Lead Industries Association, Inc.
292 Madison Avenue · New York, N. Y. 10017 · Telephone: (212) 679-6020

September 15, 1970

Mr. Clark Wilson
Anaconda Company
1849 W. N. Temple Street
Salt Lake City, Utah 84116

Dear Mr. Wilson:

At the request of Gerry Sorell, I am attaching some information about the use of lead in gasoline. Included are several Bulletins that we published on this point, Jack Kimberley's testimony which he will be giving before the Ways and Means Committee on Thursday this week, plus a mock-up of an article that will be appearing in our next issue of LEAD Magazine.

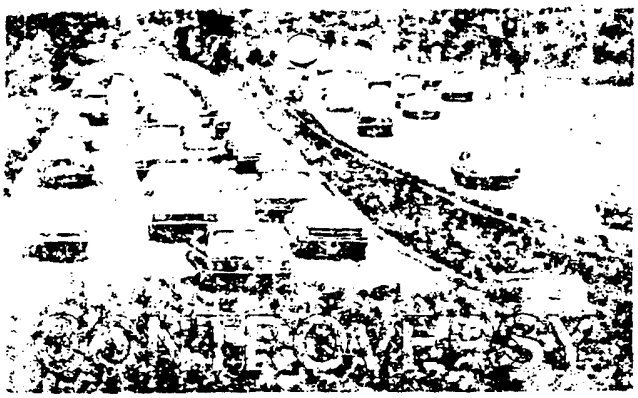
If you need any additional information or have any further questions, please do not hesitate to call or write me.

Very truly yours,

DMB:lm
Enclosures

David M. Borcina
Secretary, Treasurer

cc: Mr. G. P. Sorell



LEAD IN GASOLINE

By J. L. Kimberley
Executive Vice President
Lead Industries Association, Inc.

lead additives for gasoline, which provide untold millions of inexpensive horsepower for American automobiles, have been caught in the wrangle of frantic efforts to reduce air polluting emissions from auto exhausts.

In the understandable and commendable drive to clean up our air, simple panaceas are frequently advanced where only complexity reigns.

That's why there has developed considerable momentum behind the catch-phrase "get the lead out" of gasoline, even though there is little evidence that such action would bring positive benefits and much evidence that the action could have boomerang effects.

Since their discovery in the 1920's lead additives in gasoline have provided anti-knock qualities that make fuels smoother burning, more efficient, and less damaging to engines. They make possible higher octane (more powerful) gasoline at lower refining costs and greater conservation of raw petroleum stocks than would otherwise be possible.

Lead Industries Association, Inc. has an obvious interest in getting the facts and in helping to resolve this complex problem. That's why I was authorized earlier this year to make an intensive investigation of all aspects of this subject and to represent the LIA before various legislative bodies considering the lead additives question. I am grateful for considerable help and guidance from members of our own and other industries concerned.

As a result, LIA has taken a strong stand against proposals for the arbitrary elimination of lead additives from gasoline, based on present knowledge and evidence. At the same time, we have taken the position that efforts to reduce noxious emissions from automobile engines should include intensified research for a means of reducing exhausted lead, which constitutes about one-third of 1 percent of auto exhaust emissions.

This position is fully supported by the following basic facts:

1. No data has been advanced to show that the amounts of lead exhausted from automobiles pose a health hazard or major pollution threat, now or foreseeably. The question of lead in the atmosphere has been intensively researched, in large part with assistance from the lead industry, for many years and continues to be closely studied.

2. Scientific evidence indicates that pollution hazards could actually be increased if lead were to be eliminated from gasoline under current conditions. This is partly because of the likelihood of increased emissions of so-called aromatic compounds which are known to contribute to smog and eye irritation and some of which are considered carcinogenic.

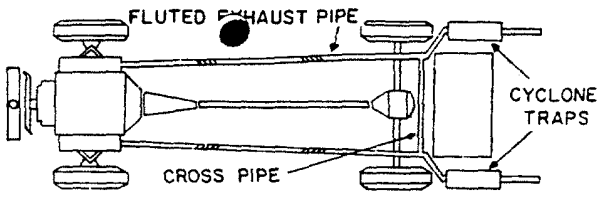
3. Elimination of lead from gasoline would involve massive expenditures by oil companies, auto companies, and the public—with no clear assurance at this time that there would be commensurate benefits in eliminating the carbon monoxides, hydrocarbons, and nitrogen oxides that constitute the major noxious automobile exhaust pollutants.

