Synthesis and characterization of iron-cobalt (FeCo) alloy nanoparticles supported on carbon
Iron-cobalt nanocrystalline bimetallic alloys supported on carbon microparticles were synthesized and characterized. The preparation methods involved the use of iron and cobalt chloride or acetate precursor salts in water and direct co-precipitation or wet impregnation techniques. The size of the alloy nanoparticles differed depending on the preparation method. When the wet impregnation technique of acetate precursor salts of Fe and Co were used for the synthesis, the size of FeCo alloy nanoparticles was approximately 13 nm. FeCo alloy nanoparticles were characterized by crystallography (XRD), thermogravimetric analysis (TGA), electron microscopy, energy dispersive X-ray spectroscopy analysis (EDX), and atomic force microscopy (AFM). In all cases, we observed well-dispersed nanometer size alloy particles on the surface of carbon microparticles. FeCo supported on such carbon microparticles are chemically and mechanically stable for prolonged periods of time. AFM analysis showed that the FeCo nanoparticles were formed on the surface of the carrier. The results of this study suggest that using these easy and inexpensive synthetic methods iron-cobalt nanoparticles can be formed on carbon microparticles support materials with applications in catalysis, microelectronics, and biomedicine

General information
State: Published
Organisations: Department of Chemistry, Centre for Catalysis and Sustainable Chemistry, Organic Chemistry, Technical University of Denmark
Authors: Koutsopoulos, S. (Ekstern), Barfod, R. (Intern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Pages: 1210-1216
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
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Scopus rating (2016): CiteScore 3.05 SJR 0.961 SNIP 1.321
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.987 SNIP 1.43 CiteScore 3.03
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.135 SNIP 1.66 CiteScore 3.13
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.064 SNIP 1.597 CiteScore 2.73
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
Structure of caesium disulfate at 120 and 273 K

The crystal structures of Cs2S2O7 at 120 and 273 K have been determined from X-ray single-crystal data. Caesium disulfate represents a new structure type with a uniquely high number of independent formula units at 120 K: In one part caesium ions form a tube surrounding the disulfate ions, [Cs8(S2O7)6+]n; in the other part a disulfate double-sheet sandwiches a zigzagging caesium ion chain, [Cs2(S2O7)6−]n. Caesium disulfate shows an isostructural order–disorder transition between 230 and 250 K, where two disulfate groups become partially disordered above 250 K. The Cs+ ion arrangement shows a remarkable similarity to the high-pressure RbIIV metal structure.

General information

State: Published
Organisations: X-ray Crystallography, Department of Chemistry, Energy and Materials, Sustainable and Green Chemistry
Authors: Ståhl, K. (Intern), Berg, R. W. (Intern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Pages: 551-557
Publication date: 2009
Main Research Area: Technical/natural sciences

Publication information

Journal: Acta Crystallographica. Section B: Structural Science
Volume: 65
Issue number: 5
ISSN (Print): 0108-7681
Alternative flue gas cleaning by catalysis, electrocatalysis and selective gas absorption

General information
State: Published
Organisations: Department of Chemistry, Sustainable and Green Chemistry, Centre for Catalysis and Sustainable Chemistry, Department of Chemistry
Authors: Due-Hansen, J. (Intern), Rasmussen, S. B. (Intern), Huang, J. (Intern), Riisager, A. (Intern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern), Hamma-Cugny, H. (Intern), Rogez, J. (Ekstern), Winnick, J. (Ekstern), Wasserscheid, P. (Ekstern)
Publication date: 2007
Caesium disulfate at 120 and 273 K.

**General information**
- **State:** Published
- **Organisations:** Department of Chemistry
- **Authors:** Ståhl, K. (Intern), Berg, R. W. (Intern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
- **Publication date:** 2007
- **Event:** Abstract from 24th European Crystallographic Meeting, Marrakech, Morocco.

Caesium disulfate at 120 and 273 K. A novel structure type.

**General information**
- **State:** Published
- **Organisations:** X-ray Crystallography, Department of Chemistry, Energy and Materials, Department of Chemistry, Centre for Catalysis and Sustainable Chemistry
- **Authors:** Ståhl, K. (Intern), Berg, R. W. (Intern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
- **Publication date:** 2007
- **Event:** Abstract from 36th Danish Crystallographer Meeting, Odense, Denmark.

