



BEN

Biodiesel
Education
Network



Newsletter

Volume 2 | Issue 1 | June to September 2014

Quick takeaway:

After more than six years of painstaking research and testing, third party testing confirms that up to B20 can be used in existing home heating applications.

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<http://nbb.org/news/nbb-press-releases>



Feature Article – Biodiesel Legislation

June – September 2014

States Stand up for Biodiesel

By Jenna Higgins Rose

In a year when federal policy uncertainty has threatened the security of the national biodiesel industry, some states have passed legislation that will help provide some stability for the industry. In California, the Air Resources Board also proposed revised estimates of biodiesel's environmental impact, showing biodiesel is among the most sustainable fuels available and potentially opening

up a larger market.

"State activities are a bright spot for the biodiesel industry right now," said Shelby Neal, director of state governmental affairs for the National Biodiesel Board. "We've seen some progressive states step up their biodiesel efforts, recognizing the economic and environmental importance of this fuel."

B10 Prevails in Minnesota

Minnesota became the first state to move to a 10 percent biodiesel blend (B10) in its diesel fuel supply. As of July 1, diesel fuel sold in Minnesota will contain a B10 blend during the summer months.

The escalation to B10 was part of a bill passed in 2008 calling for the move to happen in 2013. Because of inadequate blending infrastructure in one area of the state and a regulatory concern, the move was pushed back

>> *continued next page (click here)*



Contents in this issue:

Tech Corner

> The pathway to exceptional biodiesel usage... [<read more>](#)

Education

> Bioheat takes center stage at 2014 energy conferences... [<read more>](#)

Markets

> 2014 biodiesel mid-term review. B20 is the way to go... [<read more>](#)

Education

> Upcoming biodiesel events... [<read more>](#)

Business

> Meet the NBB... [<read more>](#)

AskBEN

Get answers to all your biodiesel technical questions.

[-- click here --](#)

Departments in this issue [click to go](#)

Tech Corner

Education

Markets

Production

Tech Corner



Your Pathway to Exceptional Diesel Fuel Performance

By Paul Nazzaro, President, Advanced Fuel Solutions

Clean fuel and proper filters are critical to keeping your diesel engines running efficiently. Whether you are using high or ultra-low sulfur diesel, biodiesel or blends of all of the above, a fuel filter that's contaminated with water, microbial contamination or simply dirt is an indication of problems developing in your fuel tanks.

Most engine-related problems are the result of fuel issues. The enemy of any diesel-powered engine is fuel that's contaminated by water, sedimentation or microbes. Diesel engines are particularly susceptible to contaminated fuel because of the advanced injection systems used to reduce emissions while improving fuel economy, known as high pressure common rail fuel injection systems. More troubling are the astonishingly reduced porosity filters being used to protect these newly

minted high pressure injection systems.

Buying and selling clean fuel from the beginning is easier said than done. Historically we set out to get the best price for the fuels that we buy. We expect that the fuel we buy is of the highest quality and that it meets its respective ASTM specification. The real challenge is making sure that the fuel stays on specification after it is purchased. Once the tanks and fuel systems are contaminated, substantial effort will be required to reverse the fuel degradation process. Committing to be proactive to prevent fuel contamination from the beginning starts with taking a sample before taking receipt of your fuels. A sampling bottle allows you to take a look at the fuel, but better options exist.

To check for fuel contamination before accepting your fuel delivery, retrieve a quart of fuel directly off the delivery truck and wait a moment for settling to occur. Any water or sediment should be clearly visible against the jar's bottom. Place a newspaper behind the jar and if you can't read the words on the paper, you have a fuel that has excessive moisture hanging up in the fuel. Good-quality diesel fuel cetane weighs in at 45 or higher and preferably 50 if you abide by the Engine Manufacturers of America. If it's destined for road use, it will be amber in color while

>> [continued on page 6 \(click here\)](#)

Feature Article << continued from page 1

to 2014. Legislation brought forward during the Minnesota legislative session attempted to derail the bill, but was unsuccessful. B10 will be available at the pump from April through September. Supplies will revert to a B5 blend the rest of the year.

Increasing the blend from B5 to B10 will mean an additional demand of 20 million gallons of biodiesel each year in addition to the current usage of 40 million gallons.

