

## Reference Correlation for the Viscosity of Nitrogen

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Nitrogen is a common fluid with many applications including as a refrigerant, in the production of fertilizers, nitric acid, and explosives, in electronics manufacturing, pharmaceuticals, and other industries. It also is a component of air and many natural gases. It is used as a calibration fluid for instruments and is important to the calibration of flow meters in the semiconductor industry. For these reasons, it is necessary to have an accurate representation of the viscosity surface that represents the best experimental data to within their estimated uncertainty. Presently, the correlation developed by Lemmon and Jacobsen<sup>1</sup> is accepted as a standard. This formulation was made in 2003, and improvements in the representation of the dilute gas due to advances in *ab initio* calculations as well as additional measurements have occurred since then. Therefore, it is appropriate to update the formulation. We present a new viscosity correlation for nitrogen that is valid over the entire fluid surface, and present comparisons with experimental data.

### References

1. E.W. Lemmon and R. T Jacobsen, Int. J. Thermophys. 25:21 (2003)