Advanced Thermally Stable Coal-Derived Jet Fuels Compositional Factors Affecting Thermal Degradation of Jet Fuels  
Dec 1992 177 pages  
Authors: C. Song; S. Eser; H. H. Schobert; P. G. Hatcher; M. M. Coleman; PENNSYLVANIA STATE UNIVERSITY PARK DEPT OF MATERIALS SCIENCE AND ENGINEERING  
... high temperature thermal stability of coal-derived and petroleum-based jet fuels in pyrolytic regime. Thermal stability refers to the resistance of fuel to chemical decomposition at high temperatures to... and providing information for enhancing intrinsic stability of jet fuels. The second task involves characterization of the solids including deposits, sediments and gums produced from fuels and model compounds at high temperatures. The third... is to explore the means to enhance the thermal stability of fuels by examining the effects of various additives. The fourth task is...  
Full Text

Immunotoxicity of Jet Fuels and Solvents  
Nov 2002 20 pages  
Authors: J. A. Riedel; D. R. Mattie; AIR FORCE RESEARCH LAB WRIGHT-PATTERSON AFB OH HUMAN EFFECTIVENESS DIRECTORATE  
... a number of the complex components of the immune system. Changes in the immune system as the result of chemical exposure to jet fuels or other solvents are a concern for the occupational worker. This report reviewed studies involving the effects of jet fuels on the immune system; components of jet fuel or solvents with known immunotoxicity were also discussed. Personnel working with military and commercial fuels such as hydrazine, JP-8 and Jet A could be at risk for immunosuppression as this is a major effect of these fuels.  
Full Text

Development of Oxygen Scavenger Additives for Jet Fuels  
May 1, 1993 10 pages  
Authors: Bruce Beaver; DUQUESNE UNIV PITTSBURGH PA  
In this project it is assumed that the thermal stability of most jet fuels would be dramatically improved by the efficient removal of a fuel's dissolved oxygen (in flight). It is proposed herein to stabilize the bulk fuel... that successful completion of this project will result in the development of a new type of jet fuel additive which will enable current conventional jet fuels to obtain sufficient thermal stability to function as 'JP-900' fuels. In addition, it is postulated that the successful development of thermally activated oxygen scavengers will also...  
Full Text

Combustion and Heat Transfer; Volume 1 - Advanced Jet Fuels Data Studies  
Apr 1998 225 pages  
Authors: S. Zabarnick; D. R. Bajaji; K. E. Binns; G. L. Dieterle; J. S. Ervin; DAYTON UNIV OH RESEARCH INST  
This report highlights studies performed in support of the development of advanced jet fuels, including JP-8+100, JP-900, and endothermic fuels. For the development of JP-8+100 fuel, we have tested hundreds of additives in... fuel oxidation, deposition, and pyrolysis. We made progress in support of development of future fuels such as JP-900 and endothermic fuels. Data set summaries of the much of the data obtained during the contract period are contained in the accompanying volume entitled, "Combustion and Heat Transfer; Volume 2 - Advanced Jet Fuels Data Sets."  
Full Text

Advanced Thermally Stable, Coal-Derived Jet Fuels Development Program Annual Report  
Dec 1993 50 pages  
Authors: E. A. Klavetter; S. J. Martin; W. Trott; T. J. O'Hern; SANDIA NATIONAL LABS ALBUQUERQUE NM  
A program entitled 'Thermally Stable Jet Fuels Development' was initiated in FY89 by the U.S. Air Force, Aero Propulsion... , Pittsburgh Energy Technology Center. Thermal stability of aviation fuels is of concern because of the potential operation problems arising from fuel... has been conducting efforts to develop instrumentation for monitoring characteristics of jet fuel degradation and solids deposition and develop... instrumentation. This report describes the instrumentation development, data acquisition, and model parameter determination. Jet fuels, Thermal stability, Fuel degradation, Mass sensor...  
Full Text

CHEMICAL COMPOSITION OF MICROIMPURITIES IN JET FUELS FROM SULFUROUS PETROLEUM  
Nov 19, 1964 12 pages  
Authors: V. N. Zelov; N. I. Marinenko; FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OH  
The microimpurities of the jet fuels from sulfurous petroleums consist of ash elements, tars, and 'structural' water. In the process of transportation, settling, and filtration of the fuels there occurs a separation of the micropurities in accordance with their chemical composition, the suspended state. Into the composition of the tarry part of the microimpurities... the fuels, along with oxygen compounds, there go up to 20-30% of oxidized compounds containing sulfur. In the process of the filtration of fuels there occurs a decrease in the quantity of...
### Influence of Supercritical Conditions on Precombustion Chemistry and Transport Behavior of Jet Fuels

