

MicroC[®] 2000

PRODUCT INFORMATION

MicroC[®] 2000 is a proprietary, non-hazardous, green chemical designed specifically for use as a carbon source for biological contaminant removal applications in water/wastewater treatment.

COST EFFECTIVENESS

- ▶ Best value among non-hazardous alternative carbon sources

NON-HAZARDOUS

- ▶ Eliminates flammability and toxicity concerns of traditional chemicals such as methanol
- ▶ Provides capital cost savings vs. installation of flammable liquid storage and feed system
- ▶ Non-hazardous product enables rapid and flexible deployment of carbon augmentation solutions

PERFORMANCE ADVANTAGES

- ▶ Rapid start-up/acclimation
- ▶ Superior cold weather performance

ENVIRONMENTALLY SUSTAINABLE

- ▶ Derived from abundant, renewable resources produced in the United States vs. largely imported fossil-fuel derived carbon sources (methanol)
- ▶ USDA BioPreferred designation

CONSISTENT AND SUPERIOR QUALITY

- ▶ Rigorous end to end quality control program
- ▶ Consistent Chemical Oxygen Demand (COD) values
- ▶ No product degradation during long-term storage

VALIDATED PERFORMANCE

- ▶ MicroC[®] products in use at over 550 plants in North America
- ▶ Performance validated by leading equipment/process suppliers, consulting engineers and academic institutions
- ▶ Full scale, documented performance validation for:
 - ▶ Nitrate removal
 - ▶ Enhanced Biological Phosphorus Removal (EBPR)
 - ▶ Metals removal
 - ▶ BOD augmentation
 - ▶ Perchlorate removal
 - ▶ Fixed film biological processes (i.e. denitrification filters)
 - ▶ Startup/acclimation dynamics
 - ▶ Cold weather performance
- ▶ Denitrification rates and kinetic parameters determined by Northeastern University

TECHNICAL SERVICES

- ▶ Application guidance from team of BNR/contaminant removal experts
- ▶ Dedicated support to ensure achievement of contaminant removal goals

SUPPLY CHAIN EXPERIENCE

- ▶ 20 nationwide MicroC[®] manufacturing facilities
- ▶ Over 175 million pounds of MicroC[®] products produced and delivered
- ▶ Over 20,000 drums and totes packaged and delivered
- ▶ Over 10,000 customer deliveries completed

PACKAGING

- ▶ Bulk (1000-4500 gallon)*
- ▶ 265-gallon IBC/tote
- ▶ 55-gallon drum
- ▶ 30-gallon drum
- ▶ 5-gallon pail

*Maximum volume 4800 gallons in some markets

TECHNICAL SPECIFICATIONS

PROPERTY	SPECIFICATIONS	TYPICAL VALUE	TEST METHOD
Glycerin Content	70% - 74%	71%	ASTM D7637-10
Methanol Content	0.3%, max	< 0.1%	EN 14110
Fatty Acid Content	0.75%, max	0.3%	ASTM D5555-95
COD (mg/L)	1,050,000 - 1,150,000	1,100,000	ASTM D1252
pH	4.0 - 11.0	6	ASTM E-70
Specific Gravity at 20°C	1.21 - 1.25	1.235	ASTM D891-00
Bulk Density (lbs/gal)	10.09 - 10.43	10.30	ASTM D891-00
Viscosity (cPs) at 20°C	75, max	45	ASTM D2196
Flash Point	None to 93°C	None to Boil	ASTM D93
Freezing Point (°C)	-18, max	-35	ASTM D1177

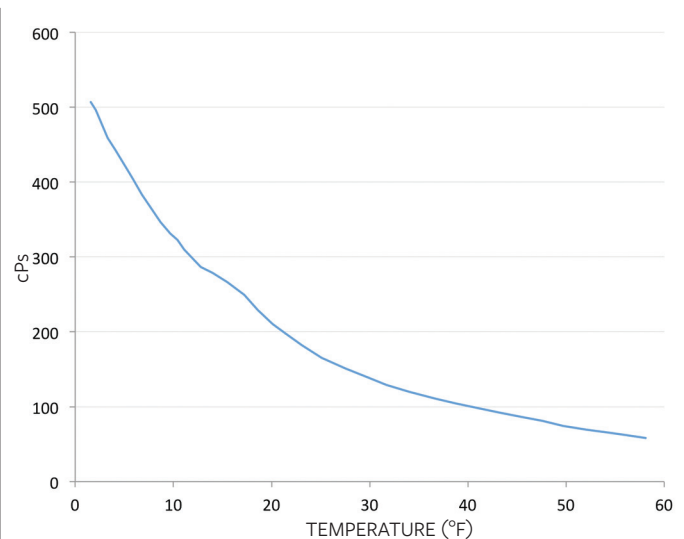
BATCH TEST RESULTS

SDNRmax (mgN/gVSS/hr)	13.3 ± 4.60
COD:N	5.12 ± 1.60
Yobs (gVSS/gCOD)	0.31 ± 0.11
μmax (1/day)	2.08 ± 0.32

Values are for 20°C

Denitrification Parameters The denitrification parameters listed in this table were determined through extensive batch testing at Northeastern University's Department of Civil and Environmental Engineering (Boston, MA). Please contact EOSi for application guidance.

TEMPERATURE / VISCOSITY RELATIONSHIP



Note: Although product freezes below 0°F, viscosity analyses stopped at 0°F due to practical considerations