Conductivity, calorimetry and phase diagram of the NaHSO₄–KHSO₄ system

Physico-chemical properties of the binary system NaHSO₄–KHSO₄ were studied by calorimetry and conductivity. The enthalpy of mixing has been measured at 505 K in the full composition range and the phase diagram calculated. The phase diagram has also been constructed from phase transition temperatures obtained by conductivity for 10 different compositions and by differential thermal analysis. The phase diagram is of the simple eutectic type, where the eutectic is found to have the composition X(KHSO₄)=0.44 (melting point ≈ 406 K). The conductivities in the liquid region have been fitted to polynomials of the form κ(X)=A(X)+B(X)(T-Tₚ)+C(X)(T-Tₚ)², where Tₚ is the intermediate temperature of the measured temperature range and X, the mole fraction of KHSO₄. The possible role of this binary system as a catalyst solvent is also discussed. (C) 2005 Elsevier B.V. All rights reserved.
Synthesis and characterization of supported Pt and Pt alloys nanoparticles used for the catalytic oxidation of sulfur dioxide.

Controlled pore glass silica (CPG) was used as support to prepare platinum-based catalysts using the wet impregnation method and DMSO or CHCl3 as solvent. In all cases, the catalyst loading with the active phase was 2 wt%. The catalysts were tested for the SO2 oxidation reaction at atmospheric pressure in the temperature range of 250–700 °C. The effect of doping the active metal with rhodium and palladium was also studied. The catalytic activities of the supported catalysts were found to follow the order Pt–Pd/CPG > Pt–Rh/CPG > Pt/CPG. A significant synergistic effect of the Pt–Pd alloy was observed compared with the SO2 conversion efficiency of the individual metals supported on CPG. The effect of the solvent used in the impregnation step is also discussed with regard to the properties of the final product and to catalytic activity.

General information
The role of support and promoter on the oxidation of sulfur dioxide using platinum based catalysts

The catalytic oxidation of SO2 to SO3 was studied over platinum based catalysts in the absence and the presence of dopants. The active metal was supported on silica gel or titania (anatase) by impregnation. The activities of the silica supported catalysts were found to follow the order PtRh/SiO2 > Pt/SiO2 > Pt-Al/SiO2. For the samples supported on titania the respective order was Pt/TiO2 > Pt-Rh/TiO2 > Pt-Al/TiO2. The size of the particles of the active phase, the presence of dopants and the purity of the catalyst were found to affect the catalytic performance. A careful selection of the pH of the impregnation solution and of the reduction temperature of the precursor salts resulted in a very active catalyst with average particle size of 1.7 nm. (c) 2006 Elsevier B.V. All rights reserved.

General information
State: Published
Organisations: Department of Chemistry, Centre for Catalysis and Sustainable Chemistry
Authors: Koutsopoulos, S. (Ekstern), Rasmussen, S. B. (Intern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Pages: 142-148
Publication date: 2006
Main Research Area: Technical/natural sciences

Publication information
Journal: Applied Catalysis A - General
Volume: 306
ISSN (Print): 0926-860X
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): SJR 1.178 SNIP 1.311 CiteScore 4.26
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.203 SNIP 1.394 CiteScore 4.08
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.303 SNIP 1.574 CiteScore 4.04
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.426 SNIP 1.538 CiteScore 4.01
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.549 SNIP 1.615 CiteScore 3.89
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.71 SNIP 1.706 CiteScore 4.15
ISI indexed (2011): ISI indexed yes
Titania Supported Pt and Pt/Pd Nano-particle Catalysts for the Oxidation of Sulfur Dioxide.

Several types of titania (anatase) were used as supports for pure platinum and Pt–Pd bimetallic alloy catalysts. The preparation methods, normal wet impregnation technique and flame aerosol synthesis, obtained metal loadings of 2% by weight. The prepared catalysts were tested for SO2 oxidation activity at atmospheric pressure in the temperature range 250–600 °C. The SO2 to SO3 conversion efficiency of the Pt–Pd alloy was significantly higher than that of the individual metals. The effects of the preparation method and the titania type used on the properties and activity of the resulting catalyst are discussed.

