Storming Media Pentagon Reports: Fast. Definitive. Complete.

Newsletter

To be informed of important news about our site, enter your email here. You can always unsubscribe later. Your address will not be released to others. (Read our Privacy Policy)

Your name

Your email

Unsubscribe » SUBMIT

Search Results for: Aluminum Oxide

Total Results: **242** Pages: Previous 1 2 3 **[4]** 5 Next Results per page: 50

Sort by: Relevancy Title Date Pages Display: Full Text Only

Effect of Fiber-Reinforced Plastic Strength Properties on the Ballistic Performance of Ceramic Composite Armor Nov 1998 24 pages

Authors: James F. Mackiewicz; Gary Proulx; ARMY SOLDIER AND BIOLOGICAL CHEMICAL COMMAND NATICK MA SOLDIER SYSTEMS CENTER

Full Text

... a range of weak to relatively strong panels in term of flexural strength, shear strength and elastic modulus. The low resin and corresponding low strength laminates yielded the most efficient armor systems when tested in conjunction with **Aluminum Oxide** (Alsub2Osub3) frontal ceramic component versus the 7.62 mm M80 Ball and .30 cal Armor Piercing projectiles. Although the 5.3% resin laminates possess very low flexural and shear strengths, the data indicates ...

Investigation of Exothermic Grinding Sludge Produced from Watervliet Arsenal Gun Steels, Andersol Water-Based Cutting Fluid and Cincinnati Milacron Aluminum Oxide Resin Bond Grinding Wheels Jul 1992 17 pages

Authors: Samuel Sopok; Mark Fleszar; John Senick; ARMY ARMAMENT RESEARCH DEVELOPMENT AND ENGINEERING CENTER WATERVLIET NY BENET LABS

Full Text

The Advanced Technology Branch of Benet Laboratories, at the request of the Watervliet Arsenal Fire House, was tasked with the investigation of a Watervliet Arsenal exothermic grinding sludge. An on-site review of this grinding process showed that the grinding sludge apparently smoldered up to twenty-four hours after its production. In addition, within an hour, the sludge quickly reached a surface temperature that would cause a burn upon physical contact. At least one fire directly resulted from the inadvertent mixture of this sludge with a combustible material. Thermogravimetric analysis and ...

Evaluation of Materials for Rapid Runway Repair 2004 6 pages

Authors: Michael Riley; CERATECH INC BALTIMORE MD

Full Text

... products are magnesia/alumina based, but are irregular shaped ground particulates. To add stiffness and additional compressive strength to the product, we will investigate the role of chopped ceramic fibers as low weight additives to the formula. Specifically, this task will focus on the use of discontinuous **aluminum oxide** fibers that have been designed to withstand temperatures as high as 1700 degrees C.

Heat Flux and Infrared Spectral Measurements of Burning SRM Propellant (Preprint) Jun 16, 2006 11 pages

Authors: Marty Venner; James Parker; William McKeon; AIR FORCE RESEARCH LAB EDWARDS AFB CA PROPULSION DIRECTORATE

Full Text

... during a nominal portion of the burn and supports a classification of 1.4. A Fourier Transform Infrared (FTIR) spectrometer collected data over a spectral range of 1.4 - 14 micrometers. Those data show strong gaseous emissions from carbon dioxide, water, and hydrogen chloride as well as a continuum emission component due to the **aluminum oxide** particulates.

Freeform Extrusion of High Solids Loading Ceramic Slurries. Part 1: Extrusion Process Modeling Jul 2006 16 pages

Authors: Michael S. Mason; Tieshu Huang; Robert G. Landers; Ming C. Leu; Gregory E. Hilmas; MISSOURI UNIV-ROLLA DEPT OF MATERIALS SCIENCE AND ENGINEERING

Full Text

A novel, solid freeform fabrication method has been developed for the manufacture of ceramic-based components in an environmentally friendly fashion. The method is based on the extrusion of ceramic slurries using water as the binding media. **Aluminum oxide** (Al2O3) is currently being used as the part material and solids loading as high as 60 vol. % has been achieved. This paper describes a novel manufacturing machine that has been developed for the ...

Freeze-Form Extrusion Fabrication of Alumina Components Using Aqueous Paste Jul 2006 22 pages

Authors: Tieshu Huang; Michael S. Mason; Gregory E. Hilmas; Ming C. Leu; MISSOURI UNIV-ROLLA DEPT OF MATERIALS SCIENCE AND ENGINEERING

Full Text

Freeze-form Extrusion Fabrication (FEF) is an environmentally friendly solid freeform fabrication method that uses aqueous pastes to fabricate ceramic-based components. The process uses only small quantities (2 to 4 vol.%) of organic binder. Using the FEF process, 3-D ceramic components have been fabricated from **aluminum oxide** (Al2O3) by extrusion deposition of Al2O3 paste in a layer-by-layer manner utilizing a 3-D gantry controlled

by a computer using Labview software. Sintered samples have achieved 98% of their theoretical density, demonstrating the feasibility of the FEF process.

