

Titel

A review on metallic porous materials: pore formation, **mechanical** properties, and their applications

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Abstrakt

This paper presents a comprehensive review on the mechanism of pore formation, **mechanical** properties, and applications of metallic porous materials. The different manufacturing techniques of metallic porous materials using various pore-forming agents (e.g., sodium **chloride**, polymethyl methacrylate, magnesium, and cenosphere) are highlighted in the first part of this review. Subsequently, the pore formation mechanism and pore morphology in final products as well as corresponding pore-forming agent removal techniques (e.g., sintering-dissolution process, thermally stimulated decomposition, thermally melted elimination, and embedding cenosphere technique) are specifically **discussed**. Then, some major influential factors on the mechanism of pore formation, including pore size, shape, distribution, and porosity, are analyzed in detail. Meanwhile, the primary **mechanical** properties such as compressive strength, elastic modulus, fatigue properties, and flexural strength of metallic porous materials depending on pore morphology and porosity are explored in detail. Furthermore, their applications in structural and functional aspects according to their pore morphology and mechanical properties are emphatically summarized. Finally, this review article highlights some important factors for advanced wear-resistant tool and biomedical implant applications of porous metallic materials.

Veröffentlichungsjahr

2018

Quelle

INTERNATIONAL JOURNAL OF ADVANCED MANUFACTURING TECHNOLOGY

Klassifikation

Automation & Control Systems
Engineering

Schlagworte des Autors

METALLIC POROUS MATERIALS
Pore-forming agents
Fabrication technology
Mechanical property
Application

Thesaurusbegriffe

ALUMINA BUBBLE PARTICLES
SPACE-HOLDER
SINTERING PROCESS
GRINDING WHEELS
HEAT-TRANSFER
COMPRESSIVE PROPERTIES
THERMAL-CONDUCTIVITY
RESIDUAL-STRESSES
FATIGUE BEHAVIOR
STAINLESS-STEEL

Sprache

ENGLISH

Recherchedatum

12.03.2021

Dokument Nr. 1

Titel

Preparation of Iridium fine particle by the effect of **grinding additive**, NaCl

Autor

YOUNGJIN KIM
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Institution

nicht belegt

Abstrakt

To survey on **grinding** properties and preparation of Ir fine powders, the **grinding** of Ir with an **additive**, NaCl, was carried out with the change of mixing ratio. For the **Grinding** for only Ir, the structure of Ir was defected. And also the abrasion from the pot and balls was input the ground mixture due to the intensive **grinding** and high hardness of Ir. While on the other, **grinding** with NaCl, the crystalline of Ir was kept overall and the abrasion was suppressed considerably. Moreover, The fine Ir powders can be prepared from the ground mixture by only acid treatment.

Veröffentlichungsjahr

2010

Quelle

TMS 2010. 139th Annual Meeting & Exhibition. Supplemental Proceedings. Volume 3: General Paper Selections

Klassifikation

nicht belegt

Schlagworte des Autors

nicht belegt

Thesaurusbegriffe

nicht belegt

Sprache

nicht belegt

Recherchedatum

12.03.2021

Dokument Nr. 2

Titel

Element addition effect on hydrogenation and dehydrogenation temperatures of Mg activated by a ball milling process

Autor

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Institution

nicht belegt

Abstrakt

Mg is one of the most promising candidates for hydrogen storage materials because of its huge storage capacity. However, the practical hydrogenation(Th) and dehydrogenation(Td) temperatures of Mg are high, which has been the main difficulty in extending this material to practical applications. In order to lower both Th and Td of Mg, effect of additional **elements** on Th and Td of Mg was examined experimentally. Mg powders with one or some of total 14 **elemental** powders were activated by ball milling with easily-ground **grinding additives** such as sodium **chloride** powder, a method proposed by the authors, and their Th and Td were measured. As a result, Ti(4A group in the periodic table), V(5A) and Fe(8) decreased considerably both Th and Td. In(3B), Si(4B), P(5B) and Co(8) added together with Fe undermined the effectiveness of Fe on the decrease in Th and Td. We found a positive correlation between Th and Td.

Veröffentlichungsjahr

2004

Quelle

Powder Metallurgy World Congress & Exhibition (PM2004)

Klassifikation

nicht belegt

Schlagworte des Autors

nicht belegt

Thesaurusbegriffe

nicht belegt

Sprache

nicht belegt

Recherchedatum

12.03.2021

Dokument Nr. 3

Titel

Titel russisch. Verbesserung der Eigenschaften von **Schleifwerkzeugen** mit Bakelitbindemitteln. Property improvement of **grinding tools** with bakelite bindings.

Autor

RAJT, V.V.
NECHAEVA, T.N.
LAZUKO, N.A.

Institution

nicht belegt

Abstrakt

Festigkeit und **Standzeit** von **Schleifwerkzeugen** mit Bakelitbindemittel, die mit Geschwindigkeiten bis zu 80 m/s arbeiten, koennen durch Heisspressen erheblich gesteigert werden. Hierdurch werden guenstige Bedingungen fuer das Sintern und Haerten des Bindesmittels geschaffen. Verschiedene Methoden fuer das Heisspressen der Werkzeuge werden erortert und in Tabellen Versuchswerte fuer Werkzeuge mit verschiedenen Prozentgehalt von **Schleif-** und Bindemittel aufgefuehrt. Zur Erzielung verschiedener Haerten der Werkzeuge wurde eine Methode erprobt, bei der der Gehalt an Bindemittel durch **Zusatz** von Fuellmaterial in Form porenbildender Stoffe reguliert werden kann. Als solche Porenbilder werden wasserloesliche Salzgranulate wie **Chlorkalium** und wasserloses kohlensaures Natrium angegeben. Tabellen zeigen Versuchsergebnisse mit verschiedenen **Zusaetzen** von Porenbildern. Abschliessend werden nochmals die Vorteile des Heisspressens gezeigt.

Veröffentlichungsjahr

1987

Quelle

Masinostroitel * Band 57 (1987) Heft 7, Seite 26-27 (2 Seiten, 3 Tabellen)

Klassifikation

3LKB Spanende Bearbeitung, Zerspanen, Zerteilen
3L Fertigungstechnik
3KEB Staehle, Stahlguss

Schlagworte des Autors

BINDEMITTEL
STANDZEIT
SCHLEIFEN
SCHLEIFSCHEIBE
SCHNITTGESCHWINDIGKEIT
HAERTEN (METALL)
SINTERN
SCHLEIFMITTEL
PULVERPRESSEN

Thesaurusbegriffe

nicht belegt

Sprache

Russisch

Recherchedatum

12.03.2021

Titel

PHASE-TRANSFORMATIONS OF **FLUORINE-CONTAINING GRINDING DISK FILLERS** UNDER DIFFERENT TYPES OF THERMAL EFFECTS

Autor

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BAMBUROV VG
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KUZMENKO NG

Institution

nicht belegt

Abstrakt

Technical cryolite, used as a binding filler in organic and ceramic bonds in grinding discs, has a strong influence on the effectiveness of the grinding process. The physicochemical processes responsible for this effect at the stage of manufacturing the abrasive mixture and under thermal effects during operation were studied. The binding properties of cryolite fillers of different moduli and the amount of volatile fluoride compounds they give off when they are used depend on the firing schedule and the composition of the fluoaluminate.

Veröffentlichungsjahr

1982

Quelle

INORGANIC MATERIALS

Klassifikation

Materials Science

Schlagworte des Autors

nicht belegt

Thesaurusbegriffe

nicht belegt

Sprache

ENGLISH

Recherchedatum

12.03.2021

Dokument Nr. 5

Titel

Zeta potential-tunable silica **abrasives** and **fluorinated** surfactants in chemical **mechanical** polishing slurries

Autor

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Han Deoksu
Jang Keon-Soo

Institution

nicht belegt

Abstrakt

Chemical **mechanical** planarization (CMP) is a vital process for smoothing and polishing the surfaces of various material layers in the semiconductor device fabrication. CMP slurries, chiefly composed of **abrasives** and various chemicals, play a key role in the planarization performance owing to the synergistic effects. Wafer quality must be investigated simultaneously with the planarization performance, because **mechanical** and chemical defects on wafer surfaces inevitably occur during the CMP process and should be avoided for yield enhancement. In this study, the planarization performance of dielectric layers (SiO₂) was considerably improved while maintaining low wafer defect density, avoiding the trade-off between planarization performance and wafer defect density. The balanced performance was achieved via the combination of the tailoring of the zeta potential of colloidal silica nanoparticles (CSNs) and the decrease of defect concentration using **fluorinated** surfactant (FS)-induced intermolecular repulsion between the wafer surfaces and the additives. High-quality wafer surfaces with rare defect, low surface roughness, and no contamination (fungus and bacteria) were thus achieved. The combination of aminosilane treatment and FS effects investigated in this study can enhance the planarization performance while maintaining low defect/contaminant density not only for CMP slurries but also for various other polishing/abrasion applications.

Veröffentlichungsjahr

2021

Quelle

WEAR

Klassifikation

nicht belegt

Schlagworte des Autors

nicht belegt

Thesaurusbegriffe

nicht belegt

Sprache

nicht belegt

Recherchedatum

12.03.2021

Dokument Nr. 6

Titel

Metal adhesion issues in dry **grinding**: The role of active **fillers**.

Autor

VERNHET, L.
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KAPSA, P.

Institution

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Abstrakt

The dry **grinding** of metals is a common machining **operation**. The main issue with such techniques is metal adhesion on the **abrasive tool**, which decreases the material removal rate. In this work, the effect of active **filler** metal loading with materials such as **cryolite** and KBF₄, which are present in the resin of commercial **abrasive** belts, was studied. **Grinding** belt experiments and friction tests were performed with carbon and stainless steel and with belts containing zirconia-reinforced-alumina grains, as well as active **fillers**. The tests were followed by SEM-EDX, TEM or XPS characterizations of the belts and ceramic pieces. Different behaviors were observed for different types of metal, as stainless steel is more sensitive to loading than carbon steel, and because active **fillers** have a stronger positive effect against metal adhesion, such as in the case of stainless steel. Then, a **fluorine** based layer, derived from the active **fillers**, was found at the interface between the grain and the metallic transfer. This layer likely limits the adhesion of metal on the grain and decreases the contact friction, as well as the specific grinding energy (SGE). The corrosion of alumina in the abrasive grains by active fillers was also observed near contact temperatures. Finally, the results are discussed to gain a better understanding of different active filler action mechanisms taking place during the steel grinding process. Copyright Elsevier B.V. Reproduced with permission.

Veröffentlichungsjahr

2016

Quelle

Wear - An International Journal on the Science and Technology of Friction, Lubrication and Wear * Band 346-347 (2016) Seite 46-55 (10 Seiten, 25 Quellen)

Klassifikation

3MD Tribologie
3LKB Spanende Bearbeitung, Zerspanen, Zerteilen
3KXW Oberflaecheneigenschaften

Schlagworte des Autors

Stahl
technische Keramik
Elektronenmikroskopie
Oberflaechenanalyse
rostfreier Stahl
Adhaesion
Abschleifmittel
Kohlenstoff
Zirkoniumaluminat
Kohlenstoffstahl
Fluor
Aluminiumoxid
Schleifkorn
Produktionsprozess
Maschinenbetrieb
Reibungsversuch
Korrosion
Schleifwerkzeug

Thesaurusbegriffe

ALUMINUM PRODUCTION
TEMPERATURE
CORROSION
ZIRCONIA
FRICTION
WEAR

Sprache

Englisch

Recherchedatum

12.03.2021

Dokument Nr. 7

Titel

Application of Different Analytical Methods Used in the Study of the Cross-linking of Resins in Intermediate-Product Used in Manufacturing of **Abrasive** Articles

Autor

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Abstrakt

Determining the degree of the crosslinking of resins in intermediate-product used in the manufacturing of **abrasive** articles is difficult and complicated because of the presence of different components in the material. The **abrasive** articles consist of **abrasive** (e.g., fused alumina), **filler** (e.g., **potassium fluoroborate-KBF4**, pyrite-FeS2), wetting agent (e.g., resol), and binder (e.g., novolak). Proper hardening of intermediate-product is a very important stage during production of **abrasive tools**. The hardening process depends on crosslinking of resins. Following were used to study crosslinking of resins: IGC, washing away method, NMR broad line, DSC, and FTIR methods. (C) 2009 Wiley Periodicals, Inc. *J Appl Polym Sci* 112: 3305-3312, 2009

Veröffentlichungsjahr

2009

Quelle

JOURNAL OF APPLIED POLYMER SCIENCE

Klassifikation

Polymer Science

Schlagworte des Autors

CHROMATOGRAPHY
crosslinking
FT-IR
NMR
resins

Thesaurusbegriffe

INVERSE GAS-CHROMATOGRAPHY
NETWORKS

Sprache

ENGLISH

Recherchedatum

12.03.2021

Dokument Nr. 8

Titel

Polymorphism of ZrO(2) Nanopowders and Mechanochemical Synthesis of Zr(0.88)Sc(0.1)Ce(0.01)Y(0.01)O(1.955)

Autor

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Institution

nicht belegt

Abstrakt

The structure of ZrO(2) powders prepared by dehydration of zirconium hydroxide and milling (including techniques with the introduction of **grinding additives**, such as **NaF**, **CaF(2)**, diamond, and Cu) was investigated using x-ray powder diffraction and Raman spectroscopy. Samples containing crystallites with the smallest size were synthesized in the presence of copper **additives**. Ceramic powders of the composition Zr(0.88)Sc(0.1)Ce(0.01)Y(0.01)O(1.955) with an improved quality for the use as solid electrolytes in fuel cells were prepared by the mechanochemical synthesis from nanoprecursors and then were characterized. An analysis of the X-ray powder diffraction patterns revealed that the symmetry of the structure of strongly aggregated nanopowders of metastable zirconia increases as a result of twinning, which is favored by a high concentration of vacancies.

