




Physical Properties of Commercially Available Electron Donors

	 MicroC 2000™	 MicroC 1000™	 MicroC 1100™	Methanol	Ethanol	Acetic Acid	Sucrose Solution	Sodium Acetate 30% Solution
Flammability Classification	Non-flammable No flash point	Non-flammable No flash point	Liquid does not burn. Flash Point 131°F (55°C)	Flammable. Flash Point 54°F (12.2°C)	Flammable. Flash Point 55°F (12.8°C)	Flammable. Flash Point 102°F (39°C)	Non-flammable	Non-flammable
Freezing Point	-4°F (-18°C)	18°F (-8°C)	-4°F (-18°C)	-143.5°F (-97.5°C)	-173.2°F (-114°C)	-4°F (-18°C)	Phase separation below 32°F (0°C)	57.2°F (14°C)
Exposure Warnings	Minimal	Minimal	Only hazardous material in MicroC 1100™ is methanol (5%). Exposure can cause mild irritation to eyes, skin, respiratory and digestive tracts.	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	Poisonous liquid Liquid and mist can cause severe burns to skin, eyes and respiratory tract	Minimal	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 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	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	Precipitation may occur in solutions with time, freezing point will increase with time.
Chemical In-compatibilities	Negligible	Negligible	Negligible, avoid oxidants	Reacts violently with oxidants causing fire and explosion hazard.	Reacts violently with strong oxidants causing fire and explosion hazard	Reacts violently with oxidants and bases Attacks many metals forming flammable /explosive gases Attacks some rubbers, plastics and coatings	Negligible	Strong oxidizers, nitric acid, fluoride, potassium nitrate.
Special equipment required/ regulatory requirements	Negligible	Negligible	Check with local authority for storage guidelines	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.	Explosion proof storage buildings, tanks, cabinets, pumps, wiring, etc. State/local on-site storage limitations. Disaster/ evacuation planning, training. Increased insurance premiums.	Negligible	Negligible