4. Pollution control systems for automobiles that work with leaded gasolines have been developed and demonstrated. The drive for non-leaded gasoline is premised primarily on the automotive industry's assumption that control systems (involving catalysts) are to be preferred and would work better and be longer-lasting with non-leaded gasolines. However, at this point there has been no assurance that this assumption is correct or that systems to work with non-leaded gasoline are anywhere near ready to be put on new model cars in the foreseeable future.

These points are a distillation from the great volume of information collected for LIA since about the first of the year. They come from study of past and current scientific and technical literature, from personal interviews I have had with top executives of automobile, petroleum and lead additive producers, from discussions with knowledgeable government officials, testimony either heard by me personally or read from transcripts of federal and state hearings on the question, and from reports of experts currently studying the question.

On the basis of these facts, I was authorized to appear before, or submit statements to, several state bodies considering legislative restrictions on leaded gasoline, appropriate Congressional committees in Washington, and a special Presidential Commerce Department panel considering automobile fuel composition.

Cover photo courtesy of The Research Corporation of New England.



Gaseous and particulate emission standards for automobiles proposed by the Federal government for 1975 can now be met by the use of existing automotive systems, such as the Sloart one developed by DuPont. The cyclone trap portion of the system shown here traps and stores particulate emissions, including lead.

LIA also prepared a succinct position paper for the information of members of the federal Congress considering proposals affecting gasoline additives. One proposal would give the Department of Health, Education and Welfare broad powers to regulate the composition of automobile fuels, including the use of lead and other additives. Another would place a punitive tax on leaded gasoline in an effort to drive it off the market. Neither of these proposals is instilled by evidence showing that a ban on leaded gasoline would bring the desired results—drastic reduction or elimination of auto pollutants.

In view of current technical developments for systems to control exhausts from leaded gasoline, LIA believes that a ban or similar legislative restriction on gasoline composition would result in restricting the range of efforts to develop workable systems to alleviate automobile pollution. For example, in mid-summer 1970 one of the largest oil companies announced development of a lead filter for autos that would capture a substantial amount of the lead resulting from combustion of leaded gasoline. This is only one of recent developments indicating that there is much progress being made in developing control systems that work effectively with leaded gasoline and that would also be capable of reducing lead emissions, too.

The California Air Resources Board earlier this year verified that one such system cut escaping hydrocarbons and nitrogen oxides to a level more than 50 percent below the state's proposed standards for 1975. The same device was shown to reduce carbon monoxide emissions more than 33 percent below these standards. Nitrogen oxides were reduced to less than 50 percent of California's 1975 standards. And this was with leaded gasoline.

In fact, the Commerce Department's Technical Advisory Board Panel on Automotive Fuels and Air Pollution recognized the possibility of efficient emission control systems which operate on leaded gasolines being developed in the near future, and did not recommend the elimination of lead additives although the Panel also recommended the availability of an unleaded fuel.

Aside from technical aspects, there is the very real possibility that the changed composition of gasoline that would result from the elimination of lead would pose both known and unknown problems.

A U.S. Bureau of Mines study published in May reported on tests comparing leaded regular and premium gasolines with comparable non-leaded fuels. The conclusion was that the unleaded fuels increased eye-irritating, smog-producing emissions by as much as 25 percent over the leaded fuels.

These very serious considerations were succinctly put by Dr. Richard D. Cadle of the National Center for Atmospheric Research. An article on Dr. Cadle's position appeared in the April 20, 1970 issue of *Chemical & Engineering News* and said in part:

"In connection with any possible health hazard from the lead compounds that automobiles send into the atmosphere, Dr. Cadle believes that there is reason for alarm, but warns that quick solutions could build into problems of an entirely different stripe. He suggests, for example, that gasoline manufacturers who hope to replace leaded alkane gasoline with high-aromatic fuels should look at least twice before they leap.

"It's conceivable that some of these aromatics could lead to the formation of carcinogenic by-products in the combustion process, although I don't know of any hard evidence to support that idea. Nevertheless, aromatic compounds generally are toxic, irrespective of whether or not they're carcinogenic.