Veröffentlichungsjahr

2008

Quelle

INORGANIC MATERIALS

Klassifikation

nicht belegt

Schlagworte des Autors

nicht belegt

Thesaurusbegriffe

nicht belegt

Sprache

nicht belegt

Recherchedatum

12.03.2021

Dokument Nr. 9

Titel

Characterization of **fillers** used in **abrasive** articles by means of inverse gas chromatography and principal component analysis. Charakterisierung von **Fuellstoffen** in **abrasiven** Erzeugnissen durch inverse Gaschromatographie und Analyse der Hauptkomponenten.

Autor

VOELKEL, ADAM
STRZEMIECKA, BEATA

Institution

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Abstrakt

Abrasive articles consists of **cutting** particle - very often from electrocorundum, **filler** - inorganic compound, e.g. **potassium fluoroborate** or **cryolite**, binder - novolak resin and wetting agent - resol. The most important stages during manufacturing of **grinding tools** are: the coverage of the **abrasive** by wetting agent and proper hardening. The **fillers** play a very important role during the work of the **grinding tools** - they collect the heat and prevent the melting of resin. The surface properties of the components of **grinding tools** influence the interactions between them and the properties of the final product. Surface properties of different kinds of the **fillers** were examined by means of inverse gas chromatography (IGC). Dispersive component of the surface free energy gammaSD) at relative humidities: 30%, 60% and 90% and at various temperatures: 278, 283, 288 and 293 K was determined. It provided the data on stability of the **fillers** during their storage and/or weathering. The influence of the type of the **filler** on the hardening process by differential scanning calorimetry (DSC) was also studied. Principal component analysis (PCA) was applied to search the influence of the temperature and humidity onto the gammaSD) values for various fillers. This analysis showed that changes of the surface properties of fillers are significant at higher humidity close to 90%. Furthermore, PCA demonstrated that the type of filler does not influence meaningfully the hardening process. This approach has shown usefulness of IGC and calorimetric methods in studying the properties of abrasive articles as well as PCA in the interpretation of physicochemical characteristics of abrasive materials. Copyright Elsevier B.V. Reproduced with permission.

Veröffentlichungsjahr

2007

Quelle

International Journal of Adhesion and Adhesives * Band 27 (2007) Heft 3, Seite 188-194 (7 Seiten, 4 Bilder, 5 Tabellen, 30 Quellen)

Klassifikation

3LKB Spanende Bearbeitung, Zerspanen, Zerteilen
3KMZ Zuschlagstoffe
3KXW Oberflaecheneigenschaften
3IDC Physikalisch-chemische Messverfahren

Schlagworte des Autors

Schleifkoerper
Fuellstoff
Gaschromatographie
Oberflaecheneigenschaft
Oberflaechenenergie
Feuchtegehalt
Temperatureinfluss
Waermekapazitaet
Differentialrasterkalorimetrie
Aushaerten (Polymer)
thermodynamische Eigenschaft

Thesaurusbegriffe

SURFACE FREE-ENERGY
ADSORPTION
POLARITY
BINDER

Sprache

Englisch

Recherchedatum

12.03.2021

Dokument Nr. 10

Titel

An investigation on solid lubricant moulded **grinding wheels**.

Autor

SHAJI, S.
RADHAKRISHNAN, V.

Institution

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Abstrakt

This paper deals with investigations on solid lubricant moulded **grinding wheels** by including lubricant in the **wheel** structure during the moulding stage. Trials were done to develop **wheels** of vitrified and resin bonding with various compositions of solid lubricants. Beside graphite, CaF₂, which is also a commonly used high temperature solid lubricant, has been tried. Trials to make such **wheels** with vitrified bonding failed due to higher vitrifying temperature and non-availability of a good reduction furnace for firing. The effectiveness of lubricants was evident from the improved process results related to friction. The **wheel** wear depended on the type of the lubricant used. It was higher with graphite and lower with CaF₂. Saturation in lubricant effectiveness could be observed on increase of the quantity of lubricant. Copyright Elsevier B.V. Reproduced with permission.

Veröffentlichungsjahr

2003

Quelle

International Journal of Machine Tools and Manufacture * Band 43 (2003) Heft 9, Seite 965-972 (8 Seiten, 7 Bilder, 1 Tabelle, 25 Quellen)

Klassifikation

3LKB Spanende Bearbeitung, Zerspanen, Zerteilen

Schlagworte des Autors

Schleifscheibe
Trockenschmiermittel
Calciumfluorid
Graphit
Versuch
praktische Untersuchung
Kuehlschmierstoff
Bindung
anorganisches Bindemittel

Thesaurusbegriffe

nicht belegt

Sprache

Englisch

Recherchedatum

12.03.2021

Dokument Nr. 11

Titel

Hydrogen generation from splitting water with Al-Bi(OH)(3) composite promoted by NaCl

Autor

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Wang Hongbo
Dong Shijie
Luo Ping

Institution

nicht belegt

Abstrakt

In this paper, a novel Al-Bi(OH)(3) system hydrogen-generating material is investigated. Hydrolysis experiments show that the hydrolysis properties of the Al-10 wt% Bi(OH)(3) composite are significantly improved by doping with sodium **chloride**, and the Al-10 wt% Bi(OH)(3)-5 wt% NaCl composite has a low activation energy (10.4 kJ mol(-1)). With the further optimization of milling time, the hydrogen yield of Al-10 wt% Bi(OH)(3)-5 wt% NaCl composite reaches 1000 mL g(-1) in 1 min. X-ray diffraction, X-ray photoelectron spectroscopy, scanning electron microscopy, energy-dispersive spectroscopy and thermogravimetric analysis are applied to characterize the composite and explore the hydrolysis mechanism. The characterization results show that the activation of aluminum mainly comes from three factors: (1) The formation of alumina during ball milling plays an important role in preventing the agglomeration between Al-Bi, Al-Al and Bi-Bi; (2) Bismuth generated during ball milling can form micro-galvanic cell with aluminum to promote the corrosion of aluminum; (3) Sodium chloride as a grinding aid contributes to crush aluminum powder, and chloride ions facilitate the corrosion of aluminum in the hydrolysis process. In addition, the drying method and initial water temperature have a great influence on by-products. The composite is expected to be used in mobile emergency fuel cell due to its rapid hydrogen production capacity. (C) 2020 Hydrogen Energy Publications LLC. Published by Elsevier Ltd. All rights reserved.

Veröffentlichungsjahr

2020

Quelle

INTERNATIONAL JOURNAL OF HYDROGEN ENERGY

Klassifikation

nicht belegt

Schlagworte des Autors

nicht belegt

Thesaurusbegriffe

nicht belegt

Sprache

nicht belegt

Recherchedatum

12.03.2021

Dokument Nr. 12

Titel

Aluminum nanoparticles manufactured using a ball-milling method with ammonium **chloride** as a **grinding aid**: achieving energy release at low temperature

Autor

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Wang Fang
Xia Debin
Li Mengru
Qiang Liangsheng
Zhu Zhaoyang
Wang Ping
Fan Ruiqing
Lin Kaifeng
Yang Yulin

Institution

nicht belegt

Abstrakt

Aluminum nanoparticles are widely employed in many fields. However, methods for producing aluminum nanoparticles on a large scale are limited. In this work, we introduce a facile method for manufacturing nanosized aluminum powders on a hundred-gram scale. The key reagents used are ammonium **chloride** and aluminum(iii) acetylacetone, employed as a **grinding aid** and surface passivation agent, respectively. The obtained aluminum nanoparticles present excellent stability and are fully characterized by thermogravimetric analysis, X-ray diffraction, scanning electron microscopy, transmission electron microscopy, X-ray photoelectron spectroscopy, and nitrogen adsorption-desorption isotherms. Well-formed aluminum nanoparticles with average particle sizes of approximately 30 nm and high specific surface areas of over 30 m² g⁻¹ can be obtained using the optimal ball-milling reaction time. In this case, the initiation temperature of oxidation was observed at approx. 150 degrees C and the weight increased by approx. 39% when heated under an air atmosphere. Furthermore, these aluminum nanoparticles achieved quick combustion and a flame temperature of over 1100 degrees C, which have not been observed using micron aluminum powders. This work provides a facile method for the industrial manufacture of high-quality nanosized aluminum powders.

Veröffentlichungsjahr

2019

Quelle

NEW JOURNAL OF CHEMISTRY

Klassifikation

nicht belegt

Schlagworte des Autors

nicht belegt

Thesaurusbegriffe

nicht belegt

Sprache

nicht belegt

Recherchedatum

12.03.2021

Titel

Experimental studies using minimum quantity **cooling** (MQC) with **molybdenum** disulfide and graphite-based microfluids in **grinding** of Inconel® alloy 718.

Autor

WOJTEWICZ, MICHAL
NADOLNY, KRZYSZTOF
KAPLONEK, WOJCIECH
ROKOSZ, KRZYSZTOF
MATYSEK, DALIBOR
UNGUREANU, MIORITA

Institution

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Faculty of Mining & Geology, VSB-TU Ostrava, CZ
North University Center, Technical University of Cluj-Napoca, Baia Mare, RO

Abstrakt

In the paper, the results of experimental studies related with determination of the influence of the supply of a **grinding** fluid (GF) doped with powdered graphite and MoS₂ into the machining zone with the minimum quantity **cooling** (MQC) method on the course and results of the reciprocating internal cylindrical **grinding** of rings made from Inconel® alloy 718 have been presented. As a **grinding** fluid, water aerosols were used. The aerosols delivered the following into the **grinding** zone: water slurry MoS₂ with a concentration of 30 g/dm³, water slurry of graphite with a concentration of 30 g/dm³, 5% water solution of Syntilo RHS oil and pure demineralized water. The obtained results of carried out experiments showed that the most favorable conditions of **grinding wheel operation** were obtained when MQC-based delivering an aerosol of water slurry made from demineralized water doped with MoS₂ and graphite with a minimum flow rate and when delivering an aerosol of 5% water slurry of Syntilo RHS oil. It was proved that doping GF with powdered MoS₂ and graphite, with delivery in the form of an aerosol with a minimum flow rate, has a substantial influence on the intensity of clogging grinding wheel active surface (GWAS). Additionally, it has been demonstrated that the solid grease MoS₂ and graphite particles reached the area of contact of the GWAS and the machined surface effectively, actively influencing its tribological conditions of the grinding process.

Veröffentlichungsjahr

2019

Quelle

International Journal of Advanced Manufacturing Technology * Band 101 (2019) Heft 1-4, Seite 637-661 (25 Seiten)

Klassifikation

3LKB Spanende Bearbeitung, Zerspanen, Zerteilen
3MD Tribologie
3LKG Chemisches und elektrochemisches Abtragen

Schlagworte des Autors

Schleifen
Rauigkeit
Aerosol
Graphit
Schleifflüssigkeit
demineralisiertes Wasser
Molybdändisulfid
Inconel
Versorgung
Schleifscheibe
experimentelle Untersuchung
Eingriffsfeld

Thesaurusbegriffe

active surface
bearbeitete Oberfläche

Sprache

Englisch

Recherchedatum

12.03.2021

Dokument Nr. 14

Titel

Impact of **chloride grinding aid** with modified fly ash using topdown nanotechnology on **grinding** performance

Autor

KRISHNARAJ L.
Ravichandran P. T.

Institution

nicht belegt

Abstrakt

The influence of **Grinding Aid** (GA) and **Grinding** Performance (GP) on Raw Fly Ash (RFA) have been analyzed by solid state route to obtain **Chloride** based Ground Fly Ash (CGFA). Particle size distributions of RFA and CGFA are studied and GP optimization occurred at 120 min. Crystal structures are examined by X-ray Diffraction (XRD) and found to be multiphasic. Crystallite size and microstrain measured using Williamson-Hall plot (from XRD pattern) reveal that reduction in size and lattice gets strained. Microstructure obtained by Scanning Electron Microscope (SEM) shows <5 μm grain size with a spherical shape. Normal consistency found to be increased for both RFA and CGFA when compared to a control sample, whereas setting time is getting increased for RFA and decreased for CGFA. In addition, optimized compressive strength of RFA (15%) and CGFA (45%) blended cement composite mortar shows the higher strength of 6% and 7% respectively. The ball mill **grinding** process using **chloride** based **grinding** aids can be adopted at high volume replacement of fly ash in cement manufactory. (C) 2018 Elsevier Ltd. All rights reserved.

Veröffentlichungsjahr

2019

Quelle

CONSTRUCTION AND BUILDING MATERIALS

Klassifikation

nicht belegt

Schlagworte des Autors

nicht belegt

Thesaurusbegriffe

nicht belegt

Sprache

nicht belegt

Recherchedatum

12.03.2021

Dokument Nr. 15

Titel

Tribological performance of ionic liquids as **additives** of water-based **cutting** fluids.

