



Designation: D804 – 12 (Reapproved 2022)

Standard Terminology Relating to Pine Chemicals, Including Tall Oil and Related Products¹

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1. Scope

1.1 Although the pine chemical industry has been a continuing producer of chemical products for many centuries, the nature of the industry, its products, and its terminology have changed. In particular, the original practice of recovering pine chemical through the processing of the exudate from pine trees has been supplemented by their extraction by solvent products of the wood pulping industry. For many years the industry was known as the Naval Stores industry but that term has gradually been replaced by the more descriptive and meaningful term, Pine Chemicals Industry. Thus, this terminology contains some old terms now mostly of historic value, together with the terms of the modern pine chemical industry.²

1.2 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:³

D6090 Test Method for Softening Point Resins (Mettler Cup and Ball Method)

E28 Test Methods for Softening Point of Resins Derived from Pine Chemicals and Hydrocarbons, by Ring-and-Ball Apparatus

3. Terminology

abietic acid, commercial grade, *n*—a product consisting chiefly of rosin acids in substantially pure form, separated either from rosin or tall oil commercially for specific

purposes and in which abietic acid and its isomers are the principal components.

colophony, *n*—a term denoting medium and high grades of rosin.

crude stripper oil, *n*—a by-product of the manufacture of citrus juice, composed largely of d-limonene and containing up to 1.5 % of aldehydes. (See also **d-limonene**.)

dipentene, *n*—chemically defined as the optically inactive form of the monocyclic terpene hydrocarbon limonene.

DISCUSSION—Commercial dipentenenes contain substantial portions of other monocyclic and bicyclic, as well as some oxygenated, terpenes having closely related boiling ranges. They are generally obtained by fractional distillation from crude oils recovered in the several commercial methods of utilizing pine wood, also by isomerization during the chemical processing of terpenes. There is no legal requirement under the Naval Stores Act that the source, origin, or kind of dipentene be shown in the commercial designation. Consequently, coined trade names are sometimes used in selling this product. The four kinds of commercial dipentene are:

chemically processed dipentene, *n*—recovered as a product or a by-product in connection with the chemical treatment and conversion of other terpenes.

destructively distilled dipentene, *n*—from the lighter portions of the oil recovered during the destructive distillation of pine wood.

steam-distilled dipentene, *n*—fractionated from the crude oleoresinous extract during the processing of related steam-distilled wood naval stores.

sulfate dipentene, *n*—from the crude condensate of the vapors generated in the digestion of wood in the sulfate paper pulp process.

ester gum, *n*—a resin made from rosin and a polyhydric alcohol, generally glycerol or pentaerythritol.

gloss oil, *n*—a solution of limed rosin or limed rosin acids in a volatile solvent, used chiefly in surface coatings.

d-limonene, *n*—a purified optically active terpene hydrocarbon recovered from by-products of the citrus industry.

DISCUSSION—It is used as a chemical intermediate and as a monomer in terpene resins.

metallic resinates, *n*—rosin in which part or all of the rosin acids have been chemically reacted with those metals that give soaps or salts which are water insoluble.

¹ This terminology is under the jurisdiction of ASTM Committee D01 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.34 on Pine Chemicals and Hydrocarbon Resins.

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² Zinkel, D. F., and Russell, J., eds., *Naval Stores: Production, Chemistry and Utilization*, Pulp Chemicals Association, NY, 1989.

³ For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.