General information
State: Published
Organisations: Department of Chemical and Biochemical Engineering, Department of Chemistry, Technical University of Denmark
Authors: Koutsopoulos, S. (Ekstern), Johannessen, T. (Intern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Pages: 270-276
Publication date: 2006
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Catalysis
Volume: 238
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ISSN (Print): 0021-9517
Ratings:
BFI (2017): BFI-level 2
Web of Science (2017): Indexed Yes
Crystal Structure and Spectroscopic Properties of CsVO2SO4

General information
State: Published
Organisations: Department of Chemistry, Institute of Chemical Engineering and High Temperature Chemical Processes
Authors: Rasmussen, S. B. (Intern), Boghosian, S. (Ekstern), Nielsen, K. (Intern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Pages: 3697-3701
Publication date: 2004
Main Research Area: Technical/natural sciences

Publication information
Journal: INORGANIC CHEMISTRY
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ISSN (Print): 0020-1669
Vanadia-silica and vanadia-cesium-silica catalysts for oxidation of SO2

Mesoporous vanadia-silica catalysts have been prepared by three different sol-gel procedures using tetraethylorthosilicate (TEOS), vanadyl acetylacetonate (VAA), or VOCl3 and in some cases quaternary ammonium salts ((CH3)3C14H29N+Br- or (C10H21)(4)N+Br-) as surfactants. According to procedure A, TEOS and VAA were concomitantly hydrolyzed, in procedure B TEOS was prehydrolyzed and vanadium precursor was added to the silica sol, and in procedure C both TEOS and vanadium precursors were separately prehydrolyzed. The sol-gel procedures were controlled by checking the effect of the hydrolysis pH, refluxing time, surfactant, and conditions of gellifications (slow evaporation at room temperature or autoclavization). The samples were dried under vacuum, first at room temperature, then at 373 K, and finally calcined at 773 K. ICP-AES analysis indicated for all samples a vanadium content of around 6.5 wt%. The samples were impregnated with Cs2SO4 resulting in a Cs:V ratio of 3:1 and then dried and calcined under the same conditions. The catalysts were characterized using several methods: sorption isotherms of N2 at 77 K, XRD, and XPS. The results of the characterization indicated that during calcination of the V/Cs catalysts vanadia is dissolved in a sulfate containing molten salt. The activity of these catalysts for the oxidation of SO2 was tested in a gas containing 2% SO2, 19% O2, 79% N2 in the temperature range 523-823 K. Similar experiments with gases containing 10% H2O in the feed or with wet catalysts were also performed. The activation of the catalysts and the catalytic behavior were monitored by in situ Raman and EPR spectroscopy. These characterization techniques indicated that the active molten phase contains vanadium oxosulfato complexes similar to the V2O5-M2S2O7 (M = alkali metal)-based industrial catalyst, where kieselghur is used as carrier material. The high dispersion of vanadium in the studied catalysts results in an increased catalytic activity for the oxidation of SO2 contained in feed gases with low SO2 content.
Catalytic and Chemical Properties of Boiler Deposits from Orimulsion Fuel

General information

State: Published
Organisations: Department of Chemistry, Department of Physics, Energi E2 A/S
Authors: Rasmussen, S. B. (Intern), Hagen, S. (Intern), Masters, S. G. (Intern), Hagen, A. (Intern), Ståhl, K. (Intern), Eriksen, K. M. (Intern), Simonsen, P. (Ekstern), Nørklit Jensen, J. (Ekstern), Berg, M. (Ekstern), Fehrmann, R. (Intern),
High Temperature NMR Studies of Ionic-Liquid Catalysts

General information
State: Published
Organisations: Department of Chemistry, Boreskov Institute of Catalysis
Authors: Lapina, O. (Ekstern), Terskikh, V. (Ekstern), Bal’zhinimaev, B. (Ekstern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Pages: 85-104
Publication date: 2003