Autor

DEL SOL, I.
GAMEZ, A.J.
RIVERO, A.
IGLESIAS, P.

Institution

Universidad de Cadiz, Puerto Real, ES
Fundacion Tecnalia Research & Innovation, of Guipuzkoa, Donostia-San Sebastian, Guipuzcoa, ES
Department of Mechanical Engineering, Rochester Institute of Technology, NY, US

Abstrakt

Dry machining of aluminum parts has been the most eco-friendly method in an attempt to reduce the use of mineral-based lubricants and other working fluids. The drawbacks of dry machining include an increase of contact temperatures and stresses leading to high values of **tool** wear and a decrease of the **tool life**. For this reason, more sustainable lubricants are needed as a middle point between waste generation and **tool life**. Since 2001, Ionic Liquids (ILs) have attracted interest as high-performance lubricants and lubricant **additives**. In this work, the lubricating ability of one **halogen-containing** and two **halogen-free** ILs used as **additives** in water has been investigated and compared to a **halogen-containing cutting** fluid (CF). Tests were performed using a pin-on-disk tribometer for aluminum-tungsten carbide pair. The worn surfaces of the **disks** and balls were analyzed by optical and scanning electron microscopies, non-contact 3D profilometry and energy dispersive X-ray spectroscopy. It was found that the addition of 1 wt% of one of the halogen-free ILs reduces friction and wear of both aluminum disks and ceramic balls with respect to dry or water-lubricated conditions. In addition, no wear was detected on the ball surface, therefore increasing the tool life compared to the CF. Copyright Elsevier B.V. Reproduced with permission.

Veröffentlichungsjahr

2019

Quelle

WOM, International Conference on Wear of Materials, 22, in: Wear - An International Journal on the Science and Technology of Friction, Lubrication and Wear * Band 426-427 (2019) Heft PA, Seite 845-852 (8 Seiten, 40 Quellen)

Klassifikation

3MD Tribologie
3LKB Spanende Bearbeitung, Zerspanen, Zerteilen
3KXW Oberflaecheneigenschaften

Schlagworte des Autors

ionische Fluessigkeit
Kuehlschmierstoff
Schmierung
Halogene
Standzeit
Abrasion
Aluminium
Wasserzusatzmittel
Temperaturanstieg
Werkzeugverschleiss
Aluminiumcarbid
Mineral
Arbeitsfluessigkeit
Schmiermitteladditiv
Schmiermittel
Verschleissflaeche
Verschleissverhalten

Thesaurusbegriffe

middle point

Sprache

Englisch

Recherchedatum

12.03.2021

Dokument Nr. 16

Titel

Ciecz szlifierskie do materialow ceramicznych. Cz. III. Wplyw dodatku **chlorowanych** węglowodorow i estrow organicznych na stepianie sie diamentowej tarczy szlifierskiej przy obrobce ceramiki Si3N4. **Grinding** fluids for ceramic materials. Part 3. Effect of addition of **chlorinated** hydrocarbons and organic esters on the blunting a diamond **grinding wheel** during machining Si3N4 ceramics.

Autor

WU, Z.
WANG, S.
WANG, L.
TANG, X.
YANG, J.
TIAN, X.

Institution

PLA Academy of Armored Forces Engineering, Beijing, CN

Abstrakt

Butyl stearate, glycerol triacetate and trioleate, liquid and **chlorinated** paraffins, methyl tetrachloride, tetrachloroethane, ethyl orthosilicate, tributyl phosphate and trimethyl borate were added (3% by mass) to the liquid paraffin and an emulsifier-containing (7% by mass and 0.5% by mass, respectively) aqueous **grinding** fluid used for machining silicon nitride plates with a diamond **abrasive wheel**. The addition of **chlorinated** paraffin had no significant effect on **grinding wheel** blunting while the addition of esters resulted in limiting the phenomenon. The compounds with the carbon chain length near to 18 and similar polarity to the ceramics showed the best anti-clogging ability. Use of a mixture of silicon, phosphorus and/or boron-containing short-chain esters gave not always an advantageous synergic effect.

Veröffentlichungsjahr

2016

Quelle

Przemysl Chemiczny * Band 95 (2016) Heft 11, Seite 2300-2307 (8 Seiten, 2 Bilder, 5 Tabellen, 25 Quellen), continued from No. 11

Klassifikation

3KGG Keramik, Glaskeramik, Feuerfest-Werkstoffe
3LKB Spanende Bearbeitung, Zerspanen, Zerteilen
3MD Tribologie
3PLG Herstellung von organischen chemischen Endprodukten

Schlagworte des Autors

Siliciumnitridkeramik
Feinschleifen
Diamantschleifscheibe
Butylester
Glycerinester
chloriertes Paraffin
Paraffinoel
Tetrachlorkohlenstoff
Tetraethylorthosilikat
Tributylphosphat
Borsaeuretrimethylester
Oberflaecheneigenschaft
Schleifschlamm

Thesaurusbegriffe

nicht belegt

Sprache

Englisch

Recherchedatum

12.03.2021

Dokument Nr. 17

Titel

Grinding fluids for ceramic materials. Part 2*. Effect of addition of alcohols, organic acids, **chlorinated** hydrocarbons and surfactants on the surface quality of Si3N4 ceramics

Autor

WU ZY

Wang SH

Wang L

Tang XJ

Yang JW

Tian XL

Institution

Acad Armored Force Engn, Beijing, Peoples R China.

Abstrakt

Linear C-chain chemicals (n-caprylic acid, n-octanol, octane, oleic acid, oleyl alc. and liq. paraffin), extreme pressure **additives** (CCl4, tetrachloroethane, **chlorinated** paraffin and org. silicone) as well as surfactants (glycerol, polyethylene glycol 400 and Tween 80) were added to the **grinding** fluid used then for **grinding** Si3N4 plates. The addn. of alcs. resulted in an improvement of the plate surface quality. The addn. of acids and extreme pressure **additives** resulted in decreasing the surface quality. The addn. of surfactants alleviated the blocking on the surface of the **grinding wheel** and improved the surface quality of ceramics. The presence of deep scratches was closely related to the blockage of **grinding wheels**.

Veröffentlichungsjahr

2016

Quelle

PRZEMYSŁ CHEMICZNY

Klassifikation

Chemistry

Engineering

Schlagworte des Autors

nicht belegt

Thesaurusbegriffe

MACHINING PARAMETERS

Sprache

POLISH

Recherchedatum

12.03.2021

Dokument Nr. 18

Titel

Grinding fluids for ceramic materials. Part 3*. Effect of addition of **chlorinated** hydrocarbons and organic esters on the blunting a diamond **grinding wheel** during machining Si₃N₄ ceramics

Autor

WU ZY

Wang SH

Wang L

Tang XJ

Yang JW

Tian XL

Institution

Acad Armored Force Engn, Beijing, Peoples R China.

Abstrakt

Bu stearate, glycerol triacetate and trioleate, liq. and **chlorinated** paraffins, CCl₄, tetrachloroethane, Et₃SiO₄, Bu₃PO₄ and Me₃BO₃ were added (3% by mass) to the liq. paraffin and an emulsifier-contg. (7% and 0.5% by mass, resp.) aq. **grinding** fluid used for machining Si₃N₄ plates with a diamond **abrasive wheel**. The addn. of **chlorinated** paraffin had no significant effect on **grinding wheel** blunting while the addn. of esters resulted in limiting phenomenon. The compds. with the C chain length near to 18 and similar polarity to the ceramics showed the best anti-clogging ability. Use of a mixt. of Si, P and/or B-contg. short-chain esters gave not always an advantageous synergic effect.

Veröffentlichungsjahr

2016

Quelle

PRZEMYSŁ CHEMICZNY

Klassifikation

Chemistry

Engineering

Schlagworte des Autors

nicht belegt

Thesaurusbegriffe

DESIGN

Sprache

POLISH

Recherchedatum

12.03.2021

Dokument Nr. 19

Titel

Influence of solid lubricants on reducing friction and wear caused by sand contaminating greases.

Autor

HASOUNA, A.T.
SAMY, A.M.
ALI, W.Y.

Institution

Minia University, EG
Taif University, Hawiya, SA

Abstrakt

In the present work, the solid lubricants such as **molybdenum** disulphide (MoS₂), graphite (C), polytetrafluoroethylene (PTFE), calcium hydroxide Ca(OH)₂, and polar **additive** {copper quinolinolate (CuC₁₈H₁₂O₂N₂)} were used as solid lubricants dispersed in lubricating greases. Performance tests were carried out using two **disc** machine. A comparison performance was conducted using Air Cleaner Fine Test Dust (ACFTD) as an **abrasive** contaminant. Besides, the possibility of polymeric powders as solid lubricants was investigated. Four common types, low density polyethylene (LDPE), high density polyethylene (HDPE), polytetrafluoroethylene (PTFE), and polymethyl methacrylate (PMMA) of (0 - 50 µm) particle size were used as thickener for lithiumbased grease at concentration of 10 wt %. The test results show that, grease free of solid lubricants had the lowest friction coefficient, while grease dispersed by solid lubricants displayed an increase in viscosity and consequently friction increased. In the presence of sand particles contaminating the grease, Ca(OH)₂ displayed the lowest friction followed by CMOC, MoS₂ and C, while CMOC displayed the lowest wear followed by Ca(OH)₂, MoS₂ and graphite for grease free of sand particles. Presence of sand particles significantly increased wear. Addition of Ca(OH)₂ significantly decreased the abrasive action of sand particles. LDPE displayed the highest friction coefficient followed by HDPE, PTFE then PMMA. Friction increase observed for LDPE may be attributed to its adhesion into the sliding surfaces. The lowest friction was observed for PMMA, where its particles rolled on the contact surfaces. The values of friction coefficient displayed by polymeric materials were ranked in the same order of their location in the triboelectric series. The lowest wear scar width was obtained from the test specimens lubricated by grease containing PTFE and HDPE, while PMMA displayed the highest wear scar width. In addition, the ranking of polymeric materials in reducing wear caused by sand particles predicts that the ability of polymeric particles depends on their adherence to the surfaces of sand particles and contact area. Knowing that the force of adhesion depends on the amount of electric charge generated during friction adherence, it can be recommended to select the polymeric materials according to their triboelectrification properties.

Veröffentlichungsjahr

2012

Quelle

Tribologie und Schmierungstechnik * Band 59 (2012) Heft 2, Seite 42-47 (6 Seiten, 12 Bilder, 32 Quellen)

Klassifikation

3MD Tribologie
3KK Organische Werkstoffe, Polymerwerkstoffe
3KGB Minerale, natuerliche und synthetische Kristalle, Gesteine
3BB Mechanik von Festkoerpern, Fluessigkeiten und Gasen

Schlagworte des Autors

Festschmierstoff
Reibung
Verschleissminderung
Schmierfett
Sand
Kontamination
Molybdaendisulfid
Graphit
PTFE (Polytetrafluorethylen)
Calciumhydroxid
Polyethylen niedriger Dichte
Polyethylen hoher Dichte
PMMA (Polymethylmethacrylat)
Viskositat
Reibungskoeffizient

Thesaurusbegriffe

Verschleissnarbe

Sprache

Englisch

Recherchedatum

12.03.2021

Dokument Nr. 20

Titel

Solid lubricants in machining. Festschmierstoffe in der spanenden Bearbeitung.

Autor

KRISHNA, P. VAMSI
SRIKANT, R.R.
RAO, D. NAGESWARA

Institution

GITAM University, Visakhapatnam, IN
Andhra University, Visakhapatnam, IN

Abstrakt

Cutting fluids have been the conventional choice to reduce friction in machining. However, due to their inherent disadvantages, **cutting** fluids are avoided. As an alternative, solid lubricants are being currently used in machining. Solid lubricants have no pathogenic history and hence do not pose any health hazards to workers. Further, they are readily available and biodegradable. Several studies are reported to confirm the applicability of solid lubricants in machining. In the **grinding** process, graphite and CaF₂ solid lubricants are used in different forms while machining medium-hard and hard materials. Modes of application include fine powder supplied at the **grinding** zone, mixed with mineral oil, and supplied in paste form at the **grinding** zone. In another study, solid lubricants are mixed in a **grinding wheel** at the moulding stage. In all the cases, process performance is improved with solid lubricants compared to wet and dry machining. Hence, depending on the workpiece material and other process parameters like feed, speed, depth of cut, grit size, wheel bonding, etc., the type of solid lubricant and mode of application have to be selected. In milling, graphite and MoS₂ solid lubricants are used by some of the researchers; they are applied in powder form at the machining zone. In all the cases, solid lubricants showed improved process performance in terms of cutting forces, specific energy, and surface roughness. Continuous supply of a solid lubricant at the machining zone with optimum flowrate is the key parameter in the milling process. Graphite, CaF₂, MoS₂, and boric acid are widely used in the turning process in different modes of applications. Fine powders are supplied to the machining zone, mixed with oils and supplied in minimum quantity. Solid lubricants are also used in the fabrication of tool itself, micro-holes are drilled in the tool, and solid lubricant is filled in that hole, or solid lubricants are coated on the cutting tools. Whatever may be the mode of application, solid lubricants improved machining performance compared to wet and dry machining. In drilling, graphite is mixed with mineral oil and supplied at the machining zone electrostatically. Supply of lubricant to the machining zone and removal of the scarf play a crucial role in drilling. Due to the numerous advantages offered in terms of machining performance and ecology, solid lubricants are becoming increasingly popular as an alternative to conventional cutting fluids in machining. Although many works on application of solid lubricants in machining have been reported, plenty of scope still exists in developing new solid lubricant supply systems for achieving better machining performance and improved ecology.