**Authors:** N. Zhou, A. Krishnan, CFD RESEARCH CORP HUNTSVILLE AL

- Experimental/computational approach to model precombustion chemistry and transport behavior for hydrocarbon fuels under supercritical conditions was developed. Models for the computation of thermophysical ... turbulent regimes. The effects of turbulence and buoyancy were studied in detail. Advanced thermal stability models for jet fuels were incorporated into the code. Model predictions were compared with deposition data in the literature and with a concurrent experimental study. Experiments were performed at the University of Iowa and at Wright Laboratory using jet fuels and sulfur hexafluoride.

### Combustion and Heat Transfer; Volume 2 - Advanced Jet Fuels Data Sets

**Authors:** S. Zabarnick, D. R. Bailey, K. E. Bins, G. L. Dieterle, J. S. Ervin, DAYTON UNIV OH RESEARCH INST

- This report consists of data set summaries of tests performed in support of the development of advanced jet fuels, including JP-8+100, JP-900, and endothermic fuels. This includes data sets for the quartz crystal microbalance (QCM), the isothermal corrosion oxidation test (ICOT), the Phoenix rig, the fuel/materials ... The overall program accomplishments and details of the individual test devices employed during the contract period are contained in the accompanying volume entitled, "Combustion and Heat Transfer; Volume 1 - Advanced Jet Fuels Studies."

### INSOLUBLE RESIDUES, FORMING DURING THE HEATING OF JET FUELS

**Authors:** G. F. Bolshakov, FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OH

- The purpose of this thesis was to examine the two-tier cost structure for military and commercial contract aviation jet fuels and its effect on the Naval Reserve's C-9 Airlift Services Program. In the past, a single-tier system was in ... and paid for by the services. The analysis compared the differences in total jet fuel costs between the original and new cost structures. It also ... based on different assumptions and scenarios under the two-tier system. Into-plane jet fuel, Contract fuel, Aviation jet fuel, Jet fuel pricing, Commercial jet fuel, Military jet fuel

### Environmental Analysis of Possible Sulfur Increases in USAF Jet Fuels

**Authors:** Dennis F. Naugle, AIR FORCE WEAPONS LAB KIRTLAND AFB NM

- This analysis addresses the question of whether environmental considerations should be the limiting constraint to possible increases in sulfur content of USAF jet fuels. Such increases are proposed in order to increase the availability of jet fuels such as JP-4. The current average sulfur content of 0.05% by weight and two hypothesized levels of 0.4 percent and 1.0 percent are analyzed in this study. Aircraft emissions and meteorological conditions around an airbase are maximized to produce predicted 'worst-case' ambient air quality levels.

### Sorption of Selected Volatile Organic Constituents of Jet Fuels and Solvents on Natural Sorbents from Gas and Solutions Phases

**Authors:** P. S. Rao, R. D. Rhee, Clifford T. Johnson, Richard A. Oguda, FLORIDA UNIV GAINESVILLE INST OF FOOD AND AGRICULTURAL SCIENCES

- Sorption of selected volatile organic constituents (VOC) of jet fuels and solvents on several natural sorbents from the gas and aqueous phases was investigated. The sorbates studied were: trans-1,2-dichloroethylene; 1,2-dichloroethane; trichloroethylene; 1,1,2,2-tetrachloroethane; toluene; ... were characterized by measuring VOC sorption at several temperatures. Sorption coefficients, Solids, Mineral surfaces, Aquifer materials, Organic chemical transport, Sorption equilibrium, Spectroscopic techniques, Jet fuels, Water pollution.

