

## **Ethyl leaded gasoline and alternatives**

### **Historical resources online**

*This list provides an overview of public online resources about the early history of leaded gasoline and the Ethyl Corporation along with alternatives such as fuel alcohol, aka, power alcohol, ethanol, etc. Critics of leaded gasoline (such as Alice Hamilton) maintained from the beginning that adding lead to gasoline was not necessary since ethyl alcohol, benzene and other fuels performed the same octane-boosting function when blended in gasoline. Therefore, I would argue, that to understand the history of leaded gasoline one must also seek out the history of the alternatives. - Bill Kovarik [bill.kovarik@gmail.com](mailto:bill.kovarik@gmail.com)*

### **Recently published**

Daniel Stone, *American Poison* - Dutton 2025 - Publishers Weekly review  
<https://www.publishersweekly.com/9780593473627>

Carie Nielsen, *Unleaded*, Rutgers / Templeton 2021  
<https://rutgersuniversitypress.org/templeton-press/unleaded/9781978821002/>

Environmental History Timeline panel, Dec. 9 2021  
<https://www.youtube.com/watch?v=uUJsauyMF18>

Bill Kovarik, *The Conversation*, 2021  
<https://theconversation.com/a-century-of-tragedy-how-the-car-and-gas-industry-knew-about-the-health-risks-of-leaded-fuel-but-sold-it-for-100-years-anyway-173395>

### **Online Libraries, Collections & Databases**

<https://babel.hathitrust.org/> Hathi Trust US historical documents

<https://www.gracesguide.co.uk/> Graces Guide - UK database for engineering (\$)

<http://cnum.cnam.fr/> Conservatoire numérique des Arts et Métiers

<https://gallica.bnf.fr/> National Library of France collections

<https://www.everycrsreport.com/> Congressional Research Service

<https://nepis.epa.gov/> EPA documents Also <https://archive.epa.gov/>

<https://www.empireadc.org/search> New York archival sources

<https://katalog.slub-dresden.de/>.

<https://www.toxicdocs.org> – Columbia University Toxic Docs collection

<https://www.kettering.edu/about/our-history-archives> Kettering University

<https://invention.si.edu/e-i-du-pont-de-nemours-company-experimental-station-records-1908-1921> Lemuelson center

<https://www.industrydocuments.ucsf.edu/> U. Calif. San Francisco industry documents collection

Ethyl primary document repository

<https://drive.google.com/drive/folders/1TQixZjx6OIYAFvxQK5TCY4yZfDrt9egv>

## **Congressional Hearings**

### **Hearings 1800s 1920**

House Ways & Means Committee, Free Alcohol Hearings, Feb. 6, 1906. US GPO Washington DC

<https://babel.hathitrust.org/cgi/pt?id=uiug.30112114021055&view=1up&seq=8&skin=2021>

Use of Alcohol in engines, 1907, U. Ill, Perry John Freeman

<https://babel.hathitrust.org/cgi/pt?id=uiuo.ark:/13960/t9x08bj2z&view=1up&seq=5&skin=2021>

Denatured Alcohol at Home and Abroad - Report Comm Int Rev to House Ways Means, 1909 (Detail about Germ program)

<https://babel.hathitrust.org/cgi/pt?id=hvd.32044091950352&view=1up&seq=5&skin=2021>

House Ag hearings 1916 HR 11256

<https://babel.hathitrust.org/cgi/pt?id=hvd.hx7e1d&view=1up&seq=5&skin=2021>

### **Hearings 1920 to 1970s**

Senate Hearings on high cost of gasoline 1922

<https://babel.hathitrust.org/cgi/pt?id=hvd.32044082144494&view=1up&seq=1&skin=2021>

<https://babel.hathitrust.org/cgi/pt?id=osu.32435028334480&view=1up&seq=772&skin=2021>

Prohibition hearings / Crampton law 1924

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015022467305&view=1up&seq=8&skin=2021>

Prohib hearings 1924

<https://babel.hathitrust.org/cgi/pt?id=umn.31951d02120580c&view=1up&seq=3&skin=2021>

Prohibition hearings 1926

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015071649391&view=1up&seq=1&skin=2021>

Prohibition hearings 1926 Vol 2

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015071649383&view=1up&seq=1&skin=2021>

1939 Senate Finance Use of alcohol in Farm products May 23, 23, 25, 29

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015067125412&view=1up&seq=4&skin=2021>