"We are definitely blazing trails here," said Ron Marr, biodiesel marketing director for Minnesota Soybean Processors in Brewster, Minn. "A lot of other states are watching Minnesota to see if the move to B10 would happen. They're thinking that if we can do it, they can, too."

Marr also serves as Vice Chair of the National Biodiesel Board.

Iowa Extends Incentive

In Iowa, Governor Terry Branstad signed legislation that extends a biodiesel producer incentive in the form of a \$.02 per gallon refundable credit on the first 25 million gallons of biodiesel produced in any single plant. The incentive was set to expire at the end of calendar year 2014, but the legislation extends the credit through 2017.

"Not only does this biodiesel policy benefit Iowa's economy and a rural renaissance, it also props up our nation's

energy security and environment by encouraging domestic fuel production," said Grant Kimberley, executive director of the [Iowa Biodiesel Board](#).

Utah Using Biodiesel



Utah passed a bill that requires the Division of Fleet Operations to ensure that 50 percent or more of state vehicles used for the transportation of passengers are alternative fuel or high efficiency motor vehicles. Biodiesel is listed as an eligible alternative fuel. The requirement must be met no later than August 30, 2018.

The House of Representatives also passed a nonbinding resolution that encourages the state of Utah, all of its subdivisions, and people in private industry to pursue the use of biodiesel. The resolution:

- expresses support for the continued development and implementation of biodiesel in the state;
- recognizes the significant economic and environmental benefits that biodiesel can bring to the state; and
- strongly urges individuals, restaurants and other businesses, schools, and jails, to dispose of their waste oils at a Utah-based biodiesel company that will convert the waste product to a renewable, clean-burning fuel, and by doing so, help diversify Utah's energy portfolio, provide jobs, and clean the environment.

>> [continued on page 7 \(click here\)](#)

Education



Bioheat® Takes Center Stage at 2014 Energy Conferences

By Alexandra Pesaturo

Conventions and trade shows are evolving. The way people are exposed to new products and learning is changing. New research by Trade-show Week has found that 96 percent of CEOs and other senior executives say they are attending their industry's most important events this year. The focus at these events is always on education and new products. [Bioheat®](#) fuel is a prime example of both.

For years, we have reached out to oil heat dealers by participating in the largest conference they

have, the Atlantic Region Energy Expo, educating them on the benefits of biodiesel and Bioheat fuel. Our goal is to have them take advantage of Bioheat, and help lead their company and their industry into the next generation. It is no surprise that in the last few years Bioheat has become a rising star in the industry. Whether we are helping you build the Bioheat bridge at AREE or helping you find your vision at the NEFI Visions Conference, Bioheat is moving forward and here to stay.

Hot, hot, hot at AREE

Biodiesel and Bioheat took the spotlight at [AREE](#) on April 29- May 1. As the name plate sponsor, Bioheat



was prominently featured throughout what is widely considered the most significant energy event in the Northeast.

"Our partnership with AREE reflects the successful partnership of the oil heat and biodiesel industries," explained Paul Nazzaro, petroleum liaison for the National Biodiesel Board. "The collaboration between these

groups has fueled Bioheat's success and provided expanded options for oil heat consumers and new opportunities for small business throughout the Northeast."

Attendees visiting the show couldn't help notice the Bioheat theme; it was everywhere! Calling the availability of Bioheat a sign of changing times for oil heat dealers, FMA Executive Vice President Eric DeGesero said, "We're proud that AREE was the first industry trade show and convention officially combining traditional fuels with the renewable biodiesel found in Bioheat."

He pointed out that Bioheat is the Oil-heat dealers' best option to adapt their businesses in the 21st Century.

This was the third year that The Atlantic Region Energy Expo and Bioheat have hosted the event. This year, overall attendance for the trade show and convention was 3,500. The trade show featured over 250 exhibits, including more than 40 new exhibitor companies, and showcased 28 vehicles, including a motorcycle and luxury sports car, both powered with biodiesel. In addition, more than two dozen business programs and workshops took place, including five Bioheat sessions.

