

- Lehman-McKeeman LD, et al. Diethanolamine induces hepatic choline deficiency in mice. *Toxicol Sci* 2002; 67(1): 38–45.
- Lewis RJ, ed. *Sax's Dangerous Properties of Industrial Materials*, 12th edn. New York: Wiley, 2012; 1503.

20 General References

21 Authors

ME Quinn, PJ Sheskey.

22 Date of Revision

4 May 2017.

D

Diethyl Phthalate

1 Nonproprietary Names

BP: Diethyl Phthalate

PhEur: Diethyl Phthalate

USP–NF: Diethyl Phthalate

2 Synonyms

DEP; diethyl benzene-1,2-dicarboxylate; diethylis phthalas; *Eastman DEP*; ethyl benzene-1,2-dicarboxylate; ethyl phthalate; *Kodaflex DEP*; *Neantine*; *Palatinol A*; phthalic acid diethyl ester.

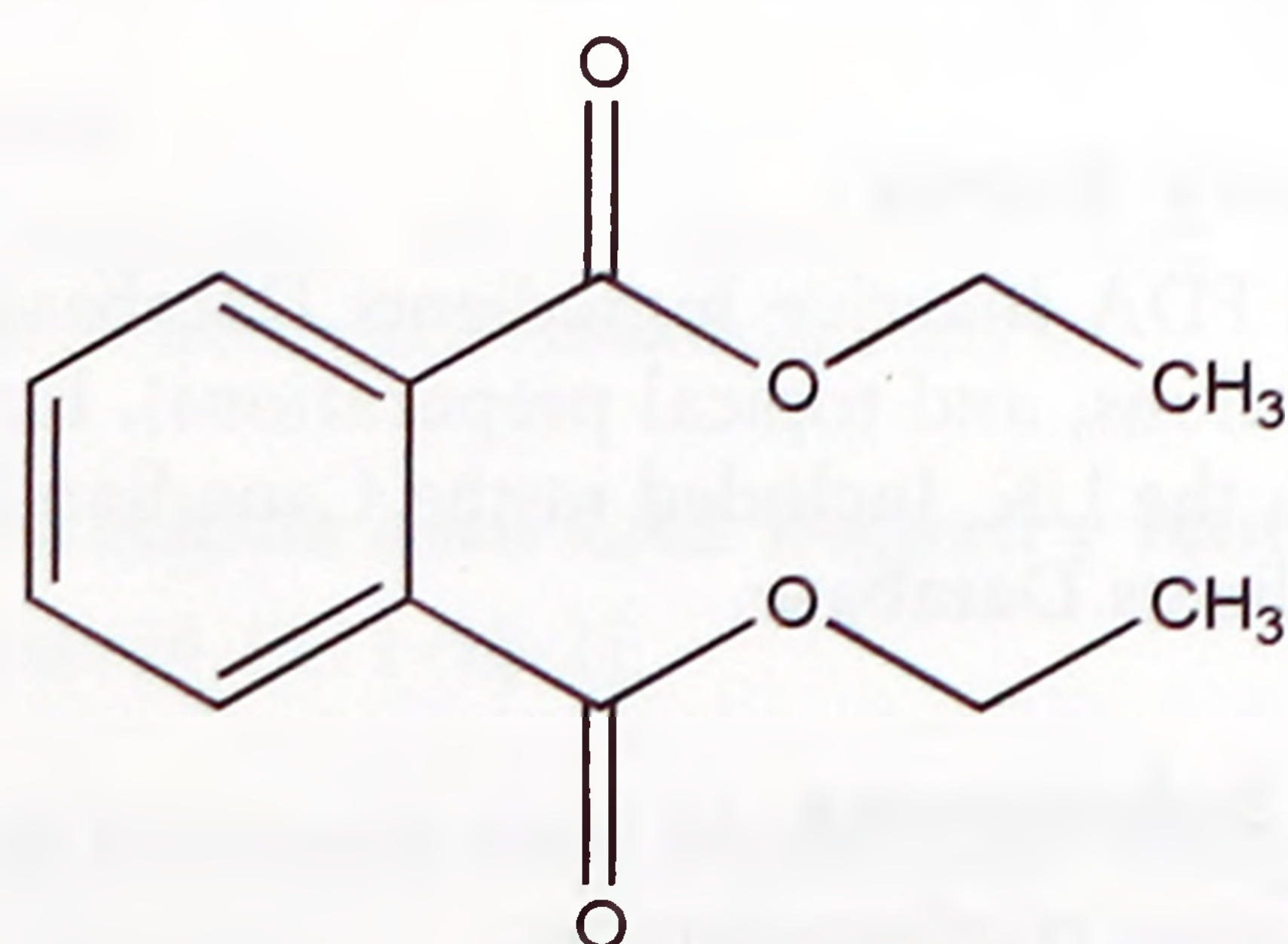
3 Chemical Name and CAS Registry Number

1,2-Benzenedicarboxylic acid, diethyl ester [84-66-2]

4 Empirical Formula and Molecular Weight

C₁₂H₁₄O₄ 222.24

5 Structural Formula



6 Functional Category

Plasticizing agent; solvent.