### Advanced Thermally-Stable, Coal-Derived, Jet Fuels Development Program. Annual Report: Experiment System and Model Development

**Authors:** Elmer Klavetter, Steve Marti, Wayne Trott, Tim O'Herrn, Gerald Nelson, WRIGHT LAB WRIGHT-PATTERSON AFB OH

- A program entitled 'Thermally-Stable Jet Fuels Development' was initiated in FY89 by the U.S. Air Force, Aero Propulsion and Power Directorate, working jointly with the Department of Energy, Pittsburgh Energy Technology Center. Thermal stability of aviation fuels is of concern because of the potential operation problems arising from fuel degradation under thermal ... Sandia National Laboratories has been conducting efforts to develop instrumentation for monitoring characteristics of jet fuel degradation and solids deposition and develop models of those ...
Full Text

Authors: George E. Fodor; David W. Naegeli. SOUTHWEST RESEARCH INST SAN ANTONIO TX BELVOIR. FUELS AND LUBRICANTS RESEARCH FACILITY

... ambient conditions from data obtained from accelerated oxidation experiments at elevated temperatures. The rates of peroxide formation in 10 model jet fuels were measured at several temperatures ranging from 43° to 120 deg C, with oxygen partial pressures ranging from approximately 10 to ... method has also been used to evaluate the effectiveness of several hindered phenolic antioxidants to inhibit the formation of peroxides in two jet fuels at temperatures of 1000 and 120 deg C and an oxygen partial pressure of 240 kPa (ca 20 psig). Antioxidants ...

Analysis of Deposit Precursors in Jet Fuels Using Fourier Transform Infrared Spectroscopy

Jan 1993 53 pages

Authors: William Schulz; David B. Shehee. EASTERN KENTUCKY UNIV RICHMOND DEPT OF CHEMISTRY

Thermal oxidation products from jet fuels will be formed in the presence of fuel and oxygen at elevated temperatures. Development of fuels that will not form solid residues depends on the development of a method to analyze the rate of oxidation of fuels. Gravimetric determination of fuel residues was imprecise and time consuming. Gas Chromatography - Mass Spectrometry (GC-MS) of oxidation products yields a great deal of fundamental information but is too specific to be used as a rapid method for determining the ...

THERMAL STABILITY OF JET FUELS

Jul 17, 1961 6 pages

Authors: LIBRARY OF CONGRESS WASHINGTON DC AEROSPACE TECHNOLOGY DIV

A study of the effect of mercaptans on the formation of insoluble sediment in jet fuels at elevated temperatures is reported. The study was conducted in three experimental series. Series 1 involved the testing of TC-1 fuels to determine the temperature of maximum sediment formation. Series 2 dealt with the effects of mercaptans and catalytic metals on sediment formation at 150 deg C. Series 3 extended the experiments of series 2 to the 100-300 deg C ring... Sediment formation increased with increasing mercaptan content, and the temperature of maximum sediment formation was 150 deg C.

Summary of Ignition Properties of Jet Fuels and Other Aircraft Combustible Fluids

Sep 1975 62 pages

Authors: Joseph M. Kuchta. BUREAU OF MINES PITTSBURGH PA SAFETY RESEARCH CENTER

This report was prepared at the request of the Air Force to summarize the various ignition properties of jet fuels and other aircraft combustible fluids. The initial part is devoted to theory and definitions that are pertinent to ignition phenomena and the application of any ... summarize the various data that are available on ignition energies, ignition quenching distances and ignition temperatures of aircraft fuels, engine oils, hydraulic fluids and lubricants. Data are presented on the following types of ignition sources: ...

THE EFFECT OF ULLAGE ON THE FLASH POINT AND LOWER FLAMMABILITY LIMIT TEMPERATURES OF JP-5 JET FUELS

Nov 1966 12 pages

Authors: W. A. Affens; H. W. Carhart. NAVAL RESEARCH LAB WASHINGTON DC

... a system. A simple apparatus has been used to test the effect of ullage on flash point and lower flammability limit temperatures of JP-5 jet fuels. Results indicate that both ullage and time to achieve equilibrium conditions are factors. In general, flammability limit temperatures decreased with decreasing ullage, but higher ullages, flammability hazard is increased. In one instance, the extrapolated flammability temperature of a specification JP-5 jet fuel was 26° lower than its ASTM flash point as ullage approached zero. The data suggest ...

