

Physical Properties of Commercially Available Electron Donors

	MicroCm™	MicroCg™	Methanol	Ethanol	Sucrose Solution	Acetic Acid 100%	Sodium Acetate 30% Solution
Flammability Classification	Liquid does not burn. Flash Point (131°F)	Non-flammable No flash point	Flammable. Flash Point (54°F)	Flammable. Flash Point (55°F)	Non-flammable	Flammable. Flash Point (102°F)	Non-flammable
Freezing Point	-4°F	18°F	-143.5°F	-173.2°F	Phase separation below 32F	62.1°F	57.2°F
Exposure Warnings	Only hazardous material in MicroCm™ is methanol (5%). Exposure can cause mild irritation to eyes, skin, respiratory and digestive tracts.	Minimal	Poisonous liquid Ingestion can cause blindness and death Inhalation may cause dizziness and pulmonary edema Rapidly absorbed through skin	Ingestion can effect central nervous system Inhalation can cause dizziness	Minimal	Poisonous liquid Liquid and mist can cause severe burns to skin, eyes and respiratory tract	Can irritate skin, eyes, respiratory tract and digestive tract.
Bacterial Growth/Shelf Life/Fermentation	No shelf life restrictions Recommend use within 12 months of purchase. Complete microbial/fungal inhibition while in concentration No fermentation odors or loss of carbon content	No shelf life restrictions Recommend use within 12 months of purchase. Complete microbial/fungal inhibition while in concentration No fermentation odors or loss of carbon content	No shelf life restrictions Complete inhibition while in concentration No fermentation odors or loss of carbon content	No shelf life restrictions Complete inhibition while in concentration No fermentation odors or loss of carbon content	Fermentation will occur resulting in inconsistent carbon content, nuisance odors and growth in containers, pumps and lines. Insects and rodents are also a problem.	No shelf life restrictions Complete inhibition while in concentration No fermentation odors or loss of carbon content	Precipitation may occur in solutions with time, freezing point will increase with time.
Chemical Incompatibilities	Negligible, avoid oxidants	Negligible	Reacts violently with oxidants causing fire and explosion hazard.	Reacts violently with strong oxidants causing fire and explosion hazard	Negligible	Reacts violently with oxidants and bases Attacks many metals forming flammable /explosive gases Attacks some rubbers, plastics and coatings	Strong oxidizers, nitric acid, fluoride, potassium nitrate.
Special equipment required/regulatory requirements	Check with local authority for storage guidelines	Negligible	Explosion proof storage buildings, tanks, cabinets, pumps, wiring, etc. State/local on-site storage limitations. Disaster/evacuation planning, training. Increased insurance premiums.	Explosion proof storage buildings, tanks, cabinets, pumps, wiring, etc. State/local on-site storage limitations. Disaster/evacuation planning, training. Increased insurance premiums.	Negligible	Explosion proof storage buildings, tanks, cabinets, pumps, wiring, etc. State/local on-site storage limitations. Disaster/evacuation planning, training. Increased insurance premiums.	Negligible