Veröffentlichungsjahr

2011

Quelle

Proceedings of the Institution of Mechanical Engineers, Part J (Journal of Engineering Tribology) * Band 225 (2011)
Heft 4, Seite 213-227 (15 Seiten, 15 Bilder, 28 Quellen)

Klassifikation

3LKB Spanende Bearbeitung, Zerspanen, Zerteilen
3MD Tribologie

Schlagworte des Autors

Schneidoel
Festschmierstoff
Graphit
Calciumfluorid
Molybdaendisulfid
Borsaeure
Zerspanungspruefung
Rauheit
Schleifen
Fraesen
Bohren (Spanen)
Drehen (Bearbeitung)
OEkologie

Thesaurusbegriffe

nicht belegt

Sprache

Englisch

Recherchedatum

12.03.2021

Dokument Nr. 21

Titel

Titel russisch. Chemisches Polieren von Titan. I. Einfluss der Konzentration der Loesung auf die Prozessparameter der chemischen Polierung von Titan. Titanium chemical polishing. I. Influence of solution concentration on parameters of chemical polishing process of titanium.

Autor

DOGADKINA, E.V.
DONTSOV, M.G.
PARFENYUK, V.I.

Institution

Ivanovo State University of Chemistry and Technology, RU

Abstrakt

Die chemische Polierung von Titan erfolgte in Loesungen auf Basis von Ammoniumfluorid/**Fluorwasserstoff** und Hydroxylamin/**Chlorwasserstoff**. Der Einfluss des Titangehaltes im Elektrolyten auf die Wirksamkeit des Polierprozesses wurde untersucht; der Titangehalt lag zwischen 5 und 15 g Titan in einem Liter Loesung. Die elektrochemischen Parameter des Verhaltens von Titan in Loesung wurden unter Verwendung von stationaeren und rotieren Elektroden bestimmt. Die im Elektrolyten geloesten Titan-Ionen vermindern die Wirksamkeit des Polierprozesses, bedingt durch eine geringere Geschwindigkeit der anodischen und kathodischen Prozesse. Diffusionsstroeme fuehren in frisch bereiteten Loesungen zu einer Erhoehung der Potenzialdifferenz zwischen verschiedenen Bereichen der Oberflaeche. In Loesungen mit einem hohen Anteil an Titan-Ionen wird eine Erniedrigung der Potenzialdifferenz beobachtet.

Veröffentlichungsjahr

2011

Quelle

Izvestija VUZ, Khimiya i Khimicheskaya Tekhnologiya * Band 54 (2011) Heft 3, Seite 65-68 (4 Seiten, 3 Bilder, 2 Tabellen, 10 Quellen)

Klassifikation

3LKG Chemisches und elektrochemisches Abtragen

Schlagworte des Autors

Polierprozess
Oberflaechenveredlung
Titan
Hydroxylamin
Ammoniumfluorid
Loesung (Chemie)
Ionenkonzentration
Elektrolyt
Elektropolieren
rotierende **Scheibe**
elektrochemische Eigenschaft
Reaktionsgeschwindigkeit
Diffusionskontrolle
Oberflaechenbeschaffenheit
Potenzialdifferenz

Thesaurusbegriffe

nicht belegt

Sprache

Russisch

Recherchedatum

12.03.2021

Dokument Nr. 22

Titel

Fineblanking with non-chlorinated lubricants.

Autor

KLOCKE, FRITZ
MAssMANN, THOMAS CHRISTOPH
ZEPPENFELD, CHRISTOPH
SCHMIDT, ROLF ALBRECHT
SCHULZ, JOACHIM
MUMME, F.

Institution

RWTH Aachen, DE
Feintool Technologie, Lyss, CH
WISURA Mineraloelwerk Goldgrabe & Scheft, Bremen, DE
Oerlikon Balzers Coating, Bingen am Rhein, DE

Abstrakt

This paper describes the development of new non-chlorinated lubricants for fineblanking applications. Therefore the action mechanisms of **chlorinated** paraffins and of several other EP (extreme pressure) and AW (antiwear) **additives** have been characterised using pin-on-disc tests, microanalysis and wetting tests. The effect of **chlorinated** paraffin was found to be more physical in nature as assumed before. No chemical reactions between **chlorinated** paraffin and test pieces could be determined. The reaction products of other **additives** mainly consisted of metal oxides. By replacing **chlorinated** paraffins with other physically acting agents like esters and emulsifiers **chlorinated** lubricants could be replaced in several fineblanking **operations**.

Veröffentlichungsjahr

2008

Quelle

Tribologie und Schmierungstechnik * Band 55 (2008) Heft 4, Seite 33-38 (6 Seiten, 10 Bilder, 1 Tabelle, 22 Quellen)

Klassifikation

3LKB Spanende Bearbeitung, Zerspanen, Zerteilen
3MD Tribologie

Schlagworte des Autors

Feinschneiden
Schmiermittel
Schmiermittelzusatz
Bearbeitungswerkzeug
Schneidstoff
Kaltumformen
Stahl
Formgebungswerkzeug

Thesaurusbegriffe

nicht belegt

Sprache

Englisch

Recherchedatum

12.03.2021

Dokument Nr. 23

Titel

The electrochemical polishing behavior of the Inconel 718 alloy in perchloric-acetic mixed acids. Verhalten von Inconel 718 beim elektrochemischen Polieren in einem Perchlorsaeure-Essigsaeure-Gemisch.

Autor

HUANG, C.A.
CHEN, Y.C.
CHANG, J.H.

Institution

Chang Gung University, Guishan, TW

Abstrakt

The electropolishing behavior of the Inconel 718 alloy was studied by using rotating **disc** electrode (RDE) in the HClO₄-CH₃COOH mixed acids with different HClO₄-concentrations. After electropolishing, surface morphologies of RDE specimens were examined with surface profiler, atomic force microscope and scanning electron microscope. According to the surface morphologies observed, three types of anodic dissolution behavior can be characterized in relation to the HClO₄-content in mixed acids; namely, leveling without brightening of the surface in the mixed acids with 10 and 20 vol% HClO₄, leveling and brightening of the surface in the mixed acids with 30 and 40 vol% HClO₄, and a matt and gray surface in the mixed acids with 50 vol% or more HClO₄. Anodic dissolution in the first and second dissolution types follows a mass-transfer controlled mechanism, in which a linear relationship between the reciprocal of limiting-current density and the reciprocal of square root of rotating speed of RDE specimen can be detected. Owing to precipitation of salt film on the polished surface of the Inconel 718 material, saturated dissolved metallic ions could be the chemical species for the mass-controlled mechanism. The salt film, in addition, could enhance the corrosion resistance of the Inconel 718 alloy.

Veröffentlichungsjahr

2008

Quelle

Corrosion Science * Band 50 (2008) Heft 2, Seite 480-489 (10 Seiten, 12 Bilder, 2 Tabellen, 28 Quellen)

Klassifikation

3LKG Chemisches und elektrochemisches Abtragen
3KER Superlegierungen
3KXW Oberflaecheneigenschaften
3KXU Chemische Werkstoffeigenschaften, Korrosions- und Erosionsverhalten

Schlagworte des Autors

Elektropolieren
Nickelchromlegierung
Superlegierung
Elektrolyt
Perchlorsaeure
Essigsaeure
Elektrode
Drehbewegung
Glanzpolieren
Konzentrationseinfluss
Oberflaechenmorphologie
Oberflaechenrauigkeit
Salzglasur
Korrosionsbestaendigkeit
Polarisationskurve
Rasterelektronenmikroskopie
Rasterkraftmikroskopie
anodische Aufloesung

Thesaurusbegriffe

nicht belegt

Sprache

Englisch

Recherchedatum

12.03.2021

Dokument Nr. 24

Titel

Pan-milling to prepare ultrafine high-density polyethylene powder with sodium **chloride** serving as **grinding aid**

Autor

LIU YUAN

Li Jie

Wang Qi

Institution

nicht belegt

Abstrakt

In this article, our self-designed pan mill equipment was used to pulverize high-density polyethylene (HDPE) to prepare its powder product. This pan mill based on three-dimensional shear forces shows much better pulverization effects on ductile polymer materials when compared with conventional pulverizing equipment based on impact force, and it can mill original HDPE pellets (particle size: 3-4 mm) into fine powder (particle size: 75 μm) at ambient temperature. To further improve the pulverization efficiency to obtain ultrafine HDPE powder, sodium **chloride** (NaCl), serving as a **grinding aid**, was comilled with HDPE. Taking the advantages of the **cutting** and isolating effects of NaCl crystals, HDPE can be pulverized into ultrafine powder with the particle size below 10 pm. Another advantage of NaCl as a **grinding aid** lies in an easy removal process through water wash, thus conveniently separating from hydrophobic HDPE powder. This technology provides a novel and efficient method to prepare the ultrafine powder of those polymers with high ductility and low melt point, and shows a promise in future commercial application. (C) 2007 Wiley Periodicals, Inc.

Veröffentlichungsjahr

2007

Quelle

JOURNAL OF APPLIED POLYMER SCIENCE

Klassifikation

nicht belegt

Schlagworte des Autors

nicht belegt

Thesaurusbegriffe

nicht belegt

Sprache

nicht belegt

Recherchedatum

12.03.2021

Dokument Nr. 25

Titel

Room temperature ionic liquids as lubricant **additives** in steel-aluminium contacts: Influence of sliding velocity, normal load and temperature.

Autor

JIMENEZ, A.E.
BERMUDEZ, M.D.
CARRION, F.J.
MARTINEZ NICOLAS, G.

Institution

Grupo de Ciencia de Materiales e Ingenieria Metalurgica, Universidad Politecnica de Cartagena, ES

Abstrakt

1-n-Alkyl-3-methylimidazolium X- ($X = PF_6$; $n = 6$ (L-P106). $X = BF_4$; $n = 2$ (L102), 6 (L106), 8 (L108). $X = CF_3SO_3$; $n = 2$ (L-T102). $X = (4-CH_3C_6H_4SO_3)$; $n = 2$ (L-To102)) and 1-butyl-3-methylpyridinium bis(trifluoromethylsulfonyl)imide (L-PY104) have been studied as 1 wt.% base oil **additives** in variable conditions pin-on-disk tests for AISI 52100 steel-ASTM 2011 aluminium contacts. Friction coefficients and wear rates increase under increasing normal loads. Effective lubrication is obtained for a 0.15-0.20 ms⁻¹ sliding velocity. Low friction and minimum wear rates are achieved for all **additives** at 25 C, 2.45 N and 0.15 ms⁻¹. A transition to an **abrasive** wear mechanism is observed at 0.06 ms⁻¹, both at room temperature and at 100 deg C. Friction coefficients for IL additives are similar or lower than for neat ILs, while wear rates for 1 wt.% ILs can be several orders of magnitude lower than those for neat ILs. The exception is the long alkyl chain L108 which always shows better lubricating ability as pure lubricant, probably due to its lower miscibility with the base oil. Energy dispersive (EDS) and X-ray photoelectron (XPS) spectroscopies show surface interactions but, in contrast with neat ILs, no tribocorrosion processes are observed for the IL additives. Aluminium corrosion is only observed after 100 h immersion in water with 1 wt.% L102. Copyright Elsevier B.V. Reproduced with permission.

Veröffentlichungsjahr

2006

Quelle

Wear - An International Journal on the Science and Technology of Friction, Lubrication and Wear * Band 261 (2006) Heft 3-4, Seite 347-359 (13 Seiten, 15 Bilder, 5 Tabellen, 19 Quellen)

Klassifikation

3MD Tribologie

Schlagworte des Autors

OEIadditiv
Schmieröl
ionische Eigenschaft
Reibung
Verschleissprüfung
Gleitgeschwindigkeit
Normalkraft
Temperatureinfluss
ionische Flüssigkeit

Thesaurusbegriffe

Aluminium-Stahl-Kontakt

Sprache

Englisch

Recherchedatum

12.03.2021

Dokument Nr. 26

Titel

Chemical-assisted Ultrasonic Machining of Glass by Using HF Substitute Solution

Autor

KIM BYEONG HEE
Young Kim Heon
Hee Jeon Byung

Institution

nicht belegt

Abstrakt

Ultrasonic machining has been known as one of the conventional machining methods in the glass fabrication processes. In ultrasonic machining, typically, glass is removed by the impulse energy of the **abrasive** generated by the ultrasonic power. However, when the machining feature decrease under hundreds of micrometers, as conventional ultrasonic machining uses only the impulse energy of the **abrasive**, the speed of ultrasonic machining decreases significantly and the surface roughness becomes deteriorated. To overcome this size effect, the chemicals which can erode glasses, such as HF, XF, etc, are added to the slurry. The chemical-assisted ultrasonic machining method, so called, is another alternating effective way for micro machining of glasses. In previous work, we used the hydrofluoric acid (HF) as an **additive** chemical. But, as the HF solution is too poisonous to be used as a ultrasonic process **additive**, it is needed to be substituted by other safe chemicals. As results of the machinability comparison of several chemicals, the GST-500F was selected to replace the HF. The GST-500F ($pH\ 4.0 \pm 1.0$) is non-volatile, odorless. During experimental works, it was shown that the machining rate increases 1.5 times faster than the conventional ultrasonic machining. The machining load also decreases. However, the enlargement of the hole diameter and significant tool wear are still the problems to be solved.