- **1942 Truman War Investigating Committee**

Background

<https://www.senate.gov/about/powers-procedures/investigations/truman.htm>

<https://www.senate.gov/about/resources/pdf/truman-committee-sres71-march1.pdf>

Part 1

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015078412221&view=1up&seq=9&skin=2021>

Part 5 Jan 15 1942 Additional Report

<https://babel.hathitrust.org/cgi/pt?id=coo.31924069038861&view=1up&seq=4&skin=2021>

Part 6 July - Aug 1941

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015078412213&view=1up&seq=9&skin=2021>

Part 8 Oct 1941 Housing, Contracts, Aluminum

<https://babel.hathitrust.org/cgi/pt?id=pst.000018447071&view=1up&seq=7&skin=2021>

Part 10 Dec 41 - Feb 42 Labor Recreation Lobbying Dollar A Year

<https://babel.hathitrust.org/cgi/pt?id=umn.31951d01114878h&view=1up&seq=5&skin=2021>

Part 12 April - July 1942 Conversion Maritime Transport Housing

<https://babel.hathitrust.org/cgi/pt?id=uc1.c084289556&view=1up&seq=5&skin=2021>

- **Synthetic Rubber hearings March April 1942**

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015028771478&view=1up&seq=9&skin=2021>

TEL antitrust **#507 (p. 4697)**

Part 42 Saudi Arabia 1948

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015032330758&view=1up&seq=7&skin=2021>

- **1942 Gillette Synthetic rubber / Senate Agriculture Committee /**

Part 1 Utilization of farm crops: Alcohol and Synthetic rubber, 1942

<https://babel.hathitrust.org/cgi/pt?id=uc1.b5100733&view=1up&seq=7&skin=2021>

Part 2

<https://babel.hathitrust.org/cgi/pt?id=uc1.a0000675835&view=1up&seq=1&skin=2021>

Part 3

<https://babel.hathitrust.org/cgi/pt?id=uc1.a0000675843&view=1up&seq=2&skin=2021>

Part 4 1942-43

<https://babel.hathitrust.org/cgi/pt?id=uc1.b5101571&view=1up&seq=7&skin=2021>

Part 6 - 10

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015067097090&view=1up&seq=7&skin=2021>

Part 8 - 1944

<https://babel.hathitrust.org/cgi/pt?id=uc1.b5101572&view=1up&seq=9&skin=2021>

Hearings in 1949

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015067097256&view=1up&seq=3&skin=2021>

Investigation of expanded utilization of farm crops. 1944

<https://babel.hathitrust.org/cgi/pt?id=coo.31924003623620&view=1up&seq=6&skin=2021>

1945 TEL plant Frose, Germany Postwar report

<https://babel.hathitrust.org/cgi/pt?id=pst.000050247189&view=1up&seq=1&skin=2021>

1945 TEL strategic bombing survey

<https://babel.hathitrust.org/cgi/pt?id=osu.32435025070434&view=1up&seq=9&skin=2021&q1=tetraethyl>

1945 OIL strategic bombing survey

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015019070302&view=1up&seq=11&skin=2021&q1=tetraethyl>

1946 Men, Oil and War - Petroleum industry committee

<https://babel.hathitrust.org/cgi/pt?id=wu.89097047948&view=1up&seq=333&skin=2021&q1=tetraethyl>

1966 Leaded gasoline US Senate

Hearings before a Subcommittee on Air and Water Pollution of the Committee on Public Works, United States Senate, Eighty-ninth Congress, second session, on S. 3112...S. 3400...and contamination of the environment from lead and other substances, June 7, 8, 9, 14, and 15, 1966. \*Patterson, Kehoe, Hardy

<https://babel.hathitrust.org/cgi/pt?id=umn.31951d035807529&view=1up&seq=9&skin=2021>

Statement Richard Prindle (undated)

<https://www.industrydocuments.ucsf.edu/tobacco/docs/#id=tfbc0002>

## Hearings 1970 to 2000s

1970 Senate Commerce Air Pollution Vol. 3 Mar 24 - 35

<https://babel.hathitrust.org/cgi/pt?id=uiug.30112047315137&view=1up&seq=3&skin=2021>