Endocrine Disruptors: An Evaluation of Solvents Deicers and Jet Fuels

Oct 1997 149 pages

Authors: W. Baker; J. English; D. Dodd; J. McDougal; T. Miller. MANTECH-GEOCENTERS JOINT VENTURE DAYTON OH

... activity: organic solvents (trichloroethylene, trichloroethane, dichloroethane, methyl ethyl ketone, methyl isobutyl ketone and perchloroethylene), deicing and anti-icing agents (potassium acetate, sodium acetate, ethylene glycol,urea, propylene glycol, sodium formate and calcium magnesium acetate) and jet fuels and related hydrocarbons (toluene, ethylbenzene, xylene, jet fuel and diesel).

Repeated Dose Skin Irritation Study on Jet Fuels - Preliminary Dose Range Finding Study

Jan 1999 25 pages

Authors: W. Baker; J. English; D. Dodd; J. McDougal; T. Miller. MANTECH-GEOCENTERS JOINT VENTURE DAYTON OH

... scientific information is available on the effect of repeated skin contact with JP-8. Before initiating an investigation using the rat as an animal model for skin irritation with jet fuels, several laboratory procedures needed to be addressed. During this preliminary dose range finding study, an opportunity to preview the nature and severity of skin lesions to be encountered in a subchronic repeated dose jet fuel study was gained. Depending on the type of fuel and the frequency of application, a range of skin ...

LUBRICITY PROPERTIES OF HIGH-TEMPERATURE JET FUELS

1967 60 pages

Authors: J. K. Appeldoorn; I. B. Goldman; F. F. Tao. ESSO RESEARCH AND ENGINEERING CO LINDEN NJ PRODUCTS RESEARCH DIV

The Micro-Ryder gear test was evaluated as a possible test device for jet fuels. Scuffing tests generally agreed with earlier wear tests in assessing the effects of fuel composition and operating variables. However, some differences were found: some sulfur compounds reduced scuffing, whereas they had not reduced wear; scuffing is frequently more severe in dry argon than in wet air, whereas in wear tests this was reversed. Water appears to be the important factor reducing scuffing. K-Monel showed some major differences ...

LUBRICITY PROPERTIES OF HIGH-TEMPERATURE JET FUELS

Jul 1968 124 pages

Authors: J. K. Appeldoorn; F. F. Tao; I. B. Goldman. ESSO RESEARCH AND ENGINEERING CO LINDEN NJ PRODUCTS RESEARCH DIV

Previous studies on the friction and wear properties of jet fuels have been extended to metallurgies other than...
Steel and to other kinds of wear, both abrasive and scuffing. Corrosive wear is found with most metals, even those that are nominally corrosion resistant, and can be controlled by using surface-active additives. Abrasive wear is triggered by corrosive wear and can be controlled indirectly by eliminating corrosive wear or indirectly by polar additives. Unlike corrosive wear, scuffing is most severe in dry inert atmospheres. Antiwear additives are usually also antisuff agents.

**Influence of Supercritical Conditions on Pre-Combustion Chemistry and Transport Behavior of Jet Fuels**

Authors: Anantha Krishnan; CFD RESEARCH CORP HUNTSVILLE AL

This first report is a compilation of data which are representative of the quality of jet fuels (JP4, JP5, and JP8) purchased by the Defense Energy Support Center (DESC) worldwide. This information was obtained from our Petroleum Quality Information System (PQIS), an automated system which contains product quality history. This database contains over 6000 records of aviation fuel deliveries, which represents 8.5 billion gallons of product. The data contained in this report are summarized to provide...
Chronic jet fuel exposure could be detrimental to Air Force personnel, not only by adversely affecting ... of infectious disease and cancer. Chronic exposure to jet fuel has been shown to adversely affect human liver ... Currently, there are no standards for personnel exposure to jet fuels of any kind, let alone JP-8 jet fuel.

Kerosene-based petroleum distillates have been used for over 1.3 million workers were exposed to jet fuels in 1992. Thus, jet fuel exposure may not only have serious consequences for USAF ... number of civilian workers. Short-term (7 day) JP-8 jet fuel exposure causes lung injury as evidenced ...

**STORAGE STABILITY OF HIGH TEMPERATURE FUELS, PART 3. THE EFFECT OF STORAGE UPON THERMALLY INDUCED DEPOSITION OF SELECTED FUEL COMPONENTS**

Authors: Marvin L. Whisman; John W. Goetzinger; Cecil C. Ward; BUREAU OF MINES BARTLESVILLE OK BARTLESVILLE ENERGY RESEARCH CENTER

... of selected components and additives of high-temperature aircraft fuels to thermally induced deposits before and after 52 ... fuel constituents on thermal stability quality of these jet fuels during storage. The study utilizes ... test apparatus to measure the thermal stability of test fuels and blends. The contribution of selected fuel components, ... counting techniques. Twenty-eight blends of the five test fuels with carbon-14-labeled fuel additives or components reached the ... special studies were conducted as preliminary investigations to continued research of jet fuel stability characteristics.