Veröffentlichungsjahr

2004

Quelle

Transactions of Materials Processing

Klassifikation

nicht belegt

Schlagworte des Autors

nicht belegt

Thesaurusbegriffe

nicht belegt

Sprache

nicht belegt

Recherchedatum

12.03.2021

Dokument Nr.

27

Titel

An investigation on solid lubricant moulded **grinding wheels**

Autor

SHAJI S
Radhakrishnan V

Institution

Indian Inst Technol, Dept Mech Engn, Mfg Engn Sect, Madras 600036, Tamil Nadu, India.

Abstrakt

The conventional flood **coolants** employed in **grinding** suffer many limitations in performing their functions. They cannot be recommended in the light of ecological and economic manufacture. Application of solid lubricant in **grinding** has proved to be a feasible alternative to the fluid **coolants**, if it could be applied in a proper way. Towards finding out an improved method of application of solid lubricant, attempts on development of solid lubricant moulded **grinding wheels** with various bonding and lubricants have been reported here. Such **wheels** with resin bonding were successfully made and improved process results were obtained. But the **wheel** wear depended on the type of the lubricant used. (C) 2003 Elsevier Science Ltd. All rights reserved.

Veröffentlichungsjahr

2003

Quelle

INTERNATIONAL JOURNAL OF MACHINE TOOLS & MANUFACTURE

Klassifikation

Engineering

Schlagworte des Autors

GRINDING
lubrication
coolant
graphite
calcium **fluoride**
solid lubricant

Thesaurusbegriffe

nicht belegt

Sprache

ENGLISH

Recherchedatum

12.03.2021

Dokument Nr. 28

Titel

A comparison of the **cooling** effects of compressed cold air and **coolant** for cylindrical **grinding** with a CBN **wheel**. Ein Vergleich der **Kuehlwirkung** von kalter Druckluft und **Kuehlschmierstoff** beim Rundsleifen mit einer CBN-Schleifscheibe.

Autor

CHOI, H.Z.
LEE, S.W.
JEONG, H.D.

Institution

Korea Institute of Industrial Technology (KITECH), Cheonan, KR
Pusan National University, Busan, KR

Abstrakt

In the **grinding** process, the **coolant** has a great influence on the environment. It contains **chlorine**, sulfur and phosphorus to improve the **grinding** efficiency. These **additives**, degenerate the workplace atmosphere and in the end cause environmental pollution. This study focused on the effects of compressed cold air when the spindle shaft materials (SCM4 and SCM21) were cylindrically ground with CBN **wheels**. The **cooling** effect of compressed cold air was introduced and compared with that of **coolant**. To secure a lower air temperature, a constant-temperature water bath and vortex tube were used. The compressed cold air was very effective in minimizing thermal defects on the surface layer. Moreover, it could also play a role in solving the environmental problems. Copyright Elsevier B.V. Reproduced with permission.

Veröffentlichungsjahr

2001

Quelle

AFDM, International Symposium on Advanced Forming and Die Manufacturing Technology, 1, in: Journal of Materials Processing Technology * Band 111 (2001) Heft 1-3, Seite 254-268 (15 Seiten, 7 Bilder, 1 Tabelle, 6 Quellen)

Klassifikation

3KEB Staehle, Stahlguss
3LKB Spanende Bearbeitung, Zerspanen, Zerteilen

Schlagworte des Autors

CBN (kubisch kristallines Bornitrid)

CBN-Schleifscheibe

Druckluft

Eigenspannung

gehaerteter Stahl

Haerte

Kuehlschmierstoff

Kuehlung

Rauigkeit

Rundschleifen

Schadstoffemission

Schleifen

Umweltschutz

Thesaurusbegriffe

nicht belegt

Sprache

Englisch

Recherchedatum

12.03.2021

Titel

Monitoring, by inverse gas chromatography, of the variation of the surface energetic heterogeneity of ground muscovite samples

Autor

BALARD H
Aouadj O
Papirer E

Institution

nicht belegt

Abstrakt

A layered mineral, like muscovite, is a good model of a heterogeneous solid because it presents two types of crystalline surfaces: basal and lateral surfaces. A convenient method for changing its degree of surface heterogeneity is to submit muscovite to a **grinding** process, creating new surfaces: either basal surfaces if the delamination of the crystal is the dominant process or lateral surfaces if comminution is prevalent. The aim of the present work is to demonstrate how inverse gas chromatography, combined with an original method of calculation of the adsorption energy distribution functions, is a very sensitive method to monitor the evolution of the surface heterogeneity of muscovite ground in the presence of different **grinding additives** such as glutaric acid (0.5% in aqueous solution) or **potassium chloride** (1 M in aqueous solution). It is shown that the latter favors the delamination of the muscovite crystal whereas the former induces the comminution of the crystal leading to an increase of lateral surfaces.

Veröffentlichungsjahr

1997

Quelle

LANGMUIR

Klassifikation

nicht belegt

Schlagworte des Autors

nicht belegt

Thesaurusbegriffe

nicht belegt

Sprache

nicht belegt

Recherchedatum

12.03.2021

Dokument Nr. 30

Titel

Gleitschleifen ohne Entsorgungsprobleme. Compounds aus pflanzlichen Rohstoffen. Vibratory **grinding** without waste disposal problems. Compounds made from vegetable material.

Autor

CHARLIER, M.

Institution

nicht belegt

Abstrakt

Compounds als **Zusatz** zum Gleitschleifen reduzieren den Bearbeitungszyklus, sie koennen aber zum Nachteil werden, wenn Schlamm oder Abwasser als Sondermuell behandelt werden muessen. Abhilfe schaffen Compounds auf pflanzlicher Basis. Keramische **Schleifkoerper** haben durch ihre hoehere Festigkeit einen mehr schlagenden Effekt, die weicheren synthetischen **Schleifkoerper** ergeben eine feinere Oberflaeche. Der Abrieb der **Schleifkoerper** ist kein Sonermuell. Chemische **Zusaetze** koennen mit dem Metall Verbindungen eingehen, sie werden dadurch zum Sonermuell. Natuerliche pflanzliche Rohstoffe gehen keine gefaehrlichen Verbindungen mit den Metallen ein. Sie sind chemischen Produkten ebenbuertig und haben vergleichbaren Preis. Sie wurden in Daenemark entwickelt. Fuer stark **chlorhaltiges** Stanzoel gibt es ein Abscheideverfahren mit speziellen Enzymen, das Abwasser kann problemlos abfliessen. (Sirach)

Veröffentlichungsjahr

1991

Quelle

Industrie Anzeiger * Band 113 (1991) Heft 13, Seite 34 (1 Seite, 1 Bild)

Klassifikation

3LKB Spanende Bearbeitung, Zerspanen, Zerteilen
3MD Tribologie
3UMB Abfallstoffe, -behandlung, -vermeidung, -verwertung, -wirtschaft

Schlagworte des Autors

SONDERMUELL
GLEITSCHLEIFEN
CHEMIKALIENMISCHUNG
PFLANZE
ENZYM
SCHLEIFKOERPER
KERAMISCHER STOFF
FESTIGKEIT
SCHWERMETALLVERBINDUNG
MUELL
SCHLAMM
ABWASSER
CHLOR
STANZEN
OEL
ABScheidung (**TRENNEN**)
DAENEMARK

Thesaurusbegriffe

PFLANZLICHER **ZUSATZSTOFF**
SYNTHETISCHER STOFF
STANZOEL
PREIS

Sprache

Deutsch

Recherchedatum

12.03.2021

Dokument Nr. 31

Titel

Titel russisch. Steigerung der Effektivitaet des **Schleifens** von Titanlegierungen. Efficiency increase at **grinding** of titanium alloys.

Autor

SAYUTIN, G.I.
USHAKOV, I.M.
LARIONOV, N.F.

Institution

nicht belegt

Abstrakt

Die Bearbeitungsqualitaet von Titanlegierungen haengt in hohem Masse von der richtigen Wahl der Charakteristika des **Schleifwerkzeuges** und der **Kuehl-** und Schmierfluessigkeit ab. Die an die Fluessigkeit gestellten Forderungen werden eingehend erörtert. Besonders empfohlen werden nach eingehenden Untersuchungen Fluessigkeiten mit Gehalt an natuerlichem Bischofit, dessen Zusammensetzung bis zu mehr als 96% **Chloride** aufweist. Vergleichsversuche mit anderen Schmier- und **Kuehlfluessigkeiten** verschiedenster Zusammensetzungen ergaben die hohe Ueberlegenheit der Sorten mit Gehalt an natuerlichem Bischofit. Die Versuche wurden mit Mustern aus der Ti-Legierung WT-14 gemacht (14% **Zusaetze**). Jedoch erfordert die Anwendung von solchen Fluessigkeiten mit Bischofit in jedem konkreten Fall die Erfuellung bestimmter Massnahmen, die eine Verringerung der Korrosion an Maschinen und Ausruestungen sowie Vorrichtungen ermoeglichen, insbesondere die Verwendung von Korrosions-Inhibitoren sowie von Maschinen mit bestimmten Schutzeinrichtungen gegen Korrosion. Andererseits wird hohe Arbeitsqualitaet und geringerer Verschleiss der Schleifscheiben beobachtet.

Veröffentlichungsjahr

1985

Quelle

Mashinostroitel (Mosc.) * Band 55 (1985) Heft 1, Seite 21-22 (2 Seiten)

Klassifikation

3LKB Spanende Bearbeitung, Zerspanen, Zerteilen

Schlagworte des Autors

SCHLEIFEN
PRODUKTIVITAET
SCHLEIFSCHEIBE
SCHNEIDFLUESSIGKEIT
OBERFLAECHENZUSTAND
KORROSIONSBESTAENDIGKEIT
KORROSIONSINHIBIERUNG

Thesaurusbegriffe

nicht belegt

Sprache

Russisch

Recherchedatum

12.03.2021

Dokument Nr. 32

Titel

Einfluss der **Kuehlschmierung** auf die Bearbeitung metallischer Werkstoffe.

Autor

KOENIG, W.
WITTE, L.

Institution

nicht belegt

Abstrakt

Einen bedeutenden Einfluss auf das Verschleissverhalten einer **Schleifscheibe** uebt der **Kuehlschmierstoff** aus. Die Verwendung von Oel erweist sich aufgrund seiner guenstigeren Schmierwirkung als vorteilhaft. Mit der Zugabe besonderer **Additive**, wie beispielsweise **Chlor** oder Schwefel, laesst sich eine Verbesserung des Verschleissverhaltens erzielen. Um die **Kuehlschmiermittel** zufuehren zu koennen, stehen Zufuehrsysteme mit Schlitzduesen oder Duesenplatten zur Verfuegung. Solche Systeme gewaehrleisten eine gute Reinigung und Benetzung der **Schleifscheiben**.

Veröffentlichungsjahr

1978

Quelle

Maschinenmarkt, Wuerzburg * Band 84 (1978) Heft 15, Seite 265-268 (4 Seiten, 9 Bilder, 14 Quellen)

Klassifikation

3LKB Spanende Bearbeitung, Zerspanen, Zerteilen
3MD Tribologie

Schlagworte des Autors

WERKSTOFF
VERSCHLEISSFESTIGKEIT
METALLBEARBEITUNG
SCHLEIFSCHEIBE
KUEHLSCHMIERSTOFF
OEL
ADDITIV
CHLOR
SCHWEFEL
ZUFUEHRUNG
REINIGEN
BENETZUNG
KUEHLSCHMIERUNG
SCHLITZDUESE
BEARBEITEN

Thesaurusbegriffe

SCHMIERWIRKUNG
ZUFUEHRSYSTEM
METALLISCH

Sprache

Deutsch

Recherchedatum

12.03.2021

Dokument Nr. 33

Titel

Hydrogen embrittlement in **grinding** of metals. Versproedung durch Wasserstoff beim Metallschleifen.

Autor

DAS, K.B.