Crested Tunnel Barriers for Fast, Scalable, Nonvolatile Semiconductor Memories (Theme 3) Dec 2006 14 pages

Authors: Konstantin K. Likharev; Tso-Ping Ma; STATE UNIV OF NEW YORK AT STONY BROOK

Full Text

... that may potentially replace DRAM as the main random access memories of semiconductor electronics. With that objective, we have combined the expertise at Stony Brook University in crested barrier theory (Prof. Konstantin Likharev) and **aluminum oxide** layer growth (Prof. James Lukens, Dr. Vijay Patel) with that of Yale University (Prof. T.P. Ma, Dr. X. Wang) in jet vapor deposition of silicon nitride and silicon dioxide films, as well as ...

Heat Flux and Infrared Spectral Measurements of Burning SRM Propellant (Postprint) Jun 16, 2006 11 pages

Authors: Marty Venner; James Parker; William McKeon; ENGINEERING RESEARCH AND CONSULTING INC (ERC INC) EDWARDS AFB CA

Full Text

... was obtained during a nominal portion of the burn and supports a classification of 1.4. A Fourier Transform Infrared (FTIR) spectrometer collected data over a spectral range of 1.4 - 14 m. Those data show strong gaseous emissions from carbon dioxide, water, and hydrogen chloride as well as a continuum emission component due to the **aluminum oxide** particulates.

Global Mechanical Response and Its Relation to Deformation and Failure Modes at Various Length Scales Under Shock Impact in Alumina AD995 Armor Ceramic Mar 2008 18 pages

Authors: D. P. Dandekar; J. W. McCauley; W. H. Green; N. K. Bourne; M. W. Chen; ARMY RESEARCH LAB ABERDEEN PROVING GROUND MD

Full Text

Polycrystalline **aluminum oxide** (Al2O3) based materials have both personnel and ground vehicle armor applications. However, their ballistic performance can vary significantly. At the root of this problem is the identification of the fundamental macro and micro mechanisms of deformation and failure in the ballistic event which has proven very elusive over the years. Using a newly developed soft recovery plate impact experiment, a multi-disciplinary, multi-national collaboration has, for the first time, determined micro and macro deformation and damage mechanism maps ...

Global Mechanical Response and its Relation to Deformation and Failure Modes at Various Length Scales under Shock Impact in Alumina AD995 Armor Ceramic Nov 1, 2006 40 pages

Authors: D. P. Dandekar; J. W. McCauley; W. H. Green; N. K. Bourne; M. W. Chen; ARMY RESEARCH LAB ABERDEEN PROVING GROUND MD

Full Text

Polycrystalline **aluminum oxide** (Al2O3) based materials have both personnel and ground vehicle armor applications. However, as their ballistic performance can vary significantly it is important to identify the fundamental macro and micro mechanisms of deformation and failure in the ballistic event. This has proven elusive over the years. Using a newly developed soft recovery plate impact experiment, a multidisciplinary, multi-national collaboration has, for the first time, determined micro and macro deformation and damage mechanism maps relating the experimentally ...

Silicon Nanostructures, Excitonic Interactions, Laser Consequences Jul 11, 2008 7 pages

Authors: Jimmy Xu; BROWN UNIV PROVIDENCE RI DEPT OF PHYSICS

Full Text

Optically pumped laser emission is achieved at cryogenic temperatures (<85K) on carbon-implanted nano-patterned silicon-on-insulator. By using ion-implantation and solid-phase-epitaxy for recrystallization, a 30x improvement in the luminescence intensity of silicon is reported. Nano-patterning was achieved though reactive-ion-etching using an anodized **aluminum oxide** membrane as mask. The results described here lay a solid foundation for the next phase of development aimed at achieving room-temperature lasing in silicon.

Analysis of Shock and High-Rate Data for Ceramics: Equation of State Properties and Fragmentation in the Ballistic Environment May 1, 2009 64 pages

Authors: Dennis E Grady; APPLIED RESEARCH ASSOCIATES INC ALBUQUERQUE NM

Full Text

... available for candidate armor ceramics with emphasis on response in the ballistic environment. Ceramics considered here include the various light metal-nonmetal compounds selected by the Army for consideration such as silicon carbide and **aluminum oxide**, as well as other ceramics, glass ceramics and glasses currently being pursued by TARDEC with high potential for armor applications. The TARDEC/Army Research Laboratories program in armor ceramics currently ...

Nanoindentation Technique at Investigating of Aluminum Oxide - CrC Nanoparticles Composite Coating 2003 6 pages

Authors: Maksim V. Kireitseu; NATIONAL ACADEMY OF SCIENCES MINSK (BELARUS) DEPT OF MECHANICS AND TRIBOLOGY

Full Text

In this paper fatigue and fracture of Al-Al2O3-CrC nanostructured composite coatings was investigated by nanoindentation technique and in-situ experiments performed by a scanning electron microscope to permit examination of freshly exposed surfaces. Crystallographic and morphological textures were characterized and fracture resistance was measured. CrC layer improves fracture resistance of alumina layer. CrC layer produced by pyrolitic deposition (CVD) may effectively heal pores and defects of alumina layer. It resulted in high load rating of the composite coating. Experiments reveal that in ...

