

Environmental Operating Solutions, Inc. never stops looking for new tools for wastewater denitrification. Most recently, we have engineered a glycerin-based carbon source specifically for use in wastewater treatment plants, MicroCglycerin™. The team at EOSi has carefully sourced, researched, and developed a Premium Carbon Source that is consistent batch-to-batch, chemically stable, and preserved to prevent growth prior to dosing.



Research and Development of a Premium Carbon Source

While some companies raced to promote the glycerin market and encouraged their customers to experiment with unprocessed crude glycerin from biodiesel plants lacking any glycerin process control, EOSi worked closely with industry leaders to understand the advantages and potential pitfalls of glycerin as a supplemental carbon source. We heard stories of undisclosed methanol content, pumps clogged with fatty acids, unpredictable COD values, and sudden supply interruptions. At the same time, we recognized the potential for this economical alternative to serve the needs of certain customers. In response, we developed quality control measures and tight raw material specifications to ensure batch consistency, and secured sourcing arrangements with a significant portion of biodiesel industry producers. MicroCglycerin™ has been used successfully in pilot and full-scale wastewater plants with excellent results.

Product Description

As a Premium Carbon Source, MicroCglycerin™ is the latest wastewater treatment chemical developed by Environmental Operating Solutions, Inc. MicroCglycerin™ was designed specifically for use as an electron donor / carbon source for wastewater denitrification applications, and has attractive physical properties and specifications:

Physical State	Liquid
Specific Gravity @ 25°C	1.19—1.22
Density (lbs/gal)	9.92—10.17
pH	5.75-6.75
Viscosity (centipoises)	~ 45 @ 20°C
Solubility in water	100%
VOC Concentration	0% (EPA 8260B)
Freezing Point	Below Zero Fahrenheit
Flash Point	No Flash (ASTM D93)
COD Value	1,000,000 mg/L
Methanol Content	0 - 0.06% w/w
Fatty Acid Content	0.05 - 0.6% w/w
Insoluble/Nuisance Solids	None

Product Data Sheet

	MicroGlycerin™	Uncontrolled Crude Glycerin
Advantage #1 Non-flammable Content	Non-flammable (Less than 0.06% methanol)	Often flammable (up to 24% methanol)
Advantage #2 Pure and Stable Product	Stringent supplier qualifying process, including BQ9000 certification. (9 Plants currently certified)	Excessive impurities resulting in high maintenance & pump clogging
Advantage #3 Consistent COD value	1,000,000 mg/L (controlled for all product from all plants)	Variable and/or not measured
Advantage #4 Reliable Viscosity / Pumpability	See viscosity table below	Unpredictable batch to batch
Advantage #5 Stable Pricing and Supply	Annual supply agreements with BQ-9000 biodiesel leaders	Plants open/shut down based on biodiesel pricing and demand

Rapid Acclimation Period

Unlike methanol, which has a relatively long acclimation period, MicroGlycerin™ has a rapid acclimation period and is utilized by ordinary heterotrophic microorganisms. Rapid acclimation allows plant operators to optimize their dosing rates during plant start-up to maximize nitrate removal while minimizing chemical costs. Rapid acclimation is especially important for facilities prone to plant shock loads, washout conditions and cold weather conditions or for facilities that denitrify on an intermittent or seasonal basis.

Viscosity Curve

Viscosity data at different temperatures for MicroGlycerin™ is provided below. Please contact EOSi to obtain additional guidance in specifying storage, metering pump systems, and dosing requirements.