Institution

Boeing Aerospace, Seattle, WA, US

Abstrakt

The objective of this investigation was to determine if the breakdown or chemical reactions at the **grinding wheel-workpiece** interface with the machining fluids during a preselected machining **operation** can be a significant source of hydrogen ingestion in high-strength steels. Specimens of high-strength (260-280 ksi) 4340 steel were subjected to a specified schedule of steel were subjected to a specified schedule of low-stress and abusive milling and **grinding operations** using oil base (neutral, **chlorinated**, and sulfurized) and water miscible oil emulsion (neutral, **chlorinated**, and sulfurized) machining fluids. Precision hydrogen analysis showed that significantly high levels of hydrogen were introduced in the steel specimens as a result of the breakdown of machining fluids during the **grinding operations**. On a relative basis, sulfurized fluids appeared to have introduced the highest level of hydrogen in the test specimens. (Petrus)

Veröffentlichungsjahr

1978

Quelle

LUBRICATION CHALLENGES IN METALLWORKING AND PROCESSING. FIRST INTERNAT. IITRI CONF. PROC. * (1978) Heft Jun, Seite 99-106 (8 Seiten, 6 Tabellen, 7 Quellen)

Klassifikation

3LKB Spanende Bearbeitung, Zerspanen, Zerteilen
3MD Tribologie
3AL Qualitätsmanagement, Zertifizierung

Schlagworte des Autors

METALLBEARBEITUNG
SCHLEIFEN
SCHLEIFSCHEIBE
WERKSTÜCK
OBERFLÄCHE
HOCHFESTER STAHL
SCHMIEROEL
OELADDITIV
EMULSION
WASSERSTOFFVERSPOEDUNG
BEANSPRUCHUNG

Thesaurusbegriffe

nicht belegt

Sprache

Englisch

Recherchedatum

12.03.2021

Titel

Evaluation of **grinding** lubricants - simulation testing and **grinding** performance. Bewertung von **Schleifflüssigkeiten** - Verschleissversuch und **Schleifverhalten**.

Autor

KIRK, J.
CARDENAS GARCIA, J.
ALLISON, C.

Institution

University of Maryland, MD, US
Cincinnati Milacron, Cincinnati, OH, US

Abstrakt

Halbkugelförmige **Schleifscheibenausschnitte** dienten zur Beurteilung von vier **Schleifflüssigkeiten** mit Hilfe von Stift-Scheibe-Verschleissversuchen, die ergänzt wurden durch Rundschleifversuche. Untersuchungen der Bearbeitungsspuren mit Elektronenmikroskopie und Mikrosonde zeigen für beide Testverfahren gute Übereinstimmung der Verschleisserscheinungen. **Schleifoel** mit 1,12 Proz Schwefel und 0,55 Proz **Chlor** ergibt den geringsten Verschleiss und die höchste Abtragrate. Wasser ergibt ungünstige Werte, die mit zunehmendem Anteil von Öl mit Emulsionen besser werden. (Brockmueller)

Veröffentlichungsjahr

1977

Quelle

ASLE Transactions * Band 20 (1977) Heft 4, Seite 333-339 (7 Seiten, 10 Bilder, 3 Tabellen, 16 Quellen)

Klassifikation

3MD Tribologie
3LKB Spanende Bearbeitung, Zerspanen, Zerteilen

Schlagworte des Autors

MIKROSONDE
VERSCHLEISSPRÜFUNG
SCHLEIFEN
KUEHLSCHMIERSTOFF
SCHLEIFKOERPER
WASSER
SCHLEIFSCHEIBE
VERSCHLEISS
ELEKTRONENMIKROSKOP
STIFT (MASCHINENELEMENT)
RUND SCHLEIFEN
SCHWEFEL
CHLOR
OEL
EMULSION
SCHLEIFVERMOEGEN
TESTVERFAHREN
VERSCHLEISSERSCHEINUNG
SCHLEIFFLUESSIGKEIT

Thesaurusbegriffe

SCHLEIFSCHEIBENBRUCH
BEARBEITUNGSSPALT
SCHEIBE

Sprache

Englisch

Recherchedatum

12.03.2021

Dokument Nr. 35

Titel

Observation of **wheel-metal-coolant** interactions in **grinding**. Beobachtung von Rueckwirkungen zwischen **Schleifscheibe**, Werkstoff und **Kuehlmittel** beim **Schleifen**.

Autor

TRIPATHI, K.
NICOL, A.
ROWE, G.

Institution

University of Birmingham, GB

Abstrakt

Die Entstehung von Abriebteilchen beim **Schleifen** aus der **Schleifscheibe** und der Werkstueckoerflaeche wurde mittels optischer und elektronenoptischer Mikroskopie und Roentgenfluoreszenz-Verfahren untersucht. Trockenschleifen von Stahl mit glasgebundenen Al-Scheiben erzeugt farblose Teilchen, die aus der **Scheibe** ausbrechen. Ein Grundoel als **Kuehlmittel** laesst gleiche Teilchen, aber zusaetliche farbige polymerische Schichten auf dem Werkstoff entstehen. Beim **Schleifen** mit Emulsion werden viele farbige, fadenahnliche Teilchen festgestellt, die Schwefel und **Chlor** enthalten. In der Zone der Beruehrung von **Schleifscheibe** und Werkstueck laufen chemische Reaktionen ab, die durch die hohen Temperaturen waehrend des Abtragevorganges hervorgerufen werden. (Brockmueller)

Veröffentlichungsjahr

1977

Quelle

ASLE Transactions * Band 20 (1977) Heft 3, Seite 249-256 (8 Seiten, 9 Bilder, 1 Tabelle, 15 Quellen)

Klassifikation

3LKB Spanende Bearbeitung, Zerspanen, Zerteilen
3IFM Messung/Pruefung mechanischer/geometrischer Groessen, der Masse und Dichte
3MD Tribologie

Schlagworte des Autors

SCHLEIFSCHEIBE
WERKSTOFF
KUEHLMITTEL
SCHLEIFEN
ALUMINIUM
ABTRAGEN
WERKSTUECK
VERSCHLEISS
TEILCHEN (ATOM)
CHEMISCHE REAKTION
OPTIK
MIKROSKOPIE
STAHL
EMULSION
SCHWEFEL
CHLOR
TEMPERATUR
ROENTGENFLUORESZENZ
AUSBRECHEN
OPTISCHES MESSEN
GRUNDOEL
BERUEHRUNG

Thesaurusbegriffe

WERKSTUECKOBERFLAECHE
TROCKENSEIFE
FARBIG
SCHEIBE

Sprache

Englisch

Recherchedatum

12.03.2021

Dokument Nr. 36

Titel

Performance of silicon carbide **wheels** in **grinding tool** steels. Verhalten von **Schleifscheiben** aus Siliziumkarbid beim **Schleifen** von Werkzeugstählen.

Autor

AHMED, O.I.
DUGDALE, D.S.

Institution

University of Sheffield, GB

Abstrakt

This work describes grindability tests on eight **tool** steels using plunge **grinding** at a constant rate of infeed. Due to chemical affinity between silicon carbide and steels which are deficient in carbon, rapid **wheel** wear occurred leading to vibration and poor surface finish. On the other hand, silicon carbide **abrasive** was shown to be superior to aluminium oxide for **grinding** steels having a high carbon content such as chromium-high carbon die steel D3. When neat oil containing sulphur and **chlorine** was used, silicon carbide **abrasive** was found to be satisfactory for **grinding** all of the **tool** steels. (Kursetz)

Veröffentlichungsjahr

1977

Quelle

PROC. OF THE 17TH INTERNAT. MACHINE TOOL DESIGN AND RES. CONF. * (1977) Seite 165-169 (5 Seiten, 4 Bilder, 4 Tabellen, 11 Quellen)

Klassifikation

3LKB Spanende Bearbeitung, Zerspanen, Zerteilen
3LK Spanende und abtragende Bearbeitung
3KEB Staehle, Stahlguss
3MD Tribologie

Schlagworte des Autors

SPANENDE BEARBEITUNG
SCHLEIFEN
BETRIEBSPARAMETER
SCHLEIFDRUCK
SCHLEIFGESCHWINDIGKEIT
SCHLEIFSCHEIBE
SILICIUMCARBID
CHEMISCHE ZUSAMMENSETZUNG
VERSCHLEISS
WERKZEUGSTAHL
STANDZEIT
VIBRATION
OBERFLAECHENGUETE
MATERIALABTRAGUNG
BERUEHRUNGSFLAECHE
OBERFLAECHENPRUEFUNG
SCHLEIFKOERPER
KUEHLMEDIUM
RUND SCHLEIFEN
WIRTSCHAFTLICHKEIT
VERSUCH

Thesaurusbegriffe

PRAKTISCHE ERPROBUNG

Sprache

Englisch

Recherchedatum

12.03.2021

Dokument Nr. 37

Titel

Titel russisch. Untersuchung des Verschleisses von **Schleifwerkzeugen**.

Autor

GRISHKEVICH, A.V.
CHIZHOV, I.G.
GORBENKO, V.I.

Institution

nicht belegt

Abstrakt

Es wird ueber die Ergebnisse experimenteller Untersuchungen des Mikrospanens mit **Schleifwerkzeugen** bei stossend- drehender und nur drehender Beanspruchung berichtet. Bei stossend-drehender Beanspruchung werden die **Schleifkoerner** unter Absonderung von Splittern vorwiegend mechanisch zerstoert. Der Einfluss aggressiver Medien, z.B. von **Kuehlschmierfluessigkeiten**, auf den Verschleiss wurde mit waessrigen Loesungen untersucht, die 6 % NaOH bzw. 3 % **Chlor** enthielten. Durch die chemische Aktivitaet des **Chlorwassers** kann der Verschleiss bis auf das Zehnfache steigen. Um den mechanischen Verschleiss zu mindern, wird empfohlen, mit einer Zustellung von 1,5 mm, einer Spaltbreite von 0,5 mm, einer Vorschubgeschwindigkeit von 1,2 m/min und einer Umfangsgeschwindigkeit von 75,5 m/min zu **schleifen**. (TIB/OSTA)

Veröffentlichungsjahr

1977

Quelle

VESTNIK HAR'KOVSKOGO POLITEHN. INST. MASHINOSTROENIE * Band 130 (1977) Seite 18-21 (4 Seiten, 2 Bilder, 2 Quellen)

Klassifikation

3LK Spanende und abtragende Bearbeitung
3MD Tribologie

Schlagworte des Autors

SCHLEIFSCHEIBE
VERSCHLEISS
SPANEN (OHNE KONTUR)
KORNGROESSE
STOSSBEANSPRUCHUNG
DREHBEWEGUNG
KUEHLSCHMIERSTOFF
CHLOR
WAESSRIGE LOESUNG
CHEMISCHES ABTRAGEN
ZUFUEHRUNG
VORSCHUBGESCHWINDIGKEIT
UMFANGSGESCHWINDIGKEIT

Thesaurusbegriffe

nicht belegt

Sprache

Russisch

Recherchedatum

12.03.2021

Titel

Chemomechanical polishing of CdS. Chemo-mechanisches Polieren von CdS.

Autor

PICKHARDT, V.Y.
SMITH, D.L.

Institution

Perkin-Elmer Corp., Norwalk, CT, US

Abstrakt

The chemomechanical polishing of the "A" or cadmium-rich face of cadmium sulfide has been accomplished. The etchant contained 90 mliters nitric acid, 300 mliters precipitated silica and 10g aluminum **chloride** per 1000 mliters water. Best results were obtained using a poromeric polishing **disk**. Surfaces were completely featureless when viewed by Nomarski and Michelson interference microscopy at 155 and 400 x, and gave good LEED patterns after brief heatcleaning under vacuum.

Veröffentlichungsjahr

1974

Quelle

Journal of the Electrochemical Society * Band 121 (1974) Heft 8, Seite 1064-1066 (3 Seiten, 3 Bilder, 1 Tabelle, 4 Quellen)

Klassifikation

3FF Herstellungstechnologien fuer elektronische Bauelemente und Schaltungen
3L Fertigungstechnik

Schlagworte des Autors

CADMIUMSULFID
OPTOELEKTRONISCHES BAUELEMENT
POLIEREN
CHEMISCHES VERFAHREN
MECHANIK
DUENNE SCHICHT
EINKRISTALL

Thesaurusbegriffe

nicht belegt

Sprache

Englisch

Recherchedatum

12.03.2021

Dokument Nr. 39

Titel

Wear Resistance of Bronze-Matrix Samples of Diamond Tubular Drills with Ultrafine Diamond and **Molybdenum** Powder Reinforcement

Autor

UMANSKY VP
Brodnikovsky NP
Bashchenko OA
Kulakov AS

Institution

Natl Acad Sci Ukraine, Frantsevich Inst Problems Mat Sci, Kiev, Ukraine.

Abstrakt

The paper examines the **abrasive** wear rate of samples produced by vacuum impregnation of ultrafine diamond (ASM 1/0) and **molybdenum** powders with tin bronze. The tests were performed using a SiC-based **abrasive wheel** in the presence of **cooling** water. The introduction of and increase in the ultrafine diamond powder in the samples substantially decrease their wear rate (by a factor of 78). The hardness of the samples first increases when diamond powder content rises to 5 wt.% and then decreases when ASM 1/0 content further rises to 11 wt.% because of small porosity that appears in the samples. The use of a bronze matrix containing more than 15 wt.% Sn does not decrease the wear rate of the test samples and, hence, of the associated diamond **tools**, in spite of increase in their hardness.

Veröffentlichungsjahr

2020

Quelle

POWDER METALLURGY AND METAL CERAMICS

Klassifikation

Materials Science
Metallurgy & Metallurgical Engineering

Schlagworte des Autors

IMPREGNATION
wear rate
friction
matrix samples

Thesaurusbegriffe

CHROMIUM

Sprache

ENGLISH

Recherchedatum

12.03.2021

Dokument Nr. 40

Titel

Experimental Studies on MoS₂-Treated **Grinding Wheel** Active Surface Condition after High-Efficiency Internal Cylindrical **Grinding** Process of INCONEL (R) Alloy 718

Autor

KAPLONEK W
Nadolny K
Sutowska M
Mia M
Pimenov DY
Gupta MK

Institution

Koszalin Univ Technol, Fac Mech Engn, Dept Prod Engn, Racławicka 15-17, PL-75620 Koszalin, Poland.