Rheological Behaviour and Model of Metal - Polymer - Ceramic Composite 2003 6 pages

Authors: Maksim V. Kireitseu; NATIONAL ACADEMY OF SCIENCES MINSK (BELARUS) DEPT OF MECHANICS AND TRIBOLOGY

Full Text

In the present paper rheological behaviour of composite coating consisting of **Aluminum Oxide** - Polymer - Chrome Carbide was examined by using rheological models for principal Hertzian contact of a sphere and a plate. The crystallographic and morphologic texture was characterized and the fracture resistance was measured using fracture-mechanics. A rheological model of the composite coating has been proposed and confirmed by in situ experiments. Several requirements to rheological models were formulated ...

THE STRUCTURAL-KINETIC INVESTIGATION OF THE PROCESS OF OXIDATION OF NICKEL, CHROME, AND ALLOYS BASED UPON THEM Mar 2, 1966 16 pages

Authors: D. V. Ignatov; R. D. Shamgunova; FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OH

Full Text

... the speed of oxidization of chrome at temperatures of 800 - 1000C. The **oxide** films originating on this alloy consist at 400C of **oxide** ... of nickel (Ni0); at 500 - 700C they consist of **oxide** of chrome (alpha - Cr203); at 800 - 1000C - ... the spinel type (NiCr204). That of the inside layer consists of **oxide** of chrome (alpha - Cr203). The speed of oxidization of the nickel-chrome alloy decreases with additions of **aluminum**. For a satisfactory protection of the alloy Ni-Cr from oxidization up ... 5% suffices and at 1000C, 7% suffices. **Oxide** films forming on alloys with 1% of **aluminum** with 4. 18% A1, 7.22% A1 ...

The Electrochemical Oxidation of Barrier-Layer Metals Oct 7, 1964 18 pages

Authors: I. S. Zhukova; L. L. Odynets; JOINT INTELLIGENCE OBJECTIVES AGENCY WASHINGTON DC

Full Text

... conductivity in electrolytes are the barrier-layer metals. They include **aluminum**, tantalum, niobium, zirconium and certain other metals.. Silicon and certain semi metals possess analogous properties. **Oxide** films on **aluminum** have for a comparatively long time obtained ... practical use of the barrier- layer properties of **oxide** films on **aluminum** and tantalum in electrolytic rectifiers ... Now there is renewed interest in this question. The application of **oxide** films in dry capacitors also possesses ... interest , cryotrons , relays, and so forth. **Oxide** films on semiconductor materials allow the obtaining ...

Contact Resistance and Stability Analysis of Oxide-Based Thin Film Transistors Sep 19, 2006 111 pages

Authors: Celia M. Hung; OREGON STATE UNIV CORVALLIS DEPT OF ELECTRICAL AND COMPUTER ENGINEERING

Full Text

... assessment. Determination of the contact resistance of indium tin **oxide** (ITO) on two wide-band gap semiconductors, ... **oxide** (ZnO) and indium gallium **oxide** (IGO), is attempted and the effects of contact resistance ... systems are employed: ZnO on SiO2, ZnO on **aluminum** titanium **oxide** (ATO), and IGO on SiO2. ... applied to 3 semiconducting materials: ZnO, zinc indium **oxide** (ZIO), and IGO, using thermal silicon **oxide** as the gate dielectric. Relatively stable devices are obtained after post-deposition annealing ... TFT fabricated using a spin-coat synthesized **aluminum** phosphate (AlPO) as the gate dielectric is also ...

Infiltration Kinetics and Interfacial Bond Strength of Metal Matrix Composites Jul 1992 86 pages

Authors: Glen R. Edwards; David L. Olson; COLORADO SCHOOL OF MINES GOLDEN CENTER FOR WELDING AND JOINING RESEARCH

Full Text

... was experimentally established for the infiltration of SiC particulate by liquid **aluminum**. Experimental wettability studies were completed for aluminum--silicon, ... in contact with SiC by utilizing a capillary rise apparatus. The **oxide** layers on the ceramic substrate and on the molten metal surface ... then provided relative estimates of bond strengths for several **aluminum** alloys in contact with silicon carbide. Concepts from surface ... a surface reaction monolayer was sufficient to cause wetting. **Aluminum** matrix composite processing using the liquid metal route is complicated by the **oxide** barrier ...

