

**PRODUCT DATA SHEET & MATERIAL SAFETY DATA SHEET
CITRUS CLEANER TECHNICAL GRADE
44455,44405,44401**

DESCRIPTION:

d-Limonene is a biodegradable solvent occurring in nature as the main component of orange peel oil. d-Limonene's positive environmental profile and pleasant orange aroma have earned the product acceptance in many diverse chemical applications. d-Limonene can be used in its pure form, blended with other solvents, or easily emulsified to make water soluble cleaning products.

APPEARANCE & ODOR:

Clear water-white to slightly yellow liquid with a mild to strong orange aroma depending on grade.

USES & APPLICATIONS:

d-Limonene can be used to replace toxic, hazardous, and dangerous petroleum-derived chemicals. Ideal for use as parts cleaner, engine degreaser (automotive, aircraft, and aerospace industries), electronics cleaner, tar cleaner, asphalt release agent, graffiti remover, grease trap maintainer, heat transfer fluid, lift station and sewage treatment solvent.

d-Limonene is excellent in household, institutional and industrial product formulations such as: hand cleaner, glass cleaner, hard surface cleaner, floor cleaner, printing press wash, carpet/stain cleaner, metal cleaner, petroleum tank cleaner, asbestos abatement cleaner, and oil drilling fluid. It is also commonly used as an aerosol ingredient, fragrance ingredient, fragrance additive or odor mask in formulated products.

New applications for d-Limonene are emerging daily. d-Limonene is also showing promise in medical and pharmaceutical fields.

REGULATORY STATUS:

d-Limonene has been designated as GRAS (Generally Recognized As Safe) by the Food and Drug Administration. The EPA has granted d-Limonene an exemption from the requirement of a tolerance when it is an inert ingredient used as a solvent or fragrance in pesticide formulations. d-Limonene is not considered a carcinogen, a developmental toxicant or mutagenic. d-Limonene is not listed on California Proposition 65.

d-Limonene is a naturally occurring VOC. d-Limonene is reportable on average as 95% VOC (850 grams per litre, 6.8 lbs per gallon). Emulsions containing d-Limonene can be exempt from VOC regulations. Contact state VOC or regulatory authorities for ruling.

PACKAGING:

d-Limonene is packaged in phenolic-lined containers as follows:

1-Gallon Pail	7 Pounds Net Weight	3.2 kg. Net Weight
5-Gallon Pail	35 Pounds Net Weight	16 kg. Net Weight
55-Gallon Pail	390 Pounds Net Weight	177 kg. Net Weight

Drums are typically orange or black DOT approved steel drums coated with a phenolic resin liner. All drums of our domestic d-Limonene are filled to a net weight of 390 lbs. Dimensions of 55-gallon drums are: length 23", width 23", and depth 35". Imported drums of Brazilian d-Limonene vary slightly in net weight – weight should be verified when ordering. Tank truck shipments average 6500 gallons (45,000 lbs). Overseas ISO tank shipments are either 20,000 liters (16,800 kg) or 24,000 liters (20,180 kg). Sample quantities (gallons & pints) are packaged in fluorinated plastic containers or glass (1 oz. Samples).

STORAGE & HANDLING:

Store in a warehouse with a fire prevention system. Avoid contact with incompatible chemicals listed in Section IV. Store in tightly sealed full containers in well-ventilated controlled warehouse conditions. Partially filled containers should be blanketed with nitrogen. Antioxidants such as BHT are commonly used in addition to proper storage and handling procedures.

Improper storage and handling can lead to oxidation.

d-Limonene samples and certificates of analysis are available upon request. **Caution:** the user should conduct his/her own experiments and establish proper procedures and controls before attempting use on critical parts.