Notes - # 17 wheat to motor fuel article. #19 Agrigas as subs for lead

<https://babel.hathitrust.org/cgi/pt?id=uiug.30112047315137&view=1up&seq=17&skin=2021>

Notes - #279 lead poisoning article Hammond

Esso - Shell 1970 industry reaction to "Muskie" amendment requirement to reduce air pollution

<https://www.industrydocuments.ucsf.edu/chemical/docs/#id=kfbg0225>

1970 House ways and means / taxing the lead in leaded gasoline

<https://babel.hathitrust.org/cgi/pt?id=umn.31951d03715492c&view=1up&seq=1&skin=2021>

1972 House Commerce - Inner City Environment

<https://babel.hathitrust.org/cgi/pt?id=uc1.b4309978&view=1up&seq=7&skin=2021>

1973 House Commerce - EPA regs to Limit lead in gasoline Nov 29

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015008829841&view=1up&seq=7&skin=2021>

1973 House Energy & Commerce, Dec 3, 4, 5

Ethyl's Lawrence Blanchard, doom-monger speech doc.pg. 98

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015078708123&view=1up&seq=1&skin=2021>

1974 Senate public works committee May 7-8 1974 - Automotive lead emissions

\* Vol 1 Needleman and more

<https://babel.hathitrust.org/cgi/pt?id=uc1.b4500633&view=1up&seq=5&skin=2021>

\* Vol 2 Harriet Hardy, lots of industry

<https://babel.hathitrust.org/cgi/pt?id=uc1.b4500634&view=1up&seq=1&skin=2021>

Additional Public works testimony. Samuel S Epstein MD study

Note "Seven Cities Study" p 13, Ref 11 p 26

Also "lead traps" p 36 EPA critique p 38 / p 42 Octane lower, engine maintenance

P 43 aromatic PNAs, photochemical reactive, ltd by emission control devices

P 46 alts = MMT.

<https://babel.hathitrust.org/cgi/pt?id=uiug.30112104124059&view=1up&seq=3>

1974 Joint Economic Committee, May 20, 21, 22

**Note- Leo Spano, Tom Reed testimony**

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015081159173&view=1up&seq=4&skin=2021>

1977 Senate public works committee Air Pollution / lead

<https://babel.hathitrust.org/cgi/pt?id=uc1.b3603462&view=1up&seq=7&skin=2021>

1977 Senate Clean Air Act amendments Feb 11 1977 part 3 (where are parts 1 & 2?)  
<https://babel.hathitrust.org/cgi/pt?id=umn.31951d008172604&view=1up&seq=3&skin=2021>

1978 Senate Energy Committee price differential leaded and unleaded  
<https://babel.hathitrust.org/cgi/pt?id=mdp.39015036838020&view=1up&seq=1&skin=2021>

1978 Q&A on Alcohol Fuels (Tom Reed) Senate Appropriations Jan 1978  
<https://babel.hathitrust.org/cgi/pt?id=coo.31924052164591&view=1up&seq=3&skin=2021>

1978 House appropriations hearings on alcohol fuel - Major hearing  
Testimony from Jimmy Carter, Denis Hayes, Scott Sklar  
<https://babel.hathitrust.org/cgi/pt?id=umn.31951d02888469n&view=1up&seq=1&skin=2021>

1979 House Sci & Tech hearings Alcohol fuel options and Federal policies  
May, June 1979  
<https://babel.hathitrust.org/cgi/pt?id=umn.31951d00275589k&view=1up&seq=1&skin=2021>

1980 US National Alcohol Fuels Commission hearings June 18-19, Dirksen SOB  
<https://babel.hathitrust.org/cgi/pt?id=umn.319>

1981 House Energy & Commerce Gasohol in Federal Vehicles  
<https://babel.hathitrust.org/cgi/pt?id=uc1.31210003549621&view=1up&seq=3&skin=2021>

1982 House Govt Ops Lead in Gasoline Public Health Dangers  
<https://babel.hathitrust.org/cgi/pt?id=mdp.39015082592893&view=1up&seq=3&skin=2021>

1982 House Energy & Commerce Methanol as alternative transportation fuel Aug 13, Sept 24  
<https://babel.hathitrust.org/cgi/pt?id=uc1.b4260911&view=1up&seq=969&skin=2021>

1982 Congressional Research Service, Gasohol (shows how little history was known)  
<https://babel.hathitrust.org/cgi/pt?id=mou.010103860555&view=1up&seq=4&skin=2021>

