

Abstract
Process Economics Program Report 202A
POLYETHYLENE NAPHTHALATE MONOMERS
(February 1997)

Polyethylene naphthalate (PEN) has been slow to develop as a commercial polymer because of short monomer supply. The first PEN monomer to be commercialized is dimethyl-2,6-naphthalenedicarboxylate (NDC). NDC is a challenging chemical to manufacture in polymer-grade quality at reasonable cost and, until recently, could be obtained only in semicommercial quantities at a high price. With Amoco's 1995-96 start-up of the first commercial-scale NDC plant, however, NDC prices have fallen to \$1.50/lb.

This supplementary report reviews the market conditions and important technical progress made in PEN monomers since PEP Report 202 was issued in April 1991. The process economics developed in this report address two routes to NDC, as well as to the alternative PEN monomer, 2,6-naphthalenedicarboxylic acid (NDA):

- NDC from o-xylene
- NDC from 2-methylnaphthalene
- Purified NDA.

For polyester producers or users, this report will be useful for the comparative economics it provides, as well as for its extensive review of recently published literature. The report reviews and analyzes more than 200 PEN monomer patents.