Ahsanullah Univ Sci & Technol, Dept Mech & Prod Engn, 141-142 Love Rd, Dhaka 1208, Bangladesh.

South Ural State Univ, Dept Automated Mech Engn, Lenin Prosp 76, Chelyabinsk 454080, Russia.

Chandigarh Univ, Dept Mech Engn, Univ Ctr Res & Dev, Gharuan 140413, Punjab, India.

Abstrakt

This work demonstrates that **molybdenum** disulfide can be successfully used as an impregnating substance that is introduced in the **abrasive tool** structure for improving its **cutting** properties and favorably affecting the effects of the **abrasive** process. For the experimental studies, a set of MoS₂-treated small-sized **grinding wheels** with a technical designation 1-35x10x10x109A5X60L10VEO PI-50 before and after the reciprocating internal cylindrical **grinding** process of rings made from INCONEL (R) alloy 718 was prepared. The condition of **grinding wheel** active surface was analyzed using an advanced observation measurement system based on stylus/optical profilometry, as well as confocal and electron microscopy. The obtained results confirmed the correctness of introduction of the impregnating substance into the **grinding wheel** structure, and it was possible to obtain an **abrasive tool** with a given characteristic.

Veröffentlichungsjahr

2019

Quelle

MICROMACHINES

Klassifikation

Chemistry
Science & Technology - Other Topics
Instruments & Instrumentation
Physics

Schlagworte des Autors

IMPREGNATION PROCESS
molybdenum disulfide
abrasive tools
hard-to-cut materials
measurement systems
image processing and analysis

Thesaurusbegriffe

GRAPHITE

Sprache

ENGLISH

Recherchedatum

12.03.2021

Titel

Finish form **grinding** of thermally sprayed nano-structured coatings

Autor

DAS P
Bandyopadhyay P
Paul S

Institution

Indian Inst Technol Kharagpur, Dept Mech Engn, Kharagpur 721302, W Bengal, India.

Abstrakt

Thermally sprayed **Molybdenum** coatings have excellent high temperature strength and wear resistance. The as-sprayed components (surface roughness 5-15 μm) need surface finishing before **operation**. Because of high hardness and typical coating architectures, **grinding** is considered as the best surface finishing **operation** for thermally sprayed coatings. In the present work, nano-structured coatings of tin-bronze and **molybdenum** are deposited and characterised. Diamond reinforcement is added during ball milling to improve **mechanical** properties. Both conventional and ball-milled feedstock of bronze was deposited using a HVOF spraying facility. **Molybdenum** coatings were deposited using an Air-Plasma-Spraying facility. Coatings were ground in precision **grinding** facility using super-abrasive **grinding wheels** in plunge **grinding** mode. Both tangential and normal **grinding** forces increased in case of nano-structure coatings. Scanning electron microscopy reveals traces of ductile chip formation mode in **grinding** of conventional coatings. On the contrary, the nano-structured coatings revealed traces of micro-crack formation, brittle fracture and grain spallation upon grinding. An additional compressive residual stress was added to intrinsic stress level of the as-coated samples upon grinding. An increase in residual stress upon grinding is higher in case of nano-structured coatings.

Veröffentlichungsjahr

2019

Quelle

ADVANCES IN MATERIALS AND PROCESSING TECHNOLOGIES

Klassifikation

Materials Science

Schlagworte des Autors

THERMALLY SPRAYING
finish form **grinding**
surface finish
ball milling
diamond reinforced coating

Thesaurusbegriffe

BEHAVIOR
POWDERS
WEAR

Sprache

ENGLISH

Recherchedatum

12.03.2021

Titel

BP neural network based flexural strength prediction of open-porous Cu-SnTi composites

Autor

ZHAO B
Yu TY
Ding WF
Li XY
Su HH

Institution

Nanjing Univ Aeronaut & Astronaut, Coll Mech & Elect Engn, Nanjing 210016, Jiangsu, Peoples R China.
Iowa State Univ, Dept Aerosp Engn, Ames, IA 50010 USA.

Abstrakt

Open-porous Cu-Sn-Ti composites are fabricated by the space holder sintering technique using carbamide particles as space-holder material. Generally, the **mechanical** properties of open-porous sintered composites, especially the flexural strength affect the machine **tools** wear significantly. In this paper, a back-propagation (BP) artificial neural network with genetic algorithm (GA) and particle swarm optimization algorithm (PSOA) was then employed to relate the composition parameters (pore size, porosity and concentration of **molybdenum** disulfide particles) to the flexural strength. Furthermore, a comparison of predicted and experimental results using GA-BP and PSOA-BP models was conducted and good prediction accuracy was obtained. The study showed that PSOA-BP models could achieve better prediction results in aspects of the higher convergence velocity, lower relative errors of the flexure strength utilizing GA-BP models. Finally, the high porosity and desired flexural strength were achieved by optimizing the input parameters of open-porous Cu-Sn-Ti composites.

Veröffentlichungsjahr

2018

Quelle

PROGRESS IN NATURAL SCIENCE-MATERIALS INTERNATIONAL

Klassifikation

Materials Science
Science & Technology - Other Topics

Schlagworte des Autors

FLEXURAL STRENGTH
BP artificial neural network
Training algorithms
Metallic porous material
Space holder sintering

Thesaurusbegriffe

ALUMINA BUBBLE PARTICLES
MECHANICAL-PROPERTIES
BENDING STRENGTH
GRINDING WHEELS
PARAMETERS
MICROSTRUCTURE
OPTIMIZATION
PERFORMANCE
ALLOY
TEMPERATURE

Sprache

ENGLISH

Recherchedatum

12.03.2021

Dokument Nr. 43

Titel

Tribological Performance of MoS₂-Filled Microtextured **Cutting Tools** During Dry Sliding Test.

Autor

GAJRANI, KISHOR KUMAR
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DIXIT, UDAY SHANKER

Institution

Department of Mechanical Engineering, Indian Institute of Technology (IIT) Guwahati, IN

Abstrakt

Strict environmental laws enforced on manufacturing industries resulted in the development of alternative techniques to reduce or eliminate the use of lubricants during sliding contact as well as machining. Tribology plays a very important role for **tool life** in machining. To improve the **life** of **cutting tool**, **cutting** fluids are used. However, **cutting** fluids only penetrate into the region of sliding contact. In this study, the effect of surface texturing on plasma nitrided high-speed steel (HSS) pins during dry sliding test is investigated for understanding the performance of textured HSS **tools** in machining. Microtextures were fabricated using Vickers hardness tester on the surface of HSS pins. Tribological tests of **molybdenum** disulphide (MoS₂) filled as well as unfilled microtextured HSS with area density of textures varying from 2% to 14% were performed with the **aid** of pin-on-disk tribometer against an **abrasive** sheet. Friction and wear performance were assessed in terms of the pin surface temperature, coefficient of friction (COF), wear, weight loss of the pin and wear rate. Worn-out test surfaces were observed under scanning electron microscope to understand the wear mechanism. The best results were obtained with MoS₂-filled microtextures having 10% texture area density. Tool–chip interface temperature, cutting force, feed force, and centerline average (CLA) surface roughness were also assessed during machining test with 10% area density of textured cutting tools.

Veröffentlichungsjahr

2018

Quelle

Transactions of the ASME, Journal of Tribology * Band 140 (2018) Heft 2, Seite 021301/1-11 (11 Seiten)

Klassifikation

3MD Tribologie
3LKB Spanende Bearbeitung, Zerspanen, Zerteilen
3IGB Zerstoerende Werkstoffpruefung

Schlagworte des Autors

Schlittentest
Standzeit
Texturieren
Gewichtsverlust
Flaechendichte
Schnellschnittstahl
Molybdaendisulfid
Abschleifmittel
Tribometer
Elektronenmikroskop
Schmiermittel
Ionitrieren
Tribologie
Reibungskoeffizient
Verschleissmechanismus
Gleitkontakt
Verschleissverhalten
Vorschubkraft
Oberflaechenrauigkeit
Geraetetest
Zerspanungspruefung
Maschinenpruefung
Maschinenanalyse
Schnellarbeitsstahl

Thesaurusbegriffe

Mikrotextur
Oberflaechentexturierung
tribologische Pruefung

Sprache

Englisch

Recherchedatum

12.03.2021

Dokument Nr. 44

Titel

An Experimental Evaluation of Solid Lubricant Based Nanofluids in Small Quantity **Cooling** and Lubrication during **Grinding**.

Autor

PAUL, SOURABH
GHOSH, AMITAVA

Institution

Indian Institute of Technology (IIT) Madras, Chennai, IN

Abstrakt

Small quantity **cooling** lubrication (SQCL) with commercially available metal working fluids (MWF) and nanofluids has been attempted successfully in machining and **grinding**. Solid lubricants also provided some benefits in **grinding** of metallic alloys. However, there are very few studies using **molybdenum** di-sulphide (MoS₂) and hexagonal boron nitride (hBN) dispersed nanofluids applied in SQCL mode in **grinding**. The aim of the present work is to experimentally study improvement in **grinding** of EN31 steel using alumina **grinding wheel** with aqueous MoS₂ and hBN nanofluids. The **grinding** study is supported by detailed tribometry at 1 m/s sliding speed to reveal the possible reasons behind such improvement. MoS₂ dispersed nanofluids provided minimum coefficient of friction in ball-on-disc test. It also provided the maximum reduction in specific **grinding** energy and improvement in surface finish with respect to flood **cooling**. hBN dispersed nanofluids could not match the performance of MoS₂ dispersed nanofluids both in ball-on-disc and grinding experiments. Copyright Trans Tech Publications. Reproduced with permission.

Veröffentlichungsjahr

2017

Quelle

Material Science and Engineering Technology V, ICMSET, International Conference on Material Science and Engineering Technology, 5, in: Materials Science Forum * Band 890 (2017) Seite 98-102 (5 Seiten) Zuerich: Trans Tech Publications

Klassifikation

3MD Tribologie
3LKB Spanende Bearbeitung, Zerspanen, Zerteilen

Schlagworte des Autors

Schleifen
Nanofluid
Tribotechnik
Metallbearbeitung
Metalllegierung
Molybdaendisulfid
Bornitrid
Stahl
Aluminiumoxid
Kuehlschmierung
Experimentalstudie
Festschmierstoff
Schleifscheibe
Reibungskoeffizient
Oberflaechenguete
hexagonales Bornitrid

Thesaurusbegriffe

Tribometrie
Versuchsauswertung

Sprache

Englisch

Recherchedatum

12.03.2021

Dokument Nr. 45

Titel

Changes in tribological performance of high molecular weight high density polyethylene induced by the addition of **molybdenum** disulphide particles.

Autor

PETTARIN, VALERIA
CHURRUCA, MARIA JOSE
FELHOES, DAVID
KARGER KOCSIS, JOSEPH
FRONTINI, PATRICIA MARIA

Institution

Instituto de Investigaciones en Ciencia y Tecnología de Materiales (INTEMA), CONICET, Universidad Nacional de Mar del Plata, AR
University of Miskolc, HU
Tshwane University of Technology, Pretoria, ZA

Abstrakt

Through this work, the effect of the addition of commercial **molybdenum** disulphide on the tribological behavior of high molecular weight high density polyethylene was assessed. Determination of several tribological parameters (kinetic coefficient of friction by sliding testing, static coefficient of friction by scratch testing, sliding wear rate by roller-on-plate test, **abrasive** wear rate by dry sand/rubber **wheel** test, and surface hardness by microhardness measurements) and microscopical observations (by TOM, SEM and EDAX) were combined in an attempt to elucidate the effect of MoS₂ in composites performance. In this way, a complete picture of composites behavior was achieved. An content of MoS₂ for minimum wear rate was encountered to be around 10 wt.%. It was found that the solid lubricant increases wear resistance under both sliding and **abrasive** wear conditions. It seems that depending on wear condition MoS₂ acts in a different way. It appears that MoS₂ contributes to dissipate the generated heat, thus decreasing wear due to surface melting of the polymer. Under sliding conditions, an adhesive wear mechanism became dominant which is characterized by the formation of a uniform and adherent transfer film on the counterface. Under abrasive conditions a positive rolling effect of MoS₂ particles was found. Amounts of filler larger than 10% resulted in a detriment of wear resistance due to weak microstructures which lead to the occurrence of micro-cracking wear mechanism. Besides, the effect of MoS₂ particles upon HMW-HDPE stress-strain and fracture behavior was checked for the composite with the best wear performance. Low strain mechanical properties of HMW-HDPE remained almost unaltered while a noticeable change in high strain properties resulted from the introduction of filler. Fracture mode was also changed from stable to unstable under quasi-static conditions and from semi-ductile to brittle under dynamic conditions, with a concomitant abrupt reduction in toughness values. Copyright Elsevier B.V. Reproduced with permission.