A warm reception at OESP

The Bioheat Outreach Team also attended the Oil and Energy Service Professionals Conference in Uncasville, Conn. in May 2014. The OESP conference was all about education, with 25 educational tracks spread out over two days. It assembled technicians, service

>> [continued on page 7 \(click here\)](#)

Education

Upcoming Events

For those interested in learning more about or considering entering into the market, these are great educational starting points:

New England Fuel Institute Visions Conference

June 10 -11

DCU Center, Worcester, MA

[More details](#)

Southern New England Energy Conference, (three-state conference for CT, RI and MA)

September 22-23, 2014

Hyatt Regency Hotel, Newport, RI

[More details](#)

Petroleum Marketers Association of America Fall Meeting

October 6-7, 2014

Las Vegas Hotel & Casino, Las Vegas, NV

[More details](#)

National Biodiesel Conference & Expo

Jan. 19-22, 2015

Fort Worth, TX

[More details](#)



Markets



Biodiesel 2014: A Midterm Review

As biodiesel faces uncertainty, Bioheat® data show B20 is the way to go

By Paul Nazzaro, principal, Nazzaro Group

As we meet the halfway point of 2014 and celebrate our nation's birthday on July 4th, there still remains unsettled market conditions associated with biodiesel and Bioheat® fuel. Policy setbacks in Washington continue to take a major toll on the most successful advanced biofuel in the U.S.

The National Biodiesel Board revealed that a recent industry survey shows nearly 80 percent of U.S. biodiesel producers have scaled back production this year and more than half have idled production at a plant altogether, neither of which are due to lack of ambition or enthusiasm by the producers. Additionally, two-thirds of producers surveyed said they have already reduced or anticipate reducing their workforce as a result

of the downturn. The cutbacks come in the face of a weak Renewable Fuel Standard proposal from the EPA and Congress' failure to extend the biodiesel tax incentive.

The producers polled nearly all attributed the industry decline to the weak RFS proposal and loss of the tax incentive. The RFS proposal, which has not yet been finalized, would establish a biodiesel standard of 1.28 billion gallons this year. That is a

51020

sharp cut from last year's record production of nearly 1.8 billion gallons.

The Big Picture

It is remarkable that 20 years after the term "biodiesel" was first spoken by a small group of soybean farmers, uncertainty still looms over the heads of an industry eager to help establish a footprint in the energy marketplace by expanding the liquid fuel supply pool with a terrific product. This uncertainty is driven by several factors, the most transparent being infrastructure, or lack thereof. The nation's pipeline and

deepwater terminals still come up short in the realm of having the necessary assets in place to efficiently and economically receive, store, blend and distribute biodiesel. Regardless of how you spin it, uncertainty is discouraging and counterproductive for all involved no matter the product or market.

A bright spot in 2014 was Minnesota's decision to be the first state to move to a 10 percent blend (B10) in its diesel fuel supply. With its decision, Minnesota is cementing its role as a leader in the biodiesel industry. Beginning July 1, diesel fuel sold in Minnesota will contain a B10 blend during the summer months. Minnesota remains a leader, because the state's B2 mandate back in 2002 jumpstarted the biodiesel industry nationwide and sets the right direction for renewable fuels.

Increasing the blend from B5 to B10 will mean an additional demand of 20 million gallons of biodiesel each year on top of the current usage of 40 million gallons. Minnesota's current operating production capacity is over 60 million gallons per year making the state relatively self-sufficient specific to supply.

Bioheat Continues to Shine

On the Bioheat fuel front, which is second to none as a market maker, third >> [continued on page 6 \(click here\)](#)

Production



Biodiesel Production set a new record in 2013.

The U.S. biodiesel industry set a new record in 2013 by producing nearly **1.8 billion** gallons. The industry supports more than 62,200 jobs nationwide.



Business



Meet the National Biodiesel Board

Based in Jefferson City, Missouri, the [National Biodiesel Board](#) is a nonprofit trade association dedicated to coordinating the biodiesel industry and educating the public about the fuel. Its mission statement is:

Representing America's first Advanced Biofuel, the National Biodiesel Board will advance the interests of its members by creating sustainable biodiesel industry growth. NBB serves as the U.S. biodiesel industry's central coordinating entity and will be the single voice for its diverse membership base. Industry success will be achieved through governmental affairs, communications, market development, technical, and quality assurance programs. We are dedicated to inclusiveness and integrity.

NBB membership is comprised of state, national, and international feedstock and processor organizations; biodiesel suppliers; fuel marketers and distributors; and technology



providers. Membership has grown significantly over the years. Starting with seven members in 1992, NBB now counts over 300 companies as members. These companies vary from Fortune 100 companies to small, family-owned biodiesel production companies. This diverse membership base has provided a strong base for the industry to gain support for its mission.