1984 House Science and Tech Ethanol Production  
<https://babel.hathitrust.org/cgi/pt?id=uc1.31210009389790&view=1up&seq=1&skin=2021>

1984 House Ways and Means Ethanol tax incentives  
<https://babel.hathitrust.org/cgi/pt?id=uc1.31210024956391&view=1up&seq=1&skin=2021>

1986 CRS to House Energy & Commerce - Alcohol fuels & lead phase down  
Technically OK but uncertainty due to "intra-industry" conflicts  
<https://babel.hathitrust.org/cgi/pt?id=pst.000011968429&view=1up&seq=1&skin=2021>

1989 House Energy & Commerce - RFG, CNG, ethanol  
<https://babel.hathitrust.org/cgi/pt?id=mdp.39015019777047&view=1up&seq=3&skin=2021>

1995 House Commerce - RFG

<https://babel.hathitrust.org/cgi/pt?id=uc1.31210011590245&view=1up&seq=1&skin=2021>

## Federal agencies

### Fed agencies 1800s - 1920

1872 - IRS - David A. Wells, LLD, The Recent Financial Industrial and Commercial Experiences of the United States: A curious chapter in Politico-Economic history, JH Goodsell Publishers, NY, 1872

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015035123259&view=2up&seq=41&skin=2021&size=125>

H.W. Wiley, Industrial Alcohol: Uses and Statistics, USDA Oct 1, 1906

<https://babel.hathitrust.org/cgi/pt?id=uiug.30112019294187&view=1up&seq=1&skin=2021>

(Stoves and lamp illustrations VG)

C.E. Lucke, Columbia University, and S.M. Woodward, U.S.DA, "The Use of Alcohol and Gasoline in Farm Engines," U.S.D.A. Farmers Bulletin No. 277, (Washington: GPO, 1907).

<https://babel.hathitrust.org/cgi/pt?id=uiug.30112019294278&view=1up&seq=1&skin=2021>

Robert M. Strong, "Commercial Deductions from Comparisons of Gasoline and Alcohol Tests on Internal Combustion Engines," U.S. Geological Survey Bulletin 392, (Washington: GPO, 1909);

<https://babel.hathitrust.org/cgi/pt?id=hvd.32044055615330&view=1up&seq=9&skin=2021>

H.W. Wiley, USDA, Industrial Alcohol, Sources & Manufacture, 1911

<https://babel.hathitrust.org/cgi/pt?id=uiug.30112019295945&view=1up&seq=1&skin=2021>

Consular Reports, Foreign Trade in Denatured Alcohol, 1912, US Bureau of Manufacturing

<https://babel.hathitrust.org/cgi/pt?id=hvd.li5ch4&view=1up&seq=7&skin=2021>

Treasury regulations 1917

<https://babel.hathitrust.org/cgi/pt?id=uiug.30112070428781&view=1up&seq=5&skin=2021>

Commissioner of Revenue 1918

<https://www.irs.gov/pub/irs-soi/1918dbfullar.pdf>

US Bureau of Standards tests of Aviation Alcolgas 1919

[https://ia802707.us.archive.org/31/items/NASA\\_NTRS\\_Archive\\_19930091152/NASA\\_NTRS\\_Archive\\_19930091152.pdf](https://ia802707.us.archive.org/31/items/NASA_NTRS_Archive_19930091152/NASA_NTRS_Archive_19930091152.pdf)

Also, same study

[https://archive.org/details/NASA\\_NTRS\\_Archive\\_19930091152](https://archive.org/details/NASA_NTRS_Archive_19930091152)

## Fed agencies 1920 - 1970

Prohibition - Volstead Act - LofC (seems blank / must be downloaded)

<https://www.loc.gov/rr/main/images/volstead-act.pdf>

Industrial alcohol documents 1930 - 1931 (National Archives)

<https://catalog.archives.gov/id/1561316>

Industrial alcohol denaturing regulations, Treasury, 1925

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015049236808&view=1up&seq=7&skin=2021>

Bureau of Mines, 1924, Exhaust gasses from engines using ethyl gasoline / by R.R. Sayers  
Animal tests / short duration / Note Alice Hamilton found these tests objectionable

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015086555128&view=1up&seq=1&skin=2021>