**GAS TURBINE AND JET ENGINE FUELS**

Authors: W. L. Streets; PHILLIPS PETROLEUM CO BARTLESVILLE OK

... cresyl-phosphate to a synthetic 1.0% S base fuel. The corrosion inhibitors used were two commercial additives approved for use in military jet fuels. Tri-cresyl-phosphate was included to provide a P compound of known species. This effort was made to check possibilities of accelerated rates of S corrosion of turbine hot section components when P containing corrosion inhibitors were added to high sulfur jet fuels. Tests showed no accelerated deterioration of flame tubes by any of these 3 materials, with some slight indication of a reduction in ...

**ABRASIVE PROPERTIES OF MICROCONTAMINATION AND OXIDATION PRODUCTS OF JET FUELS**

Authors: V. A. Piskunov; V. N. Zrelov; FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OH

... from thermooxidation origin in fuel are the cause of abrasive wear of the hydraulic channels and jet nozzles of the fuel-regulating apparatus of jet engines. The extent of the abrasive wear of the fuel-regulating apparatus of the engines depends on the amount and make-up of the ... determinable by the conditions of the transportation, storage, and application of the fuels and their thermal stability. For lowering the abrasive action ... residues, it is necessary to increase the fineness of the filtration and improve the thermal stability of the fuels (additives, etc.).

**GAS TURBINE AND JET ENGINE FUELS**

Authors: W. L. Streets; PHILLIPS PETROLEUM CO BARTLESVILLE OK

The fourth bimonthly period continued the study of the effects of sulfur in jet fuels on the durability of jet engine hot section components. The effort involved evaluation of the tensile strengths of Udmet 500, Waspalloy, Haynes Alloy ... (1) very little SO2 is converted to SO3 at temperatures typical of those existing in jet engine combustion and turbine sections. (2) the oxidation of SO2 to ... quite markedly by the oxides of chromium and iron, both of which are plentiful in jet engines - this is significant only below about 1700F, (3) significant conversion of SO2 to ...

**Evaporation of Jet Fuels**

Authors: Charles E. Hack; AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH SCHOOL OF ENGINEERING

Determining the fate and transport of JP-8 jet fuel is a complex and important problem. As part of the startup procedures for jet engines, fuel is passed through aircraft engines before combustion is ... droplet evaporation models and the calculation of the evaporation of a film of jet fuel from a surface. The existing models are compared in order ... hydrocarbon groups. Due to the complexity of the mixture of aviation fuels, a mixture of the predominant species were chosen as ... most appropriate model for predicting the amount and composition of jet fuel reaching the ground crew and to extend ...

**HIGH TEMPERATURE HYDROCARBON FUELS RESEARCH IN AN ADVANCED AIRCRAFT FUEL SYSTEM SIMULATOR ON FUEL AFFB-8-67**

Authors: Harold Goodman; Royce P. Bradley; Theodore G. Sickles; NORTH AMERICAN AVIATION INC LOS ANGELES CA LOS ANGELES DIV

At elevated temperatures hydrocarbon jet fuels tend to form deposits which decrease heat exchanger efficiency and plug screens and filter elements. A small-scale device is required which has been demonstrated to be applicable to all qualities of hydrocarbon jet fuels and will quantify this tendency in terms meaningful to fuel system designers. In this report, the thermal stability of a fuel (AFFB-8-67) is ... a static system (i.e., an 'empty' wing tank) does not rank fuels the same as a dynamic system (i.e., engine system). Therefore, a dual type (static ...
Full Text
and JP-5) and low temperature behavior of these field samples .... This report contains (1) a brief summary of
industry practice in handling fuels at low temperatures, (2) inspection properties of test fuels, (3) viscosities and
conductivities of ...