Host publication information
Title of host publication: Green Industrial Applications of Ionic Liquids : II. Mathematics, Physics and Chemistry
Volume: 92
Place of publication: Dordrecht, The Netherlands
Publisher: Kluwer Academic Publishers
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Main Research Area: Technical/natural sciences
Conference: NATO Advanced Research Workshop on Green Industrial Applications of Ionic Liquids, Heraklion, Crete, Greece, 01/01/2000
Source: orbit
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Publication: Research - peer-review › Article in proceedings – Annual report year: 2003

Ionic Liquids as Catalysts for Sulfuric acid Production and Cleaning of Flue Gases

General information
State: Published
Organisations: Department of Chemistry, Georgia Institute of Technology
Authors: Fehrmann, R. (Intern), Eriksen, K. M. (Intern), Rasmussen, S. B. (Intern), Winnick, J. (Ekstern)
Pages: 253-262
Publication date: 2003

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Volume: 92
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Main Research Area: Technical/natural sciences
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Source: orbit
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Publication: Research - peer-review › Article in proceedings – Annual report year: 2003
Propene and 1-octene hydroformylation with silica-supported, ionic liquid-phase (SILP) Rh-phosphine catalysts in continuous fixed-bed mode

General information
State: Published
Organisations: Department of Chemistry
Authors: Riisager, A. (Intern), Eriksen, K. M. (Intern), Wasserscheid, P. (Ekstern), Fehrmann, R. (Intern)
Pages: 149-153
Publication date: 2003
Main Research Area: Technical/natural sciences

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Journal: Catalysis Letters
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Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.39 SJR 0.733 SNIP 0.768
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.757 SNIP 0.757 CiteScore 2.27
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.895 SNIP 0.937 CiteScore 2.56
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.894 SNIP 0.935 CiteScore 2.45
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.016 SNIP 0.988 CiteScore 2.35
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.07 SNIP 0.993 CiteScore 2.47
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.07 SNIP 0.792
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.996 SNIP 0.887
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 1.113 SNIP 0.858
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.22 SNIP 0.925
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 1.285 SNIP 0.872
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 1.263 SNIP 0.966
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 1.35 SNIP 1.058
Scopus rating (2003): SJR 1.133 SNIP 1.07
Propene and l-octene hydroformylation with silica-supported, ionic liquid-phase (SILP) Rh-phosphine catalysts in continuous fixed-bed mode

Supported ionic liquid-phase (SILP) catalysts were made by immobilizing Rh-monophosphine complexes of bis(m-phenylguanidinium) phenylphosphine 1 and NORBOS 2 ligands in 1-n-butyl-3-methylimidazolium hexafluorophosphate, [BMIM] [PF6], on a silica support. The catalysts were active in continuous gas- and liquid-phase hydroformylation of propene and 1-octene, exhibiting TOFs up to 88 h(-1) for SILP Rh-2 catalysts, while only low selectivities up to 74% n-aldehyde (n/iso ratio of 2.8) were obtained. This is the first example of continuous fixed-bed liquid-phase hydroformylation using SILP catalysts.
Propene Hydroformylation by Supported Aqueous-phase Rh-NORBOS Catalysts

The gas-phase hydroformylation reaction of propene using supported aqueous-phase (SAP) Rh-NORBOS modified catalysts in a continuous flow reactor has been examined. SAP catalysts supported on six different support materials were made by wet impregnation using solutions of the precursor complex Rh(acac)(CO)(2) and NORBOS ligand. Catalytic performance of silica gel-based catalysts was examined by altering catalyst composition and reaction conditions. Results were compared to analogous TPPTS catalysts and to catalysts supported on alternative support materials, e.g. silica glass, alumina and carbon. Based on these results the aqueous and the homogeneous nature of the SAP catalysts are discussed.