Stanwood W Sparrow, Bureau of Standards, Fuels for High Compression Engines , Report 232,  
issued 1925

<https://babel.hathitrust.org/cgi/pt?id=coo.31924089862407&view=1up&seq=5&skin=2021>

### **1925 PHS hearing re TEL May 20 / transcript / key document**

<https://babel.hathitrust.org/cgi/pt?id=uc1.c022373265&view=1up&seq=1&skin=2021>

**1926 PHS second hearing re TEL Jan. 19**, report by Surgeon General's committee

<https://www.toxicdocs.org/search?q=lead+gasoline+1926&decade=1920&page=3#>

1927 Fuel tests - "Experimental Studies on the effects of Ethyl gasoline ... / Bureau Mines /

<https://babel.hathitrust.org/cgi/pt?id=wu.89077454833&view=1up&seq=5&skin=2021>

1927 Denaturing alcohol, Treasury

<https://babel.hathitrust.org/cgi/pt?id=osu.32435004135802&view=1up&seq=5&skin=2021>

1930 Admin of laws ind alcohol, Treasury I

<https://babel.hathitrust.org/cgi/pt?id=hvd.32044032111825&view=1up&seq=7&skin=2021>

1933 Bureau of Standards, ethyl alcohol fuel, phase separation, Oscar Bridgeman p 841

<https://babel.hathitrust.org/cgi/pt?id=uc1.b4260911&view=1up&seq=15&skin=2021>

1933 Rating Gasoline by Octane Numbers, US Naval Institute

<https://www.usni.org/magazines/proceedings/1933/july/rating-gasoline-octane-numbers>

1938 P. Burke Jacobs, Motor Fuels from Farm Products, USDA,

<https://babel.hathitrust.org/cgi/pt?id=uva.x030354045&view=1up&seq=3&skin=2021>

<https://babel.hathitrust.org/cgi/pt?id=umn.31951d02888469n&view=1up&seq=1&skin=2021>

1939 NACA German paper reprint - Testing high octane fuels

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015004568617&view=1up&seq=7&skin=2021>

1939 Langley Memorial Aeronautical Laboratory, Compression ignition engine performance with undoped and doped fuel oils and alcohol mixtures, National Advisory Committee for Aeronautics,

<https://babel.hathitrust.org/cgi/pt?id=osu.32435067596841&view=1up&seq=4&skin=2021>

WWII aircraft performance database

<http://www.wwiiaircraftperformance.org/>

1946 Knock limiting performance of aircraft fuels

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015020152842&view=1up&seq=10&skin=2021>

1948 NACA octane scale for aviation fuels

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015095016419&view=1up&seq=3&skin=2021>

Fuel tests/ USDA 1949 The technical literature of agricultural motor fuels

<https://babel.hathitrust.org/cgi/pt?id=uiug.30112101557301&view=1up&seq=6&skin=2021>

US Tariff Commission Industrial Alcohol 1944

<https://babel.hathitrust.org/cgi/pt?id=uc1.ee0000275594&view=1up&seq=41&skin=2021>

1940 (pub 46) Requirements dual fuel systems aircraft NACA

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015020152826&view=1up&seq=1&skin=2021>

1946 BuMines World gasoline / includes some NZ, Sweden alcohol fuel

<https://babel.hathitrust.org/cgi/pt?id=uc1.c037901457&view=1up&seq=18&skin=2021&q1=alcohol>

USDA Tech Lit Ag fuels, 1949

<https://babel.hathitrust.org/cgi/pt?id=uiug.30112101557301&view=1up&seq=3&skin=2021>

P. Burke Jacobs, USDA, 1950

A study of the technology, production and uses of alcohol in relation to the farmer

<https://babel.hathitrust.org/cgi/pt?id=uva.x030450775&view=1up&seq=3&skin=2021>

President's Appointed Bipartisan Commission on Increased Industrial Use of Agricultural Products. Task Group on Industrial Alcohol from Grain, , 1957

<https://babel.hathitrust.org/cgi/pt?id=uiug.30112020264153&view=1up&seq=2&skin=2021>

1946 Postwar review aviation fuels

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015020152842&view=1up&seq=10&skin=2021>

1954 - SRI Smog Problem in Los Angeles - Major report

<https://www.industrydocuments.ucsf.edu/tobacco/docs/#id=pggf0029>

1959 Public health aspects of increasing TEL / PHS report /

<https://babel.hathitrust.org/cgi/pt?id=uc1.31822024253551&view=1up&seq=3&skin=2021>