Dermal Absorption of JP-8 Jet Fuel and Its Components
Mar 1999 27 pages
Authors: James McDougal; Daniel L. Pollard; Carol M. Garrett; Robert M. Davis; Tomas E. Miller; MANTECH-GEOCENTERS
JOINT VENTURE DAYTON OH

The dermal absorption of jet fuels in general and JP-8 in particular is not well understood, even though the use
by government and industry, worldwide, is over 58 ... is exposed repeatedly or for prolonged periods, but whether
systemic toxicity from dermal absorption of fuels may occur is unknown. The purpose of this investigation was to
measure the flux of JP-8 and ... hr (tridecane). Permeability coefficients, which can be used to estimate the
absorption of components from other fuels, were also calculated. These fluxes suggest that JP-8 will not cause
systemic toxicity ...

GAS TURBINE AND JET ENGINE FUELS
Jul 17, 1961 13 pages
Authors: W. L. Streets; PHILLIPS PETROLEUM CO BARTLESVILLE OK

The effects sulfur in jet fuels and ingested sea water on the durability of jet engine hot section components were
studied. Attempts were made to determine the reason for higher flame tube corrosion rates observed during
operation with ingested natural Gulf sea water as compared to synthetic sea water. Efforts were also initiated
toward the development of a suitable test method for the evaluation of the effect of fuel S and sea water on
simulated turbine inlet guide vane durability. Preliminary experiments were made with cart-wheel simulated
simulated guide vanes ...

Development of Stabilizing Additives for Super-Critical Jet Fuel
Jul 24, 1995 15 pages
Authors: Bruce Beaver; DUQUESNE UNIV PITTSBURGH PA

In this proposal it is argued that the thermal stability of most jet fuels would be dramatically improved by the
efficient removal of a fuel's dissolved oxygen (in flight). It is envisioned that a thermally activated reaction
between the oxygen scavenging additive and dissolved oxygen will ... will be limited. To date our data has
identified several potential additive candidates which meet our preliminary specifications. With continued funding
suitable stabilizing additives for super-critical jet fuels will be developed. Jg p.1

Coordinating Support of Fuels and Lubricant Research and Development (R&D) 2, Delivery
Order 0001: Water Separation Methods Study
Dec 2004 93 pages
Authors: William F. Taylor; COORDINATING RESEARCH COUNCIL INC ALPHARETTA GA

... test method and of the effectiveness of other water separation test methods. The effect of fuel quality on
coalescence was measured in the Navy Coalescence Tester (NCT) using jet fuel field samples and jet fuel
samples prepared to simulate additive and contamination effects. The jet fuels evaluated in the NCT were then
tested using the various water separation test methods, and the results compared against the actual coalescence
results. The Interface Rating for the ASTM D 1094 Water Reaction ...

Advanced Thermally Stable Coal-Based Jet Fuels
Oct 2007 40 pages
Authors: Harold H. Schobert; PENNSYLVANIA STATE UNIV UNIVERSITY PARK ENERGY INST

This report summarizes briefly the key results of a project for the development of coal-based jet fuel. The initial
focus of the project was the development of a high heat sink fuel, JP-900, that could be used for thermal ... JP-8.
Deposition from thermal stressing of the fuel in various reactors was invariably lower than JP-8 or JP-8+1OO.
Mechanisms of oxidative deposit formation for both jet and diesel fuels are proposed to account for the fact that
the chemistry involved in both storage and thermal oxidative deposit formation in middle distillates is similar. The
fuel was successfully tested in ...

Advanced Thermally Stable Coal-Based Jet Fuels
Feb 2008 40 pages
Authors: Harold Schobert; PENNSYLVANIA STATE UNIV UNIVERSITY PARK ENERGY INST

This report summarizes briefly the key results of a project for the development of coal based jet fuel. The initial
focus of the project was the development of a high heat sink fuel, JP-900, that could be used for thermal ... JP-8.
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the chemistry involved in both storage and thermal oxidative deposit formation in middle distillates is similar. The
fuel was successfully tested in ...

International Conference on Stability and Handling of Liquid Fuels (3rd) : Conference
Proceedings Held in London, England on 13-16 September 1988, Volume 1
Dec 7, 1988 435 pages
Authors: INSTITUTE OF PETROLEUM LONDON (UNITED KINGDOM)

The 3rd International Conference on Stability and Handling of Liquid Fuels followed two previous Conferences
department of the storage and thermal stability of gasolines, jet fuels, diesel fuels, residual fuels and crude oils.
Certain aspects of the handling of these materials were also considered, and a session was devoted to the
problems of microbiological growth in liquid fuels.