TRANSISTOR, VHF SILICON POWER (5W) Dec 13, 1962 38 pages

Authors: P L McGeough; RADIO CORP OF AMERICA SOMERVILLE NJ

Full Text

... dioxide; however, improvement is still required in the defining and etching of the **aluminum**. In the fabrication of the insulating layer, the main difficulty is one of opening the emitter **oxide** area after anodizing or silicon monoxide evaporation. The difficulty ... to the sub strate resulting in lifting during immersion of the wafer in **oxide** etch. Devices with only a few percent of the emitter areas ... diode charac teristics. These results indicate the feasibil ity of the anodized **aluminum** approach to the fabrication of an overlay structure. Alternate approaches for producing the ...

Preparation and Properties of Some Alumina-Chrome Refractories 1991 8 pages

Authors: T. Davies; H. G. Emblem; C. S. Nwobodo; A. A. Ogwu; V. Tsantzalou; UNIVERSITY OF MANCHESTER INST OF SCIENCE AND TECHNOLOGY (UNITED KINGDOM)

Full Text

... , densification and change in corundum lattice dimensions in sintered compacts made from chromium(III) **oxide**/ **aluminum**(III) **oxide** mixtures were evaluated in a study of some alumina-chrome refractories. High-energy milling using ... corundum lattice dimensions decreasing with 7 wt% chromium(III) **oxide**, other compositions giving lattice expansion. The ... alumina-chrome refractories containing 5 to 12 wt% chromium(III) **oxide** was also minimal at 7 wt% CHROMIUM(III) **oxide**. The composition of this series is typical of ethyl silicate-bonded alumina-chrome refactories used in the steel industry.

Bondability of Ti Adherends Apr 30, 1980 51 pages

Authors: B. M. Ditchek; K. R. Breen; J. D. Venables; MARTIN MARIETTA LABS BALTIMORE MD

Full Text

... divided into three groups according to similarities in their **oxide** morphologies: Group I exhibits little surface roughness; ... extensive porosity and microroughness, similar to features found on **aluminum** prepared by the phosphoric acid anodize process. Wedge ... II. Hence, a direct correlation exists between **oxide** morphology and bond durability for Ti adherends. We found similar evidence for the importance of **oxide** morphology to the properties of bondments in our prior work ... effects of moisture. We conclude, therefore, that the combination of **oxide** stability and micro-roughness that can be developed on ...

Effect of Damage Processes on Spallation Life in Thermal Barrier Coatings Nov 9, 2001 141 pages

Authors: Golam Newaz; WAYNE STATE UNIV DETROIT MI

Full Text

... inner metallic bond coat layer that provides needed oxidation resistance to the underlying superalloy. The microstructure of the bond coat changed from high **aluminum** concentration beta-(Ni, Pt)3Al phase, which has a very good oxidation resistance, to beta-(Ni, ... during the thermal test in air. The microstructure change influenced the oxidation behaviors of the bond coat. Less protective **oxide** (Ni-rich) formed on gamma-(Ni, Pt)3Al due to depletion of **aluminum**, and the **oxide** scale on gamma'-(Ni. Pt)3Al ha less adhesion to the bond coat. The TGO Layer and bond coat was subjected to high residual ...

Distributed Combustion in Solid Propellants Mar 1993 58 pages

Authors: M. W. Beckstead; K. P. Brooks; BRIGHAM YOUNG UNIV PROVO UT DEPT OF CHEMICAL ENGINEERING

Full Text

... an improvement over previous models. Law's model of **aluminum** combustion has been modified to include the effects of multiple oxidizers and their products, **oxide** accumulation on the surface of the burning **aluminum** particle, and convection. There are no adjustable parameters in the improved **aluminum** combustion model, and both transport and ... experimental data than a simple liquid droplet model. The **aluminum** combustion model has also been coupled to ... The results show reasonable agreement with available data for **aluminum** particles burning in the Rijke burner.... Unstable combustion, ...

Weldability of Heat-Resistant Material SAP by Method of Fusion Oct 8, 1964 14 pages

Authors: G. D. Nikiforov; S. N. Zhiznyakov; JOINT PUBLICATIONS RESEARCH SERVICE ARLINGTON VA

Full Text

Technology was developed for manufacture of SAP, possessing the ability to be welded by the method of fusion, and also technology of its argon- arc welding. Of all existing **aluminum** alloys, sufficient strength at a temperature of 350 - 5000 0 can be preserved only by material from sintered **aluminum** powder (SAP), the strengthening phase in which is **oxide** of **aluminum**. basic initial product for obtaining SAP is finely-dispersed **aluminum** powder which is obtained by atomization of liquid **aluminum** with compressed air, with subsequent crushing in ball mills in an oxidizing atmosphere.

OXIDATIVE DETONATIONS INITIATED BY HIGH VELOCITY IMPACTS May 1965 51 pages

Authors: A. P. Caron; NORTHROP SPACE LABS HAWTHORNE CA

Full Text

... 25 and 0.30 mm thick) retaining oxygen at one atmosphere have been observed to burst when impacted with steel and **aluminum** spheres (3.2 mm diameter) at velocities beyond 5.8 and 6.3 Km/sec, respectively. Visible deposits of **aluminum** and iron **oxide**, target sheet bulges, strong light intensities, and pressure gauge traces of detonation waves indicate that the bursting pressures were caused by the violent oxidation of steel and **aluminum**. Evidence of such reactions were detected over a wide range of impact velocities (4.88 to 8.02 Km/ ...