Steven Levy, Sprague Operating Resources, was elected the first petroleum distributor to serve as Chair of the National Biodiesel Board in November, reflecting the organization's diversity.

The organization's vision for the year 2022 is:

Biodiesel is recognized as our nation's Advanced Biofuel, creating a more stable, diversified domestic energy supply. With advancements in feedstocks, biodiesel will comprise 10% of diesel fuel demand by 2022.

The NBB employs 19 [staff members](#), including a small but effective Washington, D.C. office. The organization also employs a small army of contractors who expand the reach of its services. This includes NBB Petroleum Liaison Paul Nazzaro, who leads petroleum industry training and education efforts, including

the expansion of Bioheat®.

State soybean commodity groups, who funded several biodiesel research and development programs with soybean checkoff dollars, originally founded the National Soy Diesel Development Board in 1992. The board changed its name to the National Biodiesel Board in 1994 to reflect the preferred name for the fuel, since it can be made from any fat or vegetable oil. Though the board supports biodiesel made from any EPA-approved feedstock, soybean farmers and the United Soybean Board continue to be among NBB's biggest financial supporters. [For more info, visit www.NBB.org.](http://www.NBB.org)

Tech Corner << continued from page 2

off-road fuel will be dyed red. For the record, the dye offers no performance enhancing characteristics for the fuel.

If contaminated fuel does make it into your fuel tanks, the secondary line of defense is a high-quality primary filter. The water and sediment in the filter will alert you to the problem before it goes into the injection systems where serious damage can and will occur. For those who have not paid attention to the tank maintenance from the beginning, tank cleaning is the only real solution if there's serious contamination built up.

Additives and fuel polishing can help diminish fuel quality issues if they're used intelligently and in accordance with the manufactures' directives. Detergent-based additives can and will dissolve accumulated carbon and microbial contamination, as will biodiesel-blended diesel fuels. Many diesel fuel users rely on a biocide to treat the symptom but not the cause, which, make no mistake about it, is the water left unmanaged. It has been documented and addressed for years that the bugs live in water and nourish their appetites at the fuel and water interface.

For more information on fuel quality and proven management principals contact your trusted fuel suppliers or professional additive counselors. Additional tools which you can use to help establish your preventative defense can be found in the [Biodiesel Handling and Use Guide](#) or the [Fuel Quality and Performance Guide](#).

The long-term solution to contaminated fuel problems is to be proactive and vigilant as you exercise some of these suggestions:



- 1. The tank should be sloped slightly and a drain placed at the low end. Through this drain, settled impurities can be removed easily.**
- 2. The fuel suction outlet should be located well above any possible level of settled impurities so that only clean fuel is pumped.**
- 3. A filter should be provided in the suction line to remove any impurities that have not had time to settle.**
- 4. The storage tank itself and any interior tank coating should be insoluble in the fuel and non-reactive with the fuel.**
- 5. The tank should be as large as possible, consistent with the user's normal fuel requirements.**
- 6. Additives should not be blended into the diesel fuel without first consulting the fuel supplier or a professional additive advisor.**
- 7. Clean fuel in the storage tank does not ensure clean fuel in the engine.**
- 8. Take care to minimize contamination when the engine fuel tanks are filled. Also, engine tanks should be filled at the end of each day to reduce the amount of water that will condense in the tanks overnight. The engine tank should be provided with a drain and the engine tank discharge line should have a filter. Both the drain and the filter should be serviced regularly to eliminate water and dirt that has accumulated and thereby ensure that the filter will not become "plugged" in service.**

Markets << Biodiesel Mid-term continued from page 4

party testing confirmed that B20 can be used in existing home heating applications. Official ASTM standards for blends of up to 5 percent biodiesel in conventional heating oil (B5) were passed in 2008, as were standards for blends up to B5 for on/off road diesel and for B6-B20 blends in on/off road diesel. This was the culmination of almost 15 years of research sponsored primarily by the biodiesel industry through funding largely from soybean farmers through the soybean checkoff program.

Starting in 2008, the [National Oilheat Research Alliance](#) and the [National Biodiesel Board](#) joined forces to provide a similar level of data on higher biodiesel blends in heating oil as that used by ASTM to pass the B20 standards for on/off road diesel fuel. The main question: "What level of biodiesel can be used in existing heating oil systems without modifying them?" NORA and NBB formed the Bioheat Technical Steering Committee—comprised of the leading technical scientists from NORA, NBB, respected third party laboratories, and the equipment industry to guide the testing and research to answer the question. Only respected third party independent organizations would be used for the research, so its validity would not be in question. After more than six years of painstaking research and testing, the results are in. The answer is B20—and maybe even higher.

