

LMFS-94-11 (RFP# LMFS 1994-3)
BYPRODUCT MARKETING STUDY – CATECHOLS & NAPHTHOLS

CONTRACTOR: SRI International

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CONTRACT AMOUNT: \$40,000

Project Schedule – 6 Months

Contract Date – 1/5/94
Start Date – 1/5/94
Completion Date – 6/15/94

Project Deliverables

Status Report – 3/15/94 ✓
Final Report – 6/15/94 ✓

OBJECTIVE / STATEMENT OF WORK

The objective of this study is market research to understand and identify factors which affect the global market for catechols and naphthols. Catechols and naphthols have been identified as major potential byproducts from the Great Plains Synfuels Plant. Catechols and their derivatives are used in; 1) flavoring, 2) fragrances, 3) insecticides, 4) polymerization inhibitors and 5) pharmaceuticals. Naphthols are used as chemical intermediates in the production of azo dyes, pigments, insecticides and pharmaceuticals. The following factors affecting the market for the catechols and naphthols will be identified:

- Specification required for use;
- Current producers and customers;
- Potential market size in 1997; and
- Price and value.

The contractor will complete these tasks by reviewing nonproprietary in house information and databases. They will verify and supplement that information by conducting telephone interviews, supplemented field trips with end users and suppliers, and contacting other knowledgeable sources.

STATUS

Preliminary market specification, and producers of catechol, α -naphthol (1-naphthol) and β -naphthol (2-naphthol) are identified. Catechols are used in the synthesis of vanillin, ethyl vanillin, carbofuran, propoxur, TBC and veratrole. Vanillin and ethyl vanillin are used in flavors and fragrances. Vanillin is also used in the synthesis of L-3,4-dihydroxyphenylalanine (L-dopa) and methyl L-dopa. L-dopa and methyl L-dopa are used in the treatment of Parkinson's disease and hypertension. Carbofuran and propoxur are used as insecticides. TBC, 4-tert-butylpyropolymerization inhibitor during the manufacture and storage of styrene, butadiene and other monomers. Veratrole is used as an intermediate in the production of alkaloids and pharmaceuticals.

α -Naphthol (1-naphthol) is used in the synthesis of carbaryl, napropramide, inderal, N-phenyl-1-naphthylamine, NWA and 1-hydroxy-2-naphthoic acid. Carbaryl is the active ingredient in the insecticide Sevin®. Napropramide, (2-(1-naphthoxy)-N,N-diethylpropionamide) is the active ingredient in the pesticide Devrinol. Inderal, also known as Propranolol, (1-isopropyl-amino-3-(1-naphthoxy)-2-propanol), is a adrenergic beta blocker, an antihypertensive agent that lowers blood pressure. N-phenyl-1-naphthylamine is a rubber antioxidant. NWA, sodium 1-naphthol-4-sulfonate is used in the manufacture of novolac type photoresists for the electronics industry. 1-Hydroxy-2-naphthoic acid, another α -naphthol derivative is used in dyestuff manufacture.

β -Naphthol (2-naphthol), is used to synthesize BONA, Tobias Acid and Schaefer Acid. BONA, (2-hydroxy-naphthoic acid), Tobias Acid, (2-hydroxy-naphthelene-1-sulfonic acid) and Schaefer Acid, (2-hydroxy-6-naphthelene-sulfonic acid) are three intermediates in the manufacture of pigments and dyes.