Defects and Impurities in 4H- and 6H-SiC Homoepitaxial Layers: Identification, Origin, Effect on Properties of Ohmic Contacts and Insulating Layers and Reduction Dec 1997 24 pages

Authors: R. F. Davis; M. O. Aboelfotoh; B. J. Baliga; R. J. Nemanich; NORTH CAROLINA STATE UNIV AT RALEIGH

Full Text

... inversion layer mobilites of 60 sq cm/V.s and 72 sq cm/ V.s were determined for the MOSFETs fabricated on 4H- and 6H-SiC, respectively. **Aluminum** nitride thin films were also grown by GSMBE on 4H and 6H-SiC substrates. Streaked RHEED patterns indicated smooth films and, for the ... enhanced chemical vapor deposition were employed with oxygen and nitrous **oxide** to deposit a silicon **oxide** on 6H-SiC(0001). The resulting morphology was compared with an analogous **oxide** produced via thermal oxidation and with the base SiC substrate. The RMS values of the surface roughness of the initial insulator and ...

Effect of Nanoparticles on Complement System in Cell Culture Model Sep 15, 2006 21 pages

Authors: Dariusz T. Sladowski; MEDICAL UNIV OF WARSAW (POLAND)

Full Text

... , Different sizes of nanoparticles such as silver (Ag; 151,000 nm) molybdenum (MoO3; 30 150 nm), **aluminum** (Al; 30 103 nm), iron **oxide** (Fe3O4; 30, 47 nm) and titanium dioxide (TiO2-40nm) were evaluated for their complement activation potential, The complement activation properties of relatively larger particles of cadmium **oxide** (CdO; 1 micrometer) manganese **oxide** (MnO2; 1-2 micrometers), and tungsten (W; 27 micrometers) were assessed, Additionally the effects of nanoparticles coated with lipopolysaccharide on complement activator properties ...

Effect of Preoxidation and Grain Size on Ductility of a Boron-Doped Ni3Al at Elevated Temperatures 1989 6 pages

Authors: M. Takeyama; C. T. Liu; GENERAL ELECTRIC CORPORATE RESEARCH AND DEVELOPMENT SCHENECTADY NY

Full Text

... in the largest-grained material, especially 760 C; a continuous, thin Al-rich **oxide** layer, which forms on the fine-grained samples, protects the underlying alloy from oxygen, preventing any loss of ductility, whereas the nickel-rich **oxide** which forms on the large grained samples allows oxygen to ... ; the grain boundaries act as short-circuit paths for rapid diffusion of **aluminum** atoms from the bulk to the surfaces, and this is responsible for the difference in ... fine- and large-grained materials; the of large- grained samples can be eliminated through control of **oxide** formation on Ni3Al surfaces.

A STUDY OF THE EFFECT OF SURFACE FILMS ON FATIGUE FRACTURE Sep 18, 1964 39 pages

Authors: J. C. Grosskreutz; C. Q. Bowles; MIDWEST RESEARCH INST KANSAS CITY MO

The complete absence of a corrosive atmosphere during the deformation of **aluminum** leads to a postponement of the formation of slip bands in which fatigue cracks are known to initiate. This ... dislocation loops is associated with surface slip lines, the debris being of higher density in gold than in **aluminum**. The difference is presumably

Full Text due to a lower activation energy for climb in **aluminum**. The formation of the slip step results in a lattice strain surrounding the step. This strain occurs regardless of the presence of an **oxide** layer. This strain may be the cause of slip-step height saturation.

Dislocation Transport of Oxygen During Fatigue Crack Growth May 1977 53 pages

Authors: John W. Swanson; AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH

Full Text ... indicated for Monel 404 and commercially pure titanium. Little increase in growth rate is observed for **aluminum** 7075-T651 and 2219-T87 alloys. Enhanced concentration of oxygen in the metal matrix ... to a vacuum environment is indicated for Monel 404, commercially pure titanium, **aluminum** 7075-T651 and **aluminum** 2219-T87. This is consistent with a dislocation transport mechanism. Sample roughness appeared to ... . A rough estimate of dislocation transport depths of 125 to 600 A is made based on expected **oxide** thickness. The fracture surfaces from oxygen and vacuum environments appear the same for each ...

Surface Quality Impact of Replacing Vapor Degreasers with Aqueous Immersion Systems Mar 1997 87 pages

Authors: C. Kodres; D. Polly; T. Hoffard; G. Anguiano; ENVIRONMENTAL PROTECTION AGENCY CINCINNATI OH RISK REDUCTION ENGINEERING LAB

Full Text ... of aqueous immersion degreasing and vapor degreasing for removing contaminants from an **aluminum** surface are compared. Intentionally soiled, artificially weathered 7075 **aluminum** panels are degreased and then either anodized or chemically conversion coated. The quantity and ... to have no effect on the performance of anodized or chemically conversion coated **aluminum** surfaces. Performance is assessed in terms of resistance to both corrosion and abrasion and on the integrity of the **oxide** coating. The subsequent light duty immersion cleaning and pickling removes ...