1961 US Navy Storage tank cleanout

<https://babel.hathitrust.org/cgi/pt?id=uc1.b2891670&view=1up&seq=12&skin=2021>

1962 US Surgeon General report on air pollution, Lead starts p 82. Reliance on Kehoe

research later discredited. <https://www.industrydocuments.ucsf.edu/tobacco/docs/#id=sfkl0094>

1963 BuMines Effects of lead exhaust on catalysts

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015078481598&view=1up&seq=3&skin=2021>

1965 FTC conference on gasoline marketing

<https://www.google.com/books/edition/Hearings/htCB41KNtHAC?hl=en&gbpv=1>

1965 PHS Symposium on environmental lead Contamination, Dec 13 - 15

\* Kehoe, Harriet Hardy, Harry Hermann

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015020989391&view=1up&seq=3&skin=2021>

## Fed agencies 1970 - 2000s

1971 NAS pro lead study criticized - Science Magazine

<https://www.industrydocuments.ucsf.edu/tobacco/docs/#id=ymcn0215>

1971 Automotive Fuels and Air Pollution , Blue ribbon commission, 1971 - Axes leaded gasoline re catalytic, reccs unleaded

<https://babel.hathitrust.org/cgi/pt?id=uva.x030348822&view=1up&seq=1&skin=2021>

1971 USDA Lead mercury cadmium as env contaminants - NP with lead below Kehoe - PHS threshold <https://www.industrydocuments.ucsf.edu/tobacco/docs/#id=kscb0047>

1972 Env Sci Tech Stephen K Hall

<https://pubs.acs.org/doi/pdf/10.1021/es60060a008>

<https://www.industrydocuments.ucsf.edu/tobacco/docs/#id=lhwm0027>

1974 NTIS lead and air pollution bibliography

<https://babel.hathitrust.org/cgi/pt?id=pst.000011878551&view=1up&seq=5&skin=2021>

1977 NSF Lead in the environment major study

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015001497513&view=1up&seq=5&skin=2021>

1977 Harry Hiemann, US PHS - HEW on air pollution

<https://journals.sagepub.com/doi/pdf/10.1177/003591576405710P209>

1978 DOE Status of Alcohol Fuel Utilization Technology

<https://babel.hathitrust.org/cgi/pt?id=uc1.31822028933554&view=1up&seq=3&skin=2021>

1979 USDA gasohol research activities

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015082595326&view=1up&seq=3&skin=2021>

1979 EIS Lead tilt EPA

<https://babel.hathitrust.org/cgi/pt?id=ien.35556031033236&view=1up&seq=2&skin=2021>

1979 EIS lead comments Vol 2

<https://babel.hathitrust.org/cgi/pt?id=ien.35556031033228&view=1up&seq=5>

1979 Lead phase down EPA report

<https://babel.hathitrust.org/cgi/pt?id=ien.35556031051659&view=1up&seq=3&skin=2021>

1979 DOJ to President, gas shortage, anti-trust

<https://babel.hathitrust.org/cgi/pt?id=mdp.39015012924885&view=1up&seq=11&skin=2021>

1980 Alcohol Fuel Plants, US Treasury, BATF , 1980

<https://babel.hathitrust.org/cgi/pt?id=uiug.30112105190331&view=1up&seq=1&skin=2021>

1982, SERI, Ethanol Fuels Reference Guide

<https://www.nrel.gov/docs/legosti/old/442.pdf>

National Alcohol fuels information center, bibliography 1982

<https://babel.hathitrust.org/cgi/pt?id=uiug.30112018861143&view=1up&seq=1&skin=2021>

1982 Lead in gasoline public health House Govt Ops

<https://babel.hathitrust.org/cgi/pt?id=pur1.32754075430946&view=1up&seq=1&skin=2021>

1980 Alc fuels Tax incentives 1980 U.S. National Alcohol Fuels Commission

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*I saw a horrible brown heap on the floor in a corner, which, but for previous experience in this dismal wise, I might not have suspected to be 'the bed.' There was something thrown upon it; and I asked what that was. 'Tis the poor craythur that stays here, sur; and 'tis very bad she is, and 'tis very bad she's been this long time, and 'tis better she'll never be, and 'tis slape she does all day, and 'tis wake she does all night, and 'tis the lead, sur.'*

