WHY CHOOSE BIODIESEL TODAY?

How biodiesel stacks up with other low-carbon marine fuels

MICHIGAN ADVANCED BIOFUELS COALITION

Biodiesel Benefits

Lower emissions than petroleum diesel

- *74% ↓ greenhouse gases*
- *67% ↓ hydrocarbons*
- *47% ↓ particulate matter*
- *100% ↓ sulfur dioxide*

Made from byproducts, waste materials and other sustainably produced feedstocks

- *Soybean oil*
- *Recycled cooking oil*
- *Distillers corn oil*
- *Other fats and oils*

Safer to handle

- *Non-toxic*
- *Biodegradable*
- *Higher flashpoint than petroleum diesel*

Supports the Michigan economy

- *480 jobs supported through in-state production, distribution and sales*
- *12,000 Michigan soybean farmers*
- *$117 million in economic activity*

Biodiesel has many practical benefits over other fuel alternatives being tested by shipping companies. Renewable diesel (RD) is readily available in low carbon fuel markets on the West Coast, but can be cost-prohibitive in the Midwest. In contrast, biodiesel blends up to B20 typically track diesel prices within a few cents per gallon and sometimes cost less, depending on available incentives.

Liquified natural gas (LNG) is another viable option but requires significant infrastructure and engine investments to convert from diesel. Biodiesel uses existing liquid fueling infrastructure and engines.

Other potential solutions are renewable methanol, ammonia and green hydrogen. But these options all require new or upgraded vessels and infrastructure and are years away from reality.

Low-carbon Fuels Checklist (√ = yes x = no)

	B20 Biodiesel	B100 Biodiesel	Renewable Diesel	LNG	Methanol	Ammonia	Hydrogen
Readily available now	√	√	√	√	x	x	x
Compatible with most diesel engines without modifications	√	*	**	x	x	x	x
Using existing fuel storage tanks and infrastructure	√	***	√	x	x	x	x
Pricing in Midwest comparable to ultra low sulfur diesel	√	√	x	****	x	x	x

*Compatible with most diesel engines without modifications, but some engines may require heating and other minor upgrades.
**Compatible with most, but not all marine engines.
***Fueling infrastructure needs to be upgraded in colder climates. Upgrades may include heated tanks, tank blankets, heated dispensers and/or heated hose cabinets.
****LNG is cheaper than diesel on a per energy unit basis.

Want to know more about biodiesel? Visit miadvancedbiofuels.com or contact Michigan Soybean Committee/Michigan Soybean Association at 989-652-3294 or soyinfo@michigansoybean.org.

MICHIGAN SOYBEAN COMMITTEE

MICHIGAN SOYBEAN ASSOCIATION

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Consider Energy Density and Storage Needs

Keep in mind the volumetric density of marine fuel varies greatly, affecting onboard fuel storage needs. When using biodiesel, shipping companies do not have to sacrifice fuel storage space as with some other fuels. B20 delivers energy nearly equal to ultra low sulfur diesel fuel – and brings 15% carbon reduction.

Energy Density of Liquid Marine Fuels [4,5]

	Energy Content (BTU/Gallon)	Diesel Gallon Equivalent	Additional Fuel Storage Capacity Needed Compared to Ultra Low Sulfur Diesel
Ultra Low Sulfur Diesel	128,500	1.00	
Biodiesel (B20)	126,700	.99	1.01x
Renewable Diesel	123,710	.96	1.03x
Biodiesel (B100)	119,550	.93	1.07x
Liquid Natural Gas (LNG)	69,000	.53	1.88x
Methanol	57,250	.45	2.20x

[4] *Alternative Fuels Data Center (AFDC) Fuel Properties Comparison. Alternative Fuels Data Center: Fuel Properties Comparison (energy.gov) Accessed Nov. 9, 2023*

[5] *Michigan Department of Revenue. Alternative Fuel GGE Comparison 3.5 cpg surcharge.pdf (state.mn.us) Accessed Dec. 6, 2023.*

The Michigan Soybean Committee (MSC) checkoff program represents more than 12,000 soybean farmers in Michigan. Checkoff funds are used for market development, including support of the Michigan Advanced Biofuels Coalition (MiABC), along with soybean production, outreach activities and government relations efforts, while the membership program, the **Michigan Soybean Association (MSA)** actively advocates for positive and impactful legislation for farmers at local, state and national levels. Both organizations uphold the interests of Michigan soybean farmers through promotion, advocacy, research and education to enhance the Michigan soybean industry and ensure the profitability and sustainability of Michigan soybean farmers for years to come.

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