Non-Destructive Evaluation of Adhesive Bonded Structures Using Dielectric Methods Aug 2002 6 pages

Authors: Richard Pethrick; STRATHCLYDE UNIV GLASGOW (UNITED KINGDOM)

Full Text ... contractor shall characterize the dielectric signature of the hydrated lightly coated **oxide** surface, and investigate the effect of various solvent systems on ... The contractor shall characterize the aging of boron fiber/ epoxy **aluminum** bonded structures taking into account that the electrical ... result the approach to measurements used with either the carbon fibers or the **aluminum** structures is not appropriate with these structures. An electrode ... years. Boron fiber composites are used in repair of damage on the skins of **aluminum** fabricated aircraft. This study will demonstrate the usefulness of the ...

Template-Growth of Highly Ordered Carbon Nanotube Arrays on Silicon POSTPRINT Sep 2006 5 pages

Authors: Aijun Yin; Marian Tzolov; David Cardimona; Jimmy Xu; BROWN UNIV PROVIDENCE RI DEPT OF ENGINEERING

Full Text ... unprecedented uniformity on silicon. The uniformity is ensured through the growth within the highly ordered nanopores or an alumina **oxide** template, which is in turn formed on silicon through anodization of **aluminum** of unprecedented thickness evaporated on silicon. The formation of highly ordered nanopore array by anodization of thick **aluminum** evaporated on a noncompliant substrate such as silicon is made possible through a specially designed process for evaporating thick **aluminum** of high quality and good adhesion.

THE DEVELOPMENT OF HEAT-RESISTANT PAINTS FOR METALS Aug 2, 1962 20 pages

Authors: R. W. Liggett; SOUTHWEST RESEARCH INST SAN ANTONIO TX

Full Text Coatings produced from zinc **oxide** and polyphosphoric acid did not resemble those produced from zinc **oxide** (ZnO), dimethyl hydrogen phosphite (DMHP), and ethyl acid phosphate (EAP). Coatings (ZnO-DMHP-EAP) cured above 55% relative humidity at 100 deg F were water resistant but not heat resistant, while those cured below 55% ... . When the ZnO-DMHP-EAP coating material was dissolved in DMHP and the solution was applied to Al, a crusty layer was obtained. When the crust was removed, a surface coating remained that was heat resistant, water resistant, coherent, hard, and firmly bound to the **aluminum**.

Vapor Phase Impregnation of Active Carbons Apr 1970 57 pages

Authors: D. M. Andrews; COMMONWEALTH SCIENTIFIC CORP ALEXANDRIAVA

Full Text ... means for producing carbons having increased protection against toxic agents. Processes were developed for the vapor impregnation of carbon with cupric **oxide**, chromium trioxide, **aluminum** chloride and platinum. Spectrographic analysis of impregnated samples indicated that impregnants were present on these carbons in ... , while solution processes deposit material only in pores larger than 12 A in diameter. Copper-chromium (**oxide**) vapor impregnated carbons were subjected to treatments designed to produce an impregnant with CK ...

Optical Constants Jun 1985 415 pages

Authors: M. R. Querry; MISSOURI UNIV-KANSAS CITY

Full Text ... spectral regions. The optical constants of the materials were determined by use of Kramers-Kronig methods. The 23 materials were: (1) Sapphire (Al2O3)E//C, (2) Sapphire (Al2O3)E+C, Oxidized **aluminum** mirror, (4) Iron, (5) Hematite (Fe2O3)E//C, (6) Hematite (Fe2O3)E+C, (7) Magnetite (Fe3O4), (8) Cuprous **oxide** (Cu2O) pellet, (9) Zinc **oxide** (Zno) pellet, (10) Copper Ingot, (11) Brass Ingot (90 Cu/10 Zn), (12) Brass Ingot (85 Cu/15 Zn), (13) Brass Ingot(70 Cu/30 Zn), ...

A Study of the Microstructural Basis for the Strength and Toughness Properties of Water-Quenched and Air-Cooled HSLA-100, HSLA-100 with Increased Copper, and a ULCB Steel Sep 1991 97 pages

Authors: Thomas C. Mohr; NAVAL POSTGRADUATE SCHOOL MONTEREY CA

Full Text ... using the optical microscope, SEM, and TEM. The HSLA-100 with increased copper steel was adequately calcium treated and **aluminum** deoxidized as evidenced by the low sulfur content, few MnS stringers, and lack of large **oxide** arrays. The ULCB steel was not calcium treated or Al-killed; nor was it thermo-mechanically

processed as shown by the lack of lipped, broken, or elongated stringers. Both MnS ans **oxide** inclusions were present, and consequently, ladle metallurgy would have to be used before the ULCB steel was ...