Much of the research, which has now run into the millions of dollars, was done by Brookhaven National Laboratory, an independent and well respected

>> *continued on page 8 (click here)*

Feature Article << continued from page 2

CARB Proposal Recognizes Biodiesel's Carbon Benefits



On the West Coast, the California Air Resources Board released a proposal recognizing biodiesel's sustainability and environmental benefits, opening new avenues for biodiesel use in the state.

For several years the board has been working to assign Indirect Land Use Change values to various alternative fuels. Though the theory of indirect land use remains under debate nationally, in California, these values will ultimately determine how products may be used to comply with the state's Low Carbon Fuel Standard and future carbon reduction goals. The outcome of the final rule is likely to trickle across the nation as other states follow the California's lead on carbon mitigation.

"We applaud the Air Resources Board for recognizing the need to reduce carbon from transportation and fossil fuels to mitigate climate change," said Don Scott, director of sustainabil-

ity for the National Biodiesel Board. "Since America's Advanced Biofuel, biodiesel, is among the most effective tools for carbon reduction, this represents a major step forward. We are hopeful the agency will continue on this path to use the best science to quantify the benefits of biodiesel."

The National Biodiesel Board has provided information and expert resources to ARB as the group worked to improve its quantification through a comprehensive process. Figures released are preliminary, however they bring California's policy generally in line with similar values defined by U.S. Environmental Protection Agency.

management and ownership, with classes for each level of the oil heat industry. Our purpose, beyond the sponsorship, was to attend the educational track and engage attendees on all things biodiesel and Bioheat.

A Bioheat vision

The [New England Fuel Institute's](#) Visions Conference took place June 10 - 11, 2014 at the DCU Center in Worcester, Massachusetts, where Bioheat was a key sponsor. This year's theme was: Adapt & Prosper - Taking Your Company to the Next Level in Volatile Times. In just two days, fuel retailers learned the latest developments and cutting-edge strategies that can help make 2014 and 2015 more profitable. The conference features thought-provoking seminars and discussions covering company diversification, customer mindsets, fuel buying, biofuel blending, acquisitions, regulatory requirement, and more. Marketers can immerse themselves in fresh ideas from some of the industry's best thinkers and learn about the latest products and services on the trade show floor.

In Bioheat sessions, attendees heard firsthand from industry leaders:

- **John Maniscalco**, New York Oilheating Association

- **Christian Herb**, Connecticut Energy Marketers Association
- **Matt Cota**, Vermont Fuel Dealers Association
- **Jamie Py**, Maine Energy Marketers Association
- **Paul Nazzaro**, Nazzaro Group, LLC

These leaders discussed who is protecting the interests of the heating oil and propane dealers in their track called: Heating Oil, Bioheat® Fuel & Propane vs. Natural Gas - The Future of Home Heating in the Northeast. Taking two days for this event helps you discover the vision for your company and set the stage for enhanced success in the years ahead.

Heading south

Bioheat will also be a lead sponsor at the [Southern New England Energy Conference](#), in which Massachusetts Energy Marketers Association, Connecticut Energy Marketers Association and the Oil Heat Institute of Rhode Island will be the host for the second year. The conference will be held in Newport September 22 -23. With a reputation for strong education, this year the conference will include tracks on heating fuels, propane, motor fuels, service management, and biofuels.



Markets << Biodiesel Mid-term continued from page 6

Department of Energy national lab. Who wouldn't trust the national lab that produced seven Nobel Prize winners and played a key role in the Manhattan Project? The research and data were summarized in white papers and Power Point presentations authored by Brookhaven PhDs, NORA leadership, and RW Beckett. This information accompanied the recent ASTM ballot for heating oil standards covering blends up to B20 which could see ASTM approval as early as this fall.

Four areas of priority are as follows:

- 1. Gaskets and Seals:** Compatibility between biodiesel meeting ASTM 6751 and NBR (nitrile) elastomer seal materials historically used in oil burners was demonstrated to at least B20.
- 2. Yellow Metals and Sludge:** The test results, which are corroborated with information from field surveys, indicate B20 and lower blends meeting the proposed ASTM specifications—and made with B100 meeting the most recent D6751—will perform in a similar manner as conventional fuel oil in the existing unmodified equipment base regarding yellow metals and tank sludge.
- 3. Field Survey:** The results from the in-use fuel survey, which include over 13,000 buildings using at least B20, show that B20 and lower blends operate in the field in a similar manner as that of conventional heating oil.

