

UNITED STATES
DEPARTMENT OF COMMERCE
WASHINGTON

National Bureau of Standards

Certificate

Standard Sample 218 a

Methylcyclohexane

Material

This lot of methylcyclohexane was prepared at this Bureau by purification¹ of commercial material of original high purity. The amount of impurity in the final product was determined from measurements of freezing points to be 0.03 ± 0.02 mole percent.¹

Density

The density of a sample of this material was measured in a picnometer of special design having a volume of approximately 100 ml. The temperature of the bath was maintained constant to $\pm 0.01^\circ \text{C}$. It is believed that the uncertainties in the values of density, which are given in the following table, are less than $\pm 0.00002 \text{ g/ml}$.

Temperature	20° C	25° C	30° C
Density, ^a in g/ml..... (For air-saturated material)	0.76936	0.76501	0.76068

^a These measurements were made by the NBS Section on Capacity and Density.

The values of density are on the basis of weights in vacuum, with the sample at a pressure of 1 atmosphere and saturated with air.

Refractive Index

The indices of refraction of a sample of this material were measured by the minimum deviation method, by the use of a water-jacketed hollow prism mounted on the table of a precision spectrometer. A calibrated thermometer was immersed in the liquid during the measurements. All index measurements were carried out in a temperature controlled laboratory where the room temperature varied not more than $\pm 0.5^\circ \text{C}$ from the listed temperatures. The values of refractive index are corrected to refer to air at the listed temperatures and at a pressure of 76 cm Hg. It is believed that the uncertainties in the values of refractive index, which are given in the following table, are less than ± 0.00002 .

Wavelength in angstroms	Designation of line	Index of Refraction		
		20.0° C	25.0° C	30.0° C
6678.1.....	helium.....	1.42064	1.41812	1.41561
6562.8.....	hydrogen, C.....	1.42095	1.41843	1.41592
5892.6 ^a	sodium, D ₁ , D ₂	1.42313	1.42059	1.41807
5460.7.....	mercury, e.....	1.42499	1.42244	1.41991
5015.7.....	helium.....	1.42744	1.42491	1.42234
4861.3.....	hydrogen, F.....	1.42847	1.42591	1.42335
4358.3.....	mercury, g.....	1.43271	1.43011	1.42754

^a Intensity-weighted mean of doublet, D₁, D₂.

¹ The purification and determination of purity were performed by the NBS Section on Thermochemistry and Hydrocarbons.