

LEAD INDUSTRIES ASSOCIATION, INC.

232 MADISON AVENUE
NEW YORK, N.Y. 10017

TELEPHONE - AREA CODE 212
OR 9-0000

July 10, 1967

Subject: Manufacturing
Unleaded Gasoline

To Members of the Lead Industries Association, Inc.

Attached hereto is an excellent commentary by L. C. Kemp, Jr., Texaco, Inc., Beacon, N.Y. of what we believe to be an important paper of particular interest to the lead industry. The paper, entitled "A Look at the Economics of Manufacturing Unleaded Gasoline" was presented at the 32nd Midyear Meeting of the American Petroleum Institute's Division of Refining.

Mr. Kemp's comments include most of the pertinent points made in a 35-page paper prepared by S. D. Lawson, Phillips Petroleum Co., Bartlesville, Okla., J. F. Moore, Bonner and Moore Associates, Inc., Houston, Texas and J. B. Rather, Jr., Mobil Oil Corp., New York, N.Y.

The paper, copies of which are available upon request to LIA, is a summary of the complete technical and economics report, consisting of several hundred pages, submitted to the American Petroleum Institute by Bonner and Moore Associates, Inc.

Sincerely yours,



David M. Borcina
Secretary, Treasurer

DMS:so
Att:



Look Ahead with Lead

A LOOK AT THE ECONOMICS OF
MANUFACTURING UNLEADED GASOLINE *

COMMENTARY

L. C. Kempt, Jr.
Texaco Inc., Beacon, N.Y.

The paper so ably presented by Mr. Dayton Lawson is an excellent summary of the data obtained in a carefully-planned and well-executed project. This work was undertaken by the API after a wide range of estimates of the effect of lead antiknock compound elimination on gasoline costs by government and private groups had been published. It seemed desirable to establish a reasonably reliable figure for such cost, and it is believed that the study has accomplished this.

It is perhaps advisable to note at this point that while this cost study was in progress, additional hearings have been held on the potential hazard of lead alkyl use in gasolines. To date there is no evidence that any such hazard exists or is likely to develop in the future.

To keep the study within reasonable bounds it was necessary to base it on 1966 octane levels and 1966 state of the art of process technology. These and certain other factors need to be considered in evaluating the significance of the reported information as developed in the following discussion.

From the standpoint of the antiknock quality of the fuels, it should be noted that road performance predictions based on the research + motor formula while applicable to leaded gasolines may

2

not be reliable for use with completely lead free products. This is a subject on which additional API work is now in progress.

Also with respect to antiknock quality there is the very obvious point that some further increase in octane levels would normally be expected to occur in future years. Such increases would either not occur with unleaded fuels or would be accomplished at exponentially increasing costs.

- * Presented at the Session on Fuels and Emissions During the 32nd Midyear Meeting of the American Petroleum Institute's Division of Refining, in the Statler Hilton Hotel, Los Angeles, Calif., May 16, 1967.

-2-

It is certainly true that the cost increases which would result from going to lead-free gasoline would provide powerful incentives to the development of more economic octane improving methods. Certainly the excessive demand for platinum required by the use of 1966 technology would call for urgent work on a suitable and more available reforming catalyst. Considerable time would, of course, be required not only in research and development but in getting equipment designed and installed to operate on any new process.

Taken on a 1966 basis and without consideration to the effects of escalation, the estimated investment cost of \$4.25 billion is a staggering figure and represents about 42.5% of the current gross investment in the U.S. refining equipment. U.S. refining equipment capital expenditures have been running about \$400 million and, in fact, the total capacity of the U.S. to construct process equipment is estimated to be \$2.0 to 2.5 billion/year. It is thus evident that some time would be required to provide the processing necessary to convert to completely unleaded fuels. It is further apparent that all segments of industry including the small refineries would be faced with extensive problems if such a conversion became necessary.

In addition to the investment costs, careful note should be made of the operating costs to the consumer. The approximate 2 cents per gallon increase in the cost of gasoline adds up to \$1.5 billion per year to the present U.S. purchases of gasoline. Further, the greatly increased value of the aromatics as blending components for gasoline will result in a corresponding substantial increase in the cost of these products when used as basic chemicals. All of this will ultimately show up in the costs of consumer goods. A further factor involved is the increased consumption of crude which would be required. As noted this could be in the order of 5%. Based on present demand, this comes to the very substantial figure of 500,000 bbl/day.

All of this is to say that the study has accomplished what it set out to do and has given us a good overall figure for the costs of producing unleaded fuel. It is apparent that much individual consideration on the part of each refiner would be required in the event that such a move becomes mandatory and that the economic and performance effects could be profound.