



## ENTERPRISE PRODUCTS OPERATING LLC

### MID-AMERICA PIPELINE COMPANY and SEMINOLE PIPELINE NORMAL BUTANE, 95% (D-GRADE)

COMPONENT	TEST METHODS	SPECIFICATIONS
Normal Butane	ASTM D-2163	95.0 Liq. Vol.% min.
Iso-Butane	ASTM D-2163	5.0 Liq. Vol.% max.
Pentanes & Heavier	ASTM D-2163	1.5 Liq. Vol.% max.
Propane & Lighter	ASTM D-2163	0.35 Liq. Vol.% max.
Total Oxygenates	UOP-845	50.0 ppm wt. max.
Methanol	UOP-845	50.0 ppm wt. max.
IPA & Heavier Alcohols	UOP-845	5.0 ppm wt. max.
MTBE & Other Ethers	UOP-845	2.0 ppm wt. max.
Other Oxygenates	UOP-845	5.0 ppm wt. max.
Vapor Pressure at 100 °F	ASTM D-1267 or ASTM D-6897	50 psig max.
Volatile Residue: Temperature @ 95% evaporation	ASTM D-1837	36 °F max.
Corrosion, Copper Strip at 100 °F	ASTM D-1838	No. 1 (See note 1)
Volatile Sulfur	ASTM D-2784 or ASTM D-5623	93 ppm wt. max.
Hydrogen Sulfide	ASTM D-5623	2 ppm wt. max.
Water Content	VISUAL INSPECTION	No Free Water
Olefins	ASTM D-2163	0.30 Liq. Vol.% max.
Halides (including Fluorides)	UOP-619	1.0 ppm wt. max.

NOTES ON TEST METHODS: Method numbers listed above, beginning with the letter "D," are American Society for Testing and Materials (ASTM), Standard Test Procedures. The most recent year's revision for the procedures will be used.

CONTAMINANTS: The specification defines only the basic purity for this product. The product is to be free of any contamination that might render the product unusable for its commonly used applications. Specific contaminants include (but are not limited to) dirt, rust, scale, and all other types of solid contaminants, caustic, amines, chlorides, heavy metals, oxygenates, inerts and any component added to the product to enhance the ability to meet the specifications.

- The use of corrosion masking agents is strictly prohibited.

Specification Committee

Approval: Gene Flipse  
Quality Control

Jim Collingsworth  
Business Management

Graham Bacon  
Operations