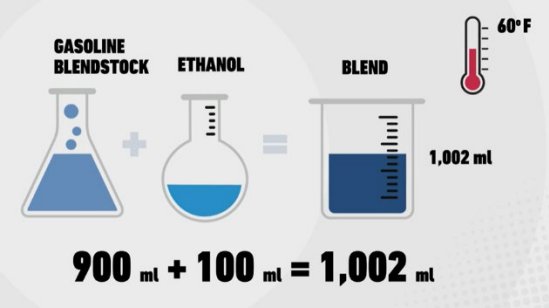
American Petroleum Institute

December 11, 2025

Density Correction: LMD-26.1[1] & MOS-26.3[2]
Facts, Figures and Questions and Answers

Agenda item LMD-26.1 modifies Handbook 44 to codify that density correction may be used to account for the traceable volume growth that occurs when gasoline is blended with ethanol to make a finished motor fuel. MOS-26.3 modifies HB 130, adding a requirement to the method of sale for liquid measuring devices that perform temperature compensation and/or density correction. We respectfully ask for your support for LMD-26.1 and MOS-26.3 as Voting items.

- Net volume calculated by automatic temperature compensation systems use API MPMS Chapter 11.3.4[3] and those volumes are traceable to Ch. 11 Physical Properties Data (for crude and refined products). Density correction also uses Ch. 11.3.4, and as such is also traceable. Ch. 11.3.4 is specifically referenced in ASTM D1250-e19 and it is an internationally recognized standard.
- Some terminals use ratio or sequentially piped load racks, where the components of the final product are metered before blending takes place.
- Since the volume growth occurs after the blending takes place the additional volume gained is not accounted for by the meters. See link for demonstration video: https://cdn.api.org/videos/API-Ethanol-Blending-Long-Full-Video.mp4



- The additional gain (~0.2%) is dependent on the density / API gravity of the gasoline blendstock and the percent ethanol in the blended product.
- Without correcting for the change in density of the finished product, the additional volume delivered to the retail gasoline station is not accounted for. A fuel owner should not be asked to give away a known volume.
- Density correction for gasoline-ethanol blends is needed at ratio and sequential-blending terminals to provide equitable comparison of fuel volumes at side-stream terminals.
- Adding a meter to a ratio-blending terminal is not easy and may not be able to be done without massive changes to the configuration of the terminal piping delivering the fuel.

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[1] **LMD-26.1** *S.2. Measuring Elements, S.4. Marking Requirements, N.4. Testing Procedures, U.R.6. Temperature Volume Compensation and Correction Wholesale, and T.5. Density Correction Systems.*

[2] **MOS-26.3** Section 2.20 Gasoline and Gasoline Oxygenate Blends

[3] MPMS Ch. 11 Physical Properties Data (ASTM D1250-e19, Adjunct), Chapter 11.1 - Temperature and Pressure Volume Correction Factors for Generalized Crude Oils, Refined Products, and Lubricating Oils, Ch. 11.3.4 Miscellaneous Hydrocarbon Properties - Denatured Ethanol and Gasoline Component Blend Densities and Volume Correction Factors