

Introduction

During 1969 the Advisory Committee of Technical Committee A on Gasoline, of ASTM Committee D-2 on Petroleum Products and Lubricants, became concerned with the limited technical communication within ASTM on gasoline characteristics as affected by the continually increasing automotive emission requirements. They recognized that technical reports discussing these requirements, and the parameters influencing them, were assuming significant portions of automotive engineering sessions; in large part due to initial emphasis on "hardware" solutions to emission control. They also recognized that, as controls continued to tighten and "hardware" devices became more complex, the influence these trends have on petroleum products and responsibilities of the ASTM membership demands enlarged avenues of communication. Therefore, it was decided that a workshop on these subjects should be held and that both automotive and petroleum participation should be invited.

A program committee was established which included J. B. Rather, Jr., of Mobil Oil Corporation, J. E. Sigsby, Jr., of the National Air Pollution Control Administration, and H. T. Niles of Ford Motor Company. Through their efforts, an informal workshop entitled "Effects of Automotive Emission Requirements on Gasoline Characteristics" was organized and held under Committee D-2 sponsorship, in Toronto, Ont., Canada, at the National ASTM Meetings during June of 1970.

The workshop was a one day session with four papers presented in the morning and five in the afternoon. All papers and prepared discussions are included in this Special Technical Publication and in the order in which they were presented. These papers can be categorized into four general areas:

1. Three of the papers are status or review reports of current research programs sponsored by APRAC (Air Pollution Research Advisory Committee), IIEC (Inter-Industry Emission Control), and API (American Petroleum Institute). They include research activity in engineering, atmospheric chemistry, and medical along with "hardware" controls for reduced emissions and fuel compositional trends and effects on emissions.

2. Three other papers discuss specific programs which define the effects of fuel composition, volatility, or lead antiknock additives on evaporative or exhaust emissions or both; either on a total volume or specific hydrocarbon composition basis.

3. One paper describes the advantages of emission control by catalytic exhaust gas converters: discussing the need for unleaded gasolines and outlining anticipated effects on marketed motor fuels with this latter innovation.

4. The final category of discussion is presented in a paper which details the necessity for uniform analytical test procedures and a hydrocarbon coding system for gas liquid chromatography analyses.

It is the considered opinion of all those intimately involved that the workshop achieved its' objectives of enlarged avenues of communication. Also, that the technical information presented in these papers includes many interrelating aspects of automotive emissions and motor gasolines which are relevant to our immediate and future problems. Some of the data may eventually prove of nominal interest, but, concurrently, some may provide guidelines for more complete automotive pollution control which industry and the public are demanding.

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