD EVALUATION

A multi-year field demonstration evaluated blends of renewable diesel and biodiesel under real-world operating conditions in homes in Massachusetts and Pennsylvania.

Heating systems were switched to the renewable fuels without tank cleaning, burner replacement or special retuning Ongoing monitoring showed combustion performance remained within manufacturers' specifications and service records showed no meaningful increase in fuel-related.

NORA also monitored fuel quality, storage conditions, equipment components and long-term burner operation.

The results demonstrated that properly blended renewable fuels can provide reliable heating while helping the liquid heating fuel industry reduce lifecycle greenhouse gas emissions using existing heating systems.

TECHNICIAN TRAINING

NORA provides technical training to help heating professionals understand how renewable fuels, including Bioheat® fuel and renewable diesel, perform in existing heating systems. Training addresses fuel properties, storage, equipment compatibility, combustion analysis and recommended service practices.

This education gives technicians the knowledge and confidence to work with increasing renewable-fuel blends while maintaining safe, reliable and efficient system operation.

It also prepares the industry to continue the transition toward lower-carbon home heating.

INFORMATION TURNS RESEARCH RESULTS INTO PRACTICAL GUIDANCE FOR THE MARKET