

DENSITY

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Density or specific gravity is a simple physical measurement of liquids, that can be obtained with various methods. For Innoleic™ products, density is an indicator of conversion and molecular distribution.

It is also recommended to use density as a basic quality check upon arrival of new orders and samples, together with visual inspection.

Density is affected by 4 key factors: Composition of fatty acids of the original vegetable oil, epoxidation conversion, molecular distribution of esters after transesterification, and aliphatic alcohol carbon chain length.

Although vegetable-based materials are comprised of a mixture of various molecular types and isomers, but the variation of the composition of fatty acids is maintained within a known range. Greater variations are observed for different regions, such as soy from Brazil when compared to soy from the USA. Little variation is observed along the harvest cycle. This variation is considered in determining Innoleic™ products specifications.

The epoxidation conversion is key to ensure compatibility with PVC and is well controlled by reaction and processes parameters. It is dependent on the original concentration of double bonds of the vegetable oil, and that is ensured by raw material specifications.

The molecular distribution of esters for the final products is controlled in the process and measured by chromatography to ensure maintenance within the desired specification range.

Finally, the aliphatic alcohol carbon chain length is a raw material selection choice, and is defined for each Innoleic™ product.

The table below shows the density specifications of Innoleic™ products.

	Specific Gravity (25 °C), g/cm ³
Innoleic™ E1	0.951 – 0.959
Innoleic™ B5	0.960 – 0.980
Innoleic™ MB50	0.975 – 0.990
Innoleic™ MB25	0.975 – 0.990