Electrochemical and Spectroscopic Studies of Molten Halides Jan 8, 1993 76 pages

Authors: Gleb Mamantov; TENNESSEE UNIV KNOXVILLE DEPT OF CHEMISTRY

Full Text

... chemistry and electrochemistry in molten halides, media which are used in the production of several important elements, such as **aluminum**, magnesium and fluorine, in some high energy battery systems, as well as in other applications ... is caused by atmospheric contaminants. Even the parent alkali chloroaluminates contain millimolar quantities of complexed **oxide** which may result from the interaction of some melts with Pyrex glass. Therefore, studies of solute species at typical electrochemical or spectroscopic concentrations should take into account the presence of **oxide** species wherever possible.

Carbonate Treatment of U3O8 Precipitates Jun 21, 1948 25 pages

Authors: Gilman Y. Murray; John Dasher; MASSACHUSETTS INST OF TECH CAMBRIDGE MINERAL ENGINEERING LAB

Full Text

... acid. The 803 in the resulting leach solution can then be precipitated with any one of several alkalies such as sodium hydroxide, ammonia, calcium **oxide**, or magnesium **oxide**. A precipitate of most desirable characteristics is obtained by using magnesia as the precipitant, but this precipitate will settle to only 10 per cent ... to 35 per cent water of hydration. The oven-dried product usually contains from 2 to 3 per cent 803, and greater percentages of iron, **aluminum** silicon and magnesium. This cake contains about 150 pounds of water per pound of 803. If dried it would contain 30 pounds of other ...

Center for Non-Stoichiometric Semiconductors Sep 2000 68 pages

Authors: Umesh K. Mishra; CALIFORNIA UNIV SANTA BARBARA DEPT OF ELECTRICAL AND COMPUTER ENGINEERING

Full Text

... (FETs) providing increased breakdown voltages and a reduced noise performance. In recent years the research has been redirected into the newly emerging area of oxides and **oxide** electronics. **Oxide** produced from the steam oxidation of **aluminum** containing semiconductors has found widespread applications in the area of opto-electronics, specifically in vertical cavity lasers. In the research performed under the PRET program, additional applications in ...

Applications of New Chemical Heat Sources Phase 1 Jan 2001 66 pages

Authors: William L. Bell; Robert J. Copeland; Amy L. Shultz; TDA RESEARCH INC WHEAT RIDGE CO

Full Text

... . By a process of elimination, using data on materials costs, reaction rate studies, and calorimetry to measure heat output, we selected the best reactions for ration heaters. The best material: identified are the combination of **aluminum** chloride with calcium **oxide** (AICI3/ CaO) and diphosphorous pentoxide with calcium **oxide** (P2O5/CaO). Either can provide the same heat as the FRH with a small increase in weight, and does not produce any hydrogen. Our overall ...

Laser Cladding on Carbon-Carbon Composites Dec 2002 45 pages

Authors: John J. Eric; Robert J. Hull; AIR FORCE RESEARCH LAB WRIGHT-PATTERSON AFB OH MATERIALS AND MANUFACTURING DIRECTORATE

Full Text

... where it is focused to an approximately 1.3- cm-diameter spot size. Most of the test cases used 6 kW/sq cm to clad the coating material to the substrate surface. Coating materials included powdered **aluminum**, nickel chromium alloy, gray alumina ceramic, and a magnesium **oxide**/ zirconium **oxide** ceramic. Mixed results were obtained, with the alumina providing a slightly better cladding, based on visual appearance and micrographic views.

Extrusion Based Processing of Ti Alloys: Feasibility Study Dec 2003 19 pages

Authors: Joe Cochran; Dave McDowell; Kon J. Lee; GEORGIA INST OF TECH ATLANTA SCHOOL OFMATERIALS SCIENCE AND MECHANICAL ENGINEERING

Full Text

... of this program, honeycombs with square prismatic cells were fabricated by extrusion of titanium **oxide** powder and experiments were conducted to convert the sintered honeycomb to metallic ... These tests focused on kinetics of titanium reduction because high specific surface area **oxide** performs can be fabricated using technology developed by the lightweight structures group at ... honeycomb reduction studies, dendritic electrodeposition of titanium was observed to be occurring similar to the Hall process for **aluminum**. Thus, a series of tests were conducted to determine if high purity titanium could ...

Lightweight, High-Strength, Age-Hardenable Nanoscale Materials Mar 25, 2004 28 pages

Authors: Vijay K. Vasudevan; Jainagesh A. Sekhar; CINCINNATI UNIV OH DEPT OF CHEMICAL AND MATERIALS ENGINEERING

Full Text

Phase transformations and precipitation behavior in age-hardenable nanoscale materials, using binary **aluminum** alloys as model materials, were studied. Nanoparticles of Al-Cu and Al-Zn were synthesized by a ... nm dia) were found to be supersaturated f.c.c. and were enveloped by a 2-4 nm amorphous Al **oxide** layer. On aging the Al-Cu nanoparticles, a precipitation sequence comprising nearly pure Cu precipitates to theta' to the ... the results revealed that Al nanopowders could be processed into bulk structures, leading to interesting Al-Al **oxide** nanocomposites with full densification and high hardness.

