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D-limonene Technical Grade

PHYSICAL AND CHEMICAL PROPERTIES

Color: Colorless to pale yellow. Odor: Citrus aroma. Physical State: Liquid. Boiling Point: 349°F (176°C) Melting Point: -140°F(-96°C), thickens at -108°F(-78°C) Specific Gravity: 0.838 to 0.843 @ 68°F (20°C) Refractive Index: 1.471 to 1.474 Optical Rotation: +96° to +104° Vapor Pressure: $<2mmHg (a) 68^{\circ}F(20^{\circ}C)$ Flash Point (CCCFP): >110°F (43°C) Flammable Limits: LEL approx. 0.7%, UEL approx. 6.1% Autoignition Temperature: 458°F (237°C) Solubility in Water: Insoluble Evaporation Rate: 0.2(BuAc=1) Volatile Organic Compound (VOC) Content: >95% by volume. Note: These specifications represent a typical sample of this product, but actual values may vary. Certificates of Analysis and Specification Sheets are available upon request.

d-Limonene is the major component of citrus terpenes, with the balance consisting of other terpene hydrocarbons and oxygenated compounds - octanal, myrcene, alpha-pinene, linalool predominant. d-Limonene is a by-product of citrus, entirely of natural origin, and to the best of our knowledge contains no artificial flavors, sulfites, nitrites, or pesticide residue exceeding tolerances established by the FDA. d-Limonene does NOT contain lead, cadmium, mercury, or hexavalent chromium or come in contact with these chemicals since it is an citrus derived essential oil produced by steam/vacuum distillation. Further, d-Limonene is packaged in food grade containers with inert liners that do NOT contain lead, cadmium, mercury, or hexavalent chromium.

d-Limonene does NOT contain and is NOT manufactured with any of the Class I or II ozone-depleting substances listed under the United States Clean Air Act of 1990.

Prepared by Florida Chemical Company Technical Team

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