Veröffentlichungsjahr

2010

Quelle

Wear - An International Journal on the Science and Technology of Friction, Lubrication and Wear * Band 269 (2010)
Heft 1-2, Seite 31-45 (15 Seiten, 19 Bilder, 2 Tabellen, 72 Quellen)

Klassifikation

3MD Tribologie
3KMA Partikelverstärkte Verbundwerkstoffe
3IF Messgroessen

Schlagworte des Autors

Verschleissprüfung
Verschleissmechanismus
Verschleissfestigkeit
Verschleisskenngröesse
ultrahochmolekulares Polyethylen
Verschleissenschutzadditiv
Molybdaensulfid
Verschleissminderung
Spannungs-Dehnungs-Verhalten

Thesaurusbegriffe

nicht belegt

Sprache

Englisch

Recherchedatum

12.03.2021

Dokument Nr. 46

Titel

On tribological behaviour and application of TiN and MoS₂-Ti composite coating for enhancing performance of monolayer cBN **grinding wheel**. Ueber das tribologische Verhalten und die Anwendung einer TiN- und MoS₂-Ti-Verbundbeschichtung fuer die Verbesserung des Verhaltens einer **Schleifscheibe** mit einer Monoschicht aus kubischem Bornitrid.

Autor

BHADURI, D.
KUMAR, R.
JAIN, A.K.
CHATTOPADHYAY, A.K.

Institution

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Abstrakt

Application of MoS₂-based solid lubricant has extreme potential as a coating material of **cutting tools** because of its superlubricity against most of the engineering materials. However, a detailed study on the effect of such lubricious coating in **grinding** has never been carried out before. In the present research, the tribological behaviour of MoS₂-Ti composite coating with TiN underlayer on electroplated nickel and braze alloy was investigated separately in comparison to TiN coated and uncoated counterparts. **Grinding** of AISI 52100 steel was also carried out with uncoated, TiN coated and MoS₂-Ti coated (with TiN underlayer) monolayer (both electroplated and brazed) cBN **wheels**. The structure of the coatings and the condition of the **grinding wheels** were observed under SEM. In tribology test, MoS₂-Ti composite coating was found to be best performing on both nickel and braze alloy in terms of coefficient of friction and depth of the wear track. Minimum variation in normal force and remarkably steady behaviour of tangential force were obtained with both MoS₂-Ti coated electroplated and brazed wheels over the total experimental run. Large number of grit fracture at and above bond level with some amount of grit pull-out was observed in uncoated electroplated wheels. Uncoated brazed wheels have undergone grit breakage at bond level. However, such failures of grit were significantly arrested with both TiN and MoS₂-Ti composite coatings. Copyright Elsevier B.V. Reproduced with permission.

Veröffentlichungsjahr

2010

Quelle

Wear - An International Journal on the Science and Technology of Friction, Lubrication and Wear * Band 268 (2010) Heft 9-10, Seite 1053-1065 (13 Seiten, 21 Bilder, 4 Tabellen, 37 Quellen)

Klassifikation

3LKB Spanende Bearbeitung, Zerspanen, Zerteilen
3MD Tribologie
3LX Beschichtungsverfahren (Herstellung dünner und dicker Schichten)

Schlagworte des Autors

Beschichten
Festschmierstoff
kubisches Bornitrid
Molybdaendisulfid
Reibungskoeffizient
Schleifen
Schleifscheibe
Stahl
Titanmatrix-Verbundwerkstoff
Titannitrid

Thesaurusbegriffe

nicht belegt

Sprache

Englisch

Recherchedatum

12.03.2021

Dokument Nr. 47

Titel

Preparation of intermetallic compound MoSi₂ by **mechanical** alloying method

Autor

QIAO YINGJIE
Song Leping
Sun Xin
Wang Zhigang
Huang Mian

Institution

nicht belegt

Abstrakt

Intermetallic compound MoSi₂ is synthesized with Si and Mo powders by **mechanical** alloying (MA), and influence of milling time, ball-to-powder ratio, rotation speed and different ball mill types on the products is also studied in this work. The surface morphology and grain size of the powder are observed by means of SEM technology, meanwhile the phase structure is characterized by XRD method. Investigation indicates that, during the process of milling, the new MoSi₂ phase appears when the energy supplied by the milling reaches that required level for the transition, otherwise only the physical changes occur. XRD analysis shows that alloying degree continuously increases with the increase of milling time. Increasing the rotation speed of mill is in favor of occurrence Of MoSi₂. Higher ball-powder ratio can decrease the reaction time. During the MA process, grain size of the powder changes from coarseness, irregularity and nonuniformity to fine, uniformity, subsphaeroidal powder, and then gather and increase. The effect of grinding aids on MoSi₂ powder is also simply discussed in this work and experimental results shows that the grinding aids would be conducive to refinement of grain.

Veröffentlichungsjahr

2007

Quelle

RARE METAL MATERIALS AND ENGINEERING

Klassifikation

nicht belegt

Schlagworte des Autors

nicht belegt

Thesaurusbegriffe

nicht belegt

Sprache

nicht belegt

Recherchedatum

12.03.2021

Dokument Nr. 48

Titel

Titel russisch. Die Wirtschaftlichkeit des Innenrundschleifens mit Verbund-Schleifscheiben. Efficiency of internal **grinding** with composite **grinding wheels**.

Autor

KHUDOBIN, L.V.
VETKASOV, N.I.
KORSHUNOV, D.A.

Institution

nicht belegt

Abstrakt

Beim Innenrundschleifen zylindrischer Bohrungen treten auf Grund der starken Waermeentwicklung und des eingeschraenkten Zustromes des Schmier- und **Kuehlmittels** in den Arbeitsbereich starke Beanspruchungen der **Schleifwerkzeuge** auf, die zu einer Reduzierung der **Schleifleistung** zwingen. Zur Vermeidung dieses Nachteils wurden Verbund-Schleifscheiben entwickelt, die mehrere, gleichmaessig ueber den Umfang der **Schleifscheibe** verteilt angeordnete, vertikale Nuten mit trapezfoermigem Querschnitt aufweisen. Diese Nuten werden mit einem Gemisch aus einem festen Schmiermittel (Graphit, **Molybdaendiselenat**) und einem leicht schmelzenden Bindemittel (synthetisches Wachs, Paraffin, Stearin u.a.) aufgefuellt. Diese Konstruktion bewirkt eine deutliche Herabsetzung der Temperatur im Arbeitsbereich des **Schleifwerkzeuges**. Dabei veraendert sich periodisch die Richtung des Waermestromes. Beim Kontakt der **Schleifscheibe** mit der Werkstueckoberflaeche erfolgt der Waermeuebergang zum Werkstueck. Beim Kontakt der mit dem Schmiermittel gefuellen Nuten mit der Werkstueckoberflaeche verlaeuft der Waermeuebergang vom Werkstueck zum Schmiermittel. Versuche zur Erprobung der Verbund-Schleifscheiben beim Innenrundschleifen von Werkstuecken aus verschiedenen Staehlen haben gezeigt, dass die Verbund-Schleifscheiben bei gleicher Schleifleistung eine um mehr als 50 % laengere Standzeit erreichen als die konventionellen, homogenen Schleifscheiben.

Veröffentlichungsjahr

2003

Quelle

Vestnik Masinostroenija * (2003) Heft 7, Seite 44-47 (4 Seiten, 5 Bilder, 1 Tabelle, 4 Quellen)

Klassifikation

3LKB Spanende Bearbeitung, Zerspanen, Zerteilen
3BN Statistische Physik, Thermodynamik, Waermelehre
3MD Tribologie

Schlagworte des Autors

Innenrundschleifen
Schleifscheibe
Konstruktion
Schleifleistung
Festschmierstoff
Bindemittel
Waermeuebergang
Waermestrom
Standzeit

Thesaurusbegriffe

nicht belegt

Sprache

Russisch

Recherchedatum

12.03.2021

Titel

Diamond **grinding** of cermets. Diamantschleifen von Cermets.

Autor

TAGLIABUE, F.

Institution

CAFRO 2, Fino Mornasco, IT

Abstrakt

Nach einer Klassifizierung der TiC/TiN-Cermets werden die von **Schleiftests** mit Diamantschleifscheiben an solchen als Hartmetall-Inserts eingesetzten Cermets angefuehrt. Die Tests umfassen das **Schleifen** im Langsamvorschub, das Flaechenschleifen, das Anschleifen von Schneidkanten fuer Fraeswerkzeuge und das **Schleifen** mit oszillierender **Scheibe**. Die Versuchsbedingungen und die erreichten Bearbeitungsparameter wurden mitgeteilt und Aussagen zu geeigneter Bindungsart und **Schleifkorngroesse** der Diamantscheiben gemacht. Insgesamt wurde eingeschaetzt, dass die Schwierigkeit der **Schleifbearbeitung** solcher Cermets zwischen der fuer Wolframkarbidhartmetall und polykristallinem Diamant liegt. Nur leistungsstarke, robuste **Schleifmaschinen** ohne Schwingungen und mit ausreichender Spindelmotorkraft eignen sich fuer das **Schleifen** dieser Cermets. (Mitreuter)

Veröffentlichungsjahr

1991

Quelle

Industrial Diamond Review * Band 51 (1991) Heft 543, Seite 94-97 (4 Seiten, 7 Bilder, 1 Tabelle, 7 Quellen)

Klassifikation

3KXM Mechanische Werkstoffeigenschaften
3KEX Hartmetalle, Cermets
3LKB Spanende Bearbeitung, Zerspanen, Zerteilen

Schlagworte des Autors

CERMET
TITANCARBID
TITANNITRID
TANTALCARBID
WOLFRAMCARBID
MOLYBDAENCARBID
NICEL
VERSCHLEISS
HAERTE
OBERFLAECHENFEHLER
SCHLEIFEN
VORSCHUB
SCHLEIFEN MIT SCHEIBE
DIAMANTSCHLEIFSCHEIBE
MECHANISCHES ABTRAGEN
ZAEHFESTIGKEIT
BEARBEITUNGSFEHLER

Thesaurusbegriffe

SPANABNAHME

Sprache

Englisch

Recherchedatum

12.03.2021

Dokument Nr.

50

Titel

Titel russisch. Restspannungen nach dem **Schleifen** von Titan und Stahl mit **Scheiben** mit festem Schmiermittel.
Residual stresses after **grinding** of titanium and steel by **grinding wheels** with a solid lubricant.

Autor

BEZYKORNOV, A.I.
ADAMOVSKIJ, A.A.

Institution

nicht belegt

Abstrakt

Thin surface layers of steel and titanium specimens ground by standard (**abrasive** and diamond) **wheels** as well as by **wheels** with solid lubricants in the working layer are studied for their quality. Introduction of solid lubricants into the working layer of the **wheel** is shown to favour a decrease of residual stresses in specimens ground by these **wheels** and roughness of the treated surface. **Grinding wheels** with solid lubricants produced from superhard and conventional **abrasive** materials are promising to be widely used in industry during treatment of steel and titanium products.

Veröffentlichungsjahr

1988

Quelle

Poroskovaja Metallurgija, Kiev * (1988) Heft 7, Seite 97-99 (3 Seiten, 3 Bilder, 1 Tabelle, 3 Quellen)

Klassifikation

3KX Werkstoffeigenschaften
3LKB Spanende Bearbeitung, Zerspanen, Zerteilen
3KE Metallische Werkstoffe

Schlagworte des Autors

EIGENSPANNUNG
SCHLEIFEN
SCHLEIFSCHEIBE
WAERMESPANNUNG
OBERFLAECHENBESCHAFFENHEIT
RAUIGKEIT
SCHLEIFMITTEL
DIAMANT
FESTES SCHMIERMITTEL
KORUND
MOLYBDÄNVERBINDUNG

Thesaurusbegriffe

nicht belegt

Sprache

Russisch

Recherchedatum

12.03.2021

Dokument Nr. 51

Titel

Vlijanie tverdojj smazki na kharakteristiku geksanitovykh krugov. Der Einfluss von Festschmiermitteln auf die Charakteristika von Hexanitscheiben.

Autor

ADAMOVSKIJJ, A.A.

Institution

nicht belegt

Abstrakt

Um die fuer Reibung aufzuwendende Arbeit in der Schnittzone (beim **Schleifen**) zu verringern, wurden Festschmierstoffe entweder direkt zur **Schleifscheibenwerkstoff** zugesetzt oder auf die Arbeitsoberflaeche aufgebracht. Dabei wurde an **Schleifscheiben** aus Hexanit der Einfluss von **Molybdaendisulfid** und die technologischen Werte untersucht. Es werden Empfehlungen zur Anwendung des Festschmierstoffes in Hexanitscheiben mit organischem Binder gegeben.

Veröffentlichungsjahr

1987

Quelle

Poroskovaja Metallurgija, Kiev * (1987) Heft 11, Seite 80-84 (5 Seiten, 4 Bilder)

Klassifikation

3LEM Herstellung und Verarbeitung nichtmetallisch-anorganischer Werkstoffe
3MD Tribologie
3LKB Spanende Bearbeitung, Zerspanen, Zerteilen

Schlagworte des Autors

WERKSTOFF
PULVERMETALLURGIE
SCHLEIFSCHEIBE
SCHMIERMITTEL
FEUERFESTWERKSTOFF
SCHLEIFWERKZEUG
EIGENSCHAFT

Thesaurusbegriffe

nicht belegt

Sprache

Russisch

Recherchedatum

12.03.2021

Dokument Nr. 52