*'The what?'*

*'The lead, sur. Sure 'tis the lead-mills, where the women gets took on at eighteen-pence a day, sur, when they makes application early enough, and is lucky and wanted; and 'tis lead-pisoned she is, sur, and some of them gets lead-pisoned soon, and some of them gets lead-pisoned later, and some, but not many, niver; and 'tis all according to the constitooshun, sur, and some constitooshuns is strong, and some is weak; and her constitooshun is lead-pisoned, bad as can be, sur; and her brain is coming out at her ear, and it hurts her dreadful; and that's what it is, and niver no more, and niver no less, sur.'*

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"The clincher by all prophets of doom is that someone started the rumor that lead was the cause of the fall of the Roman Empire," said Ethyl vice president Lawrence E. Blanchard, Jr. "The legend always gets fuzzy — sometimes it is caused by lead-lined aqueducts, other times it is from their wine being drunk from lead-lined flasks."

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## **Intl Leaded gasoline and health**

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<https://www.scientificamerican.com/article/the-new-era-of-biofuels-raises-environmental-concerns/>

2023 Auto Channel

<https://www.theautochannel.com/news/2023/10/01/1317165-biden-s-epa-shoots-itself-it-s-climate-crisis-foot.html>

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<https://www.cnn.com/2024/05/24/world/thomas-midgley-jr-leaded-gas-freon-scni/index.html>

## Images

Tool room national cash register LOC

<https://www.loc.gov/item/2007663556/>

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## Documents missing or withheld from public archives

### *Known to exist and be missing*

"The Lead Diary," a collection of several thousand original documents from which T.A. Boyd and Charles Kettering refreshed their memories as their memoirs were written in the 1940s. Last reference is in "Green Book" histories by General Motors public affairs officers, 1950s. Unlikely to have been destroyed; probably still held by GM or Ethyl.

Test diaries and day-to-day records of experiments conducted during 1920 - 22 period when tetraethyl lead was discovered by G.M. researchers in Dayton, Ohio. (These are standard sources in history of technology, but are missing in the Ethyl case).

Correspondence and submissions of members of the Surgeon General's Committee concerning alternatives to tetraethyl lead anti-knock agents. Fragments found in the Yale archives. Committee members specifically requested such files to be established at the Public Health Service; however, none are found in the U.S. National Archives RG 90.

Original 1922 - 23 correspondence to Midgley and Kettering from Krause, Hunt, Wilson, Henderson and others concerning the dangers of tetraethyl lead, some of which may have been in the Lead Diary. (Some in US v DuPont lawsuit, 1956).

Minutes of the Board of Directors of the Ethyl Corp 1924 forward

Minutes of the "Medical Committee" of du Pont, G.M. and Standard, 1923 forward

Records or memos concerning the deaths of two G.M. employees in Dayton, Ohio, April, 1924.

"Data of House in Gasoline Quiz Stolen," Washington Times, Feb 20, 1936. Clip in file of DOJ, NARA, RG 60-57-107.

Yale University 1925 TEL study records - some missing

NARA PHS Service 1920s TEL investigation - some missing

NARA DOJ 1920s - 50s, TEL, Ethyl, DuPont, GM, Standard  
Many missing documents

Kettering University - Midgley Unclassified - Many documents incomplete (Access limited in 2022 due to construction).

### **Individual items lost or missing**

Telegrams exchanged between Charles Kettering in Paris and Ethyl Corp.headquarters in New York during Oct., 1924.

Du Pont study of resource base for pure ethyl alcohol fuel, 1919, cited in a memo by T.A. Boyd in 1921.

Reports of the Standard Oil Co.of New Jersey contract with US Industrial Alcohol and use of Alcolgas in Baltimore, Md. And Washington DC 1919 - 1922.

Report on the use of the century plant in Mexico for alcohol production, cited in 1922 memo from Midgley to Kettering.

Records or memos relating to "Synthol" and TEL experiments, Dayton G.M. labs, summer 1925.

<http://inwent-ijj-lab.org/Weblog/2011/05/31/environment-protection-agency-removes-dangerous-tetraethyl-lead-products-at-oil-refinery/> THERE ARE A LOT OF THESE in the developing world. I would suggest research with the Basel Convention folks. <http://www.basel.int/>