"Also, certain aromatic compounds have been found to be more severe in magnitude, more severe as eye irritants, than the peroxyalkyl nitrates formed from conventional gasolines. What I'm really saying here is that in the whole area of air pollution control, we shouldn't rush ahead with one solution before trying to anticipate the larger problems it may create."

Dr. Cadle's fears may have already been demonstrated to have real substance. This occurred this summer in Japan. Because of a "lead scare" that was subsequently proved false, the Japanese government hurriedly last spring set a limit on lead in gasoline at about one-half of what it had been. This lower-level lead fuel went on sale in Tokyo the first of July and in subsequent weeks the gasoline sold for cars in that large oriental city was of the greatly reduced lead content. Nevertheless, about four weeks later, Tokyo was experiencing the worst smog crisis in its history—attributed not to lead but to the reactive emissions that created the citywide photochemical smog when the spring rain clouds passed and let the sun hit the gaseous automobile emissions. As suggested by the Bureau of Mines study and by Dr. Cadle, the reduced lead content of gasoline may will have resulted in higher aromatic emissions.

On the economic ramifications and other consequences of a quick switch to non-leaded gasoline, without good reason, the April 8 issue of *The Wall Street Journal* went into considerable detail, and can be summed up as follows:

1. The oil industry will have to make a major investment in new refining facilities, variously estimated from $6 billion to $10 billion, as well as an additional 6 to 8 percent drawdown in petroleum reserves.

2. Small petroleum refineries may have to shut down because they do

not have the capital resources to make the new investment.

3. Asphalt, the backbone of road building, would be curtailed since this product is made largely by the small refineries.

4. The hundreds of thousands of retail outlets for gasoline would have to install new gasoline pumps and gasoline storage tanks. The availability of pumps is strictly limited; the labor required to install them and the tanks will add to the inflation of construction costs.

5. Without lead in gasoline, oil companies would have to make greater use of benzene, toluene and xylene, thereby diminishing the supply of these materials to the petrochemical industry, with sharp inflationary consequences.

6. Sellers of bromine and sodium would lose a major market since these are the elements used in combination with lead for gasoline additives.

7. The lead industry would lose 20 percent of its total market. A replacement market cannot be found overnight. The problem is complicated by the fact that many lead producers have already made major capital outlays for recent plant expansions.

The Lead Industries Association, Inc. maintains an extensive file of reference material relating to lead additives. Material available upon request includes:

LIA statements to:

The Commerce Department Technical Advisory Board Panel on Automotive Fuels and Air Pollution.

The California Assembly Transportation Committee.

The Pennsylvania House Committee on Health and Welfare.

The U.S. Senate Subcommittee on Air and Water Pollution.

The U.S. House Subcommittee on Public Health and Welfare.

Informative material:

"Facts About Lead and the Atmosphere."

The LIA Position Paper on Removal of Lead Additives from Gasoline.

"Gettin' the Lead Out," Motor Trend, May 1970.

"Comparative Emissions From Some Leaded and Prototype Lead-Free Automobile Fuels," U.S. Bureau of Mines Report 7390, May 1970.

The Unknowns of Hasty Substitution

All these dislocations and difficulties might be justified if there had been demonstrated the availability of devices to deal with emissions from unleaded gasoline that would materially reduce air pollution. However, this has yet to be proven.

These then are the major reasons why the Lead Industries Association maintains that it is poor public policy to compel the abandonment of an existing proved source of efficient automotive power without a clear, accepted proof that the alternative represents a clear and demonstrated improvement.

Six Facts Re[illegible] Proposed Removal of [illegible] Lead

Fact Number 1:

No proven benefits in auto emission have been demonstrated to result from lead-free gasoline, despite speculation and assurances.

Fact Number 2:

Significant reduction in auto emissions has already been accomplished with systems that work with present automobiles and present gasoline.

Fact Number 3:

The knowns and unknowns about non-leaded gasoline do not at this point support the supposition that auto emission problems will be solved by the removal of lead.

Fact Number 4:

The uncertainties about results of using non-leaded gasoline emphasize the need not to ban leaded gasoline now for the future.

Fact Number 5:

Lead does not contribute to formation of photochemical smog—one objectionable result of auto emissions.

Fact Number 6:

Lead in the atmosphere—whether from auto exhausts or other sources—does not represent a health hazard to the public. Lead traps for automobile exhausts are being developed and demonstrated.