A Flash Vaporization System for Detonation of Hydrocarbon Fuels in a Pulse Detonation
Engine
Aug 24, 2005 261 pages
Authors: Kelly C. Tucker; AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH SCHOOL OF ENGINEERING AND
MANAGEMENT

... concentrating on obtaining detonations in a pulse detonation engine (PDE) with low vapor pressure, kerosene based jet fuels. These fuels have a low vapor pressure and the performance of a liquid hydrocarbon fueled PDE is significantly ... eliminate the time required to evaporate the fuel droplets. Four fuels are tested: n-heptane, isooctane, aviation gasoline, and JP-8. The fuels vary in volatility and octane number and present a clear picture on the ... show the FVS quickly provided a detonable mixture for all of the fuels tested without coking or clogging the fuel lines. Combustion ...

Making Clean Gasoline: The Effect on Jet Fuels
Sep 1992 73 pages
Authors: Robert W. Salthouse; LOGISTICS MANAGEMENT INST BETHESDA MD

... fear possible declines in the quality and availability of jet fuel. Currently, the Air Force plans to convert from naphtha-based JP-4 jet fuel to distillate-based JP-8 jet fuel. Despite the extent of ... conclude that neither the quality nor the availability of jet fuel purchased by the military is likely to change ... divert excess aromatic compounds into jet fuel. However, refineries are unlikely to do ... two reasons. First, existing jet fuel specification - 'smoke point' and a maximum ... refiners' ability to increase the volume of aromatics in jet fuel. Second, the manufacture of aromatics to improve ...

The Behavior of Water in Jet Fuels and the Clogging of Micronic Filters at Low Temperatures
Jan 11, 1950 48 pages
Authors: John A. Krynitsky; John W. Crellin; Homer W. Carhart; NAVAL RESEARCH LAB WASHINGTON DC

... using the Karl Fischer reagent has been developed and used in the determination of the solubility of water in several fuels and pure hydrocarbons from 32 deg F to 120 deg F. The effect of aromatic content, rates of saturation and disappearance of suspended water from fuels have been investigated. A small scale apparatus was devised for the study of the clogging ...

GAS TURBINE AND JET ENGINE FUELS
Mar 10, 1962 26 pages
Authors: W. L. Streets; PHILLIPS PETROLEUM CO BARTLESVILLE OK

The effects of sulfur in jet fuels on the durability of engine 'hot section' components were studied. Fuel sulfur content was determined in relation to the loss of metal from Udimet 500, Waspalloy, Stellite 25, Hastelloy R-235, Rene 41 and Inconel X simulated turbine inlet guide vanes in the two-inch high pressure research combustor under conditions producing approximately 2000F exhaust gas. Extended duration metal durability testing was conducted with the atmospheric pressure Phillips Microburner using Udimet 500, Waspalloy, Stellite 25 and Rene 41 simulated guide ...

GAS TURBINE AND JET ENGINE FUELS
Aug 24, 1962 33 pages
Authors: William L. Streets; PHILLIPS PETROLEUM CO BARTLESVILLE OK

... guide vanes using specimens fabricated from five typical current-generation alloys including Udimet 500, Waspalloy, Rene 41, Hastelloy R-235 and Haynes Alloy 25. A second project consisted of a study of test methods for evaluating the burning quality of jet fuels. Twelve-hour duration tests were conducted with the Phillips 2-Inch Research Combustor operated at a pressure of 12 and 2000F exhaust gas temperature showed that: (1) guide vane metal loss is approximately a linear ...

GAS TURBINE AND JET ENGINE FUELS
Mar 1963 91 pages
Authors: R. M. Schirmer; W. L. Streets; PHILLIPS PETROLEUM CO BARTLESVILLE OK

... guide vanes using specimens fabricated from five typical current-generation alloys including Udimet 500, Waspalloy, Rene 41, Hastelloy R-235 and Haynes Alloy 25. A second project consisted of a study of test methods for evaluating the burning quality of jet fuels. Twelve-hour duration tests were conducted with the Phillips 2-Inch Research Combustor operated at a pressure of 12 and 2000F exhaust gas temperature showed that: (1) guide vane metal loss is approximately a linear ...

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