4. Combustion: The technical data all indicate that B20 and lower blends will perform as expected in the existing equipment base without modification. Higher blends may also perform as expected, but as blend levels approach 100 percent biodiesel adjustments to the flame sensor system may be required due to the cleaner burning nature of biodiesel.

Most of the studies show that NOx emissions are lower with B20, although in some cases at some excess air levels, similar NOx levels were reported. The most impressive data were on the impacts of biodiesel and biodiesel blends on seals/gaskets vs. those of conventional heating oil. When listing a new burner with UL, seals and gaskets must undergo compatibility testing for tensile strength, elongation, and volume swell under UL 157. This test involves an immersion period of 70 hours at 23 degrees Celsius, approximately 73 degrees Fahrenheit. Suitable elastomers are required to retain more than 60 percent of their unconditioned tensile strength and elongation and volume swell must fall within the range of -1 to + 25 percent.

Leaving no stone unturned for this biodiesel effort, the additional parameters of hardness and compression set were also measured. Slab samples of the most common gasket/seal material were received from Suntec and immersed in various blends up to B100 for 670 hours at 125 degrees Fahrenheit and then 840 hours at room temperature, for a total of more than



1500 hours. This is more than 20 times longer than the UL testing required for the original listing of the burner by RW Beckett. No differences were found for any blend—even up to B100. Clean bill of health, right? Not so fast. The Biodiesel Technical Steering Committee members noted, sitting around in the fuel is one thing but what about the shaft lip seal?

To address that question, NORA, NBB, Beckett, and Suntec collaborated on a study that actually ran fuel through Suntec pumps used on Beckett equipment for 2000 hours and measured leaks of B12 and B20 blends vs. both conventional and ultra-low sulfur fuel oil. The results—the biodiesel blends provided a statistically significant reduction in leaks vs. both conventional and ultra-low sulfur heating oil.

While it takes this level of testing and demonstration to secure ASTM standards for fuels, which the industry believes will happen soon, many in the industry are not waiting for the ASTM standards to tell them what they already know: Clean burning B20 made

with ASTM grade B100 works in existing equipment without modification, and higher biodiesel blends are the heating oil industry's leading way to recapture and protect market share constantly under sieged from natural gas.

It is clear that the biodiesel industry has faced continued challenges as it pertains to advancing the commercial acceptance of this unique clean fuel throughout the national supply chains. Policy and diplomacy aside, let's face it, can you remember at any time in the last 50 years another fuel that has been so rigorously evaluated, and a fuel that time and time again passes exhaustive review? I can't. An investment of more than \$5 million has been made in Bioheat fuel to demonstrate its technical, operational and intrinsic benefits to the consumer. There has never been a better time to adopt and implement change, which prompts the question, "If not Bioheat fuel, then what?"

For more info, visit www.bioheatonline.com or call 978-258-8360.

Biodiesel – DID YOU KNOW?

Did you know...

... that any diesel engine will run on biodiesel blends up to B20 blend (20 percent biodiesel with 80 percent petroleum diesel) without any modification?

... that most diesel engine OEMs (Original Equipment Manufacturers) approve and warranty the use of biodiesel blends, some up to B20?

[For more information on diesel OEM blend approval statements follow this link: http://www.biodiesel.org/using-biodiesel/oem-information.](http://www.biodiesel.org/using-biodiesel/oem-information)

Did you know ...

... that any oil heating system can also run on biodiesel blends up to B20 without any modification?

... that most heating oil system component OEMs (Original Equipment Manufacturers) approve and warranty the use of biodiesel blends, up to B5, without modification?

Did you know ...

... that Bioheat is the registered trademark for a blend ratio of B2 – B5 (2-to-5 percent biodiesel blend with 98-to-95 percent petroleum #2 heating oil)?

... that currently there is an approval process underway to increase the approved maximum blend ratio for Bioheat, from B5 to B20, for use in oil heating systems?

[For more information on Bioheat use and supply, visit Bioheatonline.com/.](http://www.bioheatonline.com/)



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