Pulser Laser Deposition of Transparent Conducting Thin Films on Flexible Substrates Jan 19, 2001 21 pages

Authors: Heungsoo Kim; DEPARTMENT OF THE NAVY WASHINGTON DC

The invention relates to the deposition of transparent conducting thin films, such as transparent conducting oxides (TCO) such as tin doped indium **oxide** (ITO) and **aluminum** doped zinc **oxide** (AZO) on flexible

Full Text substrates by pulsed laser deposition. The coated substrates are used to construct low cost, lightweight, flexible displays based on organic light emitting diodes (OLEDs).

Field Effect Controlled Photoresistors Based on Chemically Deposited PbS Films Jan 2002 6 pages

Authors: Eugenia Pentia; Lucian Pintilie; Ion Matei; Ioana Pintilie; NATIONAL INST OF MATERIALS PHYSICS BUCHAREST (ROMANIA)

Full Text ... configuration were subsequently deposited by vacuum evaporation on PbS surface (drain and source electrodes). The gate **aluminum** electrode was deposited on the back of the Si substrate. The dependence of the photoconductive signal, generated in ... (2) The possible variation of the majority carriers (holes) life-time due to the electron blocking at the PbS/**oxide** interface when positive gate voltages are applied on the back electrode. Integrated IR detectors with controlled sensitivity in the 800-3000 nm range can be manufactured at a relatively low cost using the PbS/**oxide**/Si MOS-like structure.

BERYLLIUM EROSION CORROSION INVESTIGATION FOR SOLID ROCKET NOZZLES Jun 1967 445 pages

Authors: W. L. Smallwood; PHILCO-FORD CORP NEWPORT BEACH CA SPACE AND RE-ENTRY SYSTEMS DIV

Full Text ... were tested in 5 designs (100 and 500 pound grains) in 25 tests. **Aluminum** analogs were used in 4 tests. Submerged, conventional and steep inlet nozzles were designed ... . Measured nozzle temperatures and ballistic performance were used to determine throat temperature, corrosion and **oxide** deposition histories. Design parameter effects on nozzle and ballistic performance and material ... heat transfer, corrosion and deposition analyses. Standard materials can be used with either beryllium or **aluminum** propellants in properly designed motors. Poor nozzle and ballistic performance relates to incomplete ...

CORROSIVE INFLUENCE OF DIPHENYL ON METALS AND OXIDES (KORROZIONNOE VOZDEISTVIE DIFEENILA NA METALLY I OKISLY) Sep 12, 1967 22 pages

Authors: Yu. F. Bychkov; I. D. Laptev; A. N. Rozanov; FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OH

Full Text ... oxides are subject to the following types of transformations in biphenyl: reduction of oxides and hydroxides to the metal or another **oxide**; formation of hydrides; formation of carbides; and oxidation. Admixture of water to biphenyl in amounts greater than 0.2% was shown to hasten the corrosive failure of **aluminum** A-1 and SAP-1 alloy and lead to intercrystalline corrosion, as well as embrittling and lowering the strength of the metals. Corrosion was also accelerated by sulfur. Admixtures of water do not affect SAP-1 alloy as much as **aluminum** AD-1.

Reflectance and Emittance of Selected Materials and Coatings Jan 13, 1975 58 pages

Authors: Martin Donabedian; AEROSPACE CORP EL SEGUNDO CA ENGINEERING SCIENCE OPERATIONS

Full Text ... reflectance and emittance. Pertinent data which aid in predicting degradation of the solar absorptance in the space environment are also presented. The selected materials include **aluminum** alloy 6061, titanium alloy 6Al-4V, beryllium, various titanium dioxide and zinc **oxide** pigmented (white) coatings, solar cells, optical solar reflectors (second surface mirrors) , using both rigid and flexible substrates, black pigmented coatings, and clear and black anodized **aluminum** coatings.

Physical and Chemical Characterization of Fog Oil Smoke and Hexachloroethane Smoke Jan 1980 128 pages

Authors: Sidney Katz; Alan Snelson; Raleigh Farlow; Roger Welker; Stephen Mainer; IIT RESEARCH INST CHICAGO IL

Full Text The U.S. Army HC smoke generator has been studied, the investigation including the reagent materials, generation process, and the product gases and aerosol smoke. The reagent material consisted of hexachloroethane, zinc **oxide**, **aluminum**. In a series of chamber tests, variations in material composition did not appear to affect the characteristics of the product smoke, but small variations in the **aluminum** concentration did control the rate of the smoke generating reaction.

Total Results: **242** Pages: Previous 1 2 3 **[4]** 5 Next Results per page: 50