7 Applications in Pharmaceutical Formulation or Technology

Diethyl phthalate is used as a plasticizing agent for film coatings on tablets, beads, and granules at concentrations of 10–30% by weight of polymer.^(1–3)

8 Description

Diethyl phthalate is a clear, colorless, oily liquid. It is practically odorless, or with a very slight aromatic odor and a bitter, disagreeable taste.

9 Pharmacopeial Specifications

See Table I.

Table I: Pharmacopeial specifications for diethyl phthalate.

Test	PhEur 9.2	USP 40–NF 35 S1
Identification	+	+
Characters	+	–
Specific gravity	1.117–1.121	1.118–1.122
Refractive index	1.500–1.505	1.500–1.505
Appearance	+	–
Acidity	+	+
Related substances	+	–
Water	≤0.2%	≤0.2%
Residue on ignition	–	≤0.02%
Sulfated ash	≤0.1%	–
Assay (anhydrous basis)	99.0–101.0%	98.0–102.0%

10 Typical Properties

Boiling point 295°C

Flash point 160°C (open cup)

Melting point –40°C

Refractive index $n_D^{25} = 1.501$

Solubility Miscible with ethanol (95%), ether, and many other organic solvents; practically insoluble in water.

Specific gravity 1.120 at 25°C

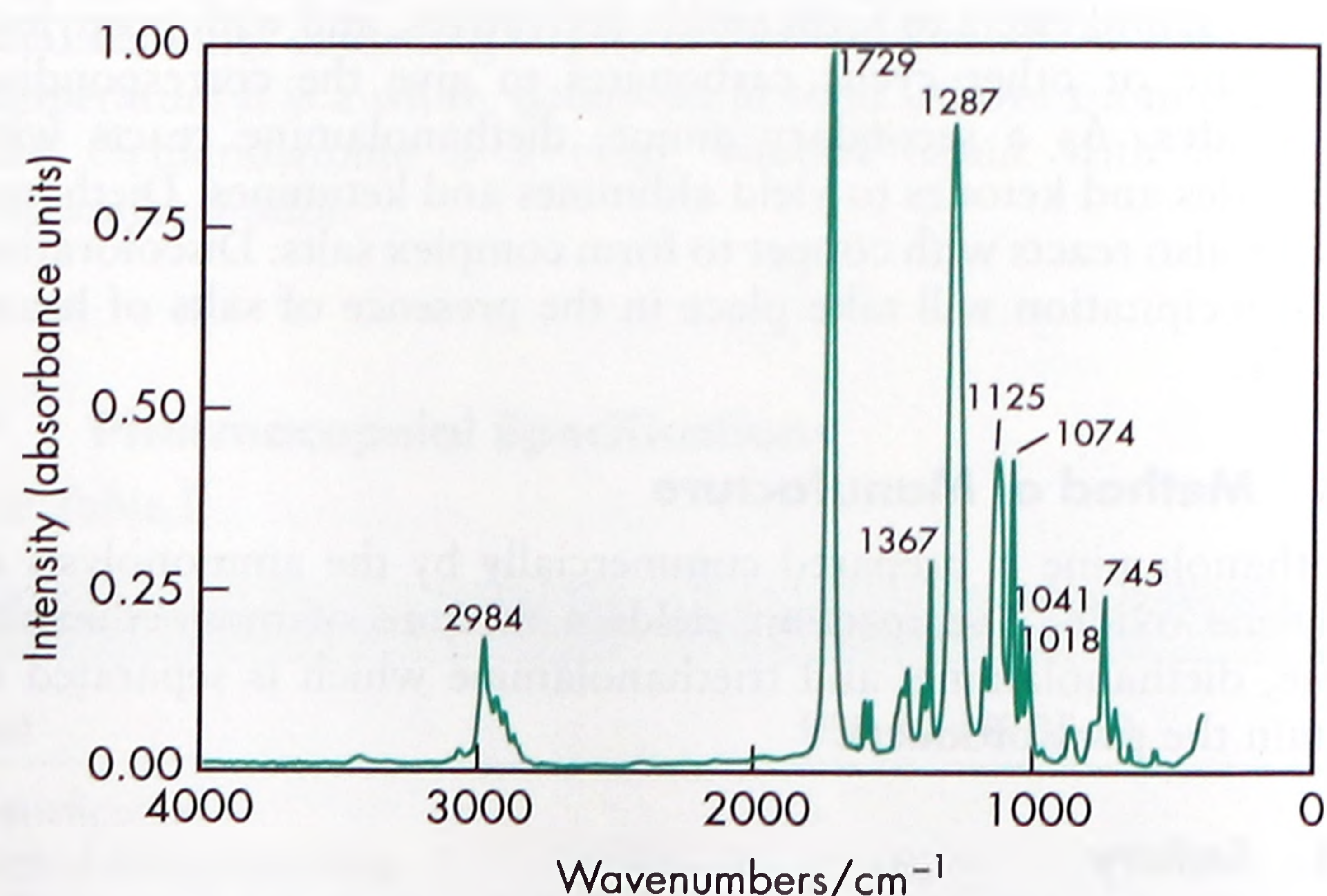


Figure 1: Infrared spectrum of diethyl phthalate measured by transmission. Adapted with permission of Informa Healthcare.