General information
State: Published
Organisations: Department of Chemistry, Department of Chemical and Biochemical Engineering
Authors: Riisager, A. (Intern), Eriksen, K. M. (Intern), Hjortkjær, J. (Intern), Fehrmann, R. (Intern)
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Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of molecular catalysis a-chemical
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BFI (2017): BFI-level 1
Web of Science (2017): Indexed Yes
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Scopus rating (2016): SJR 1.006 SNIP 1.095 CiteScore 3.96
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.052 SNIP 1.262 CiteScore 3.93
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.092 SNIP 1.431 CiteScore 3.93
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.155 SNIP 1.315 CiteScore 3.56
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.257 SNIP 1.363 CiteScore 3.25
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.242 SNIP 1.252 CiteScore 3.14
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.248 SNIP 1.342
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.321 SNIP 1.425
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 1.259 SNIP 1.232
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.316 SNIP 1.206
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 1.118 SNIP 1.076
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 1.269 SNIP 1.117
Scopus rating (2004): SJR 1.125 SNIP 1.291
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 1.061 SNIP 1.236
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 1.067 SNIP 1.005
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 0.954 SNIP 0.883
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 1.106 SNIP 1.117
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 1.19 SNIP 1.225

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Hydroformylation, Supported aqueous-phase, Rhodium, NORBOS, Propene

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Source: orbit
Source-ID: 38998
Publication: Research - peer-review › Journal article – Annual report year: 2003

**Thermal, conductivity, NMR, and Raman spectroscopic measurements and phase diagram of the Cs2S2O7-CsHSO4 system**

The conductivity of the binary system Cs2S2O7-CsHSO4 has been measured at 20 different molten compositions in the full composition range and in the temperature range 430-750 K. From the obtained liquidus-solidus phase transition temperatures, the phase diagram has been constructed. It is of the simple eutectic type with the composition X(CsHSO4) = 0.86 and temperature of fusion of 470 K for the eutectic. The previously unpublished temperature of fusion of CsHSO4 was found to be 491.7 K. The experimental phase diagram is in good accordance with a calculated diagram based on measured thermodynamic properties of the pure compounds and the heat of liquid-liquid mixing measured for X(CsHSO4).
Cs-113 and O-17 NMR spectra and Raman spectra of the liquid Cs2S2O7-CsHSO4 system indicate the presence of a temperature sensitive equilibrium 2HSO(4) reversible arrow S2O72- + H2O Where the water molecules are strongly associated in the melt. Fast exchange reactions take place between the species present, leading to the observed O-17 NMR single line with an averaged chemical shift. Super-ionic and thermodynamic stable phases and the temperatures of phase transitions have been identified from the NMR measurements on CsHSO4, CS2S2O7, and Cs2S2O7-CsHSO4 mixtures. For 11 selected compositions covering the entire composition range of the CS2S2O7-CsHSO4 binary system, the conductivity of the molten state has been expressed by equations of the form k(X) = A(X) + B(X)(T - T-m) + C(X)(T - T-m)(2) where T-m is the intermediate temperature of the measured temperature range and X is the initial mol fraction of CsHSO4.
Catalytic and electrocatalytic cleaning of alkali containing flue gases

General information
State: Published
Organisations: Department of Chemistry, Georgia Institute of Technology
Authors: Rasmussen, S. B. (Intern), Eriksen, K. M. (Intern), Winnick, J. (Ekstern), Rasmussen, R. C. (Intern), Fehrmann, R. (Intern)
Publication date: 2002
Event: Abstract from 223rd ACS Meeting, Orlando, USA, 7th-11th April.
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 39005
Publication: Research - peer-review › Journal article – Annual report year: 2003

Crystal structure and spectroscopic properties of Na2K6(VO)2(SO4)7

Red-brown crystals of a new mixed alkali oxo sulfato vanadium(V) compound Na2K6(VO)2(SO4)7, suitable for X-ray determination, have been obtained from the catalytically important binary molten salt system M2S2O7-V2O5 (M = 80% K and 20% Na). By slow cooling of a mixture with the mole fraction X-V2O5 = 0.24 from 325 degreesC, i.e., just below the liquidus temperature, to the solidus temperature of around 300 degreesC, a dark reddish amorphous phase was obtained containing crystals of the earlier described V(V)-V(IV) mixed valence compound K-6(VO)(4)(SO4)(8) and Na2K6-(VO)(2)(SO4)(7) described here. This compound crystallizes in the tetragonal space group P4(3)2(1)2 (No. 96) with a = 9.540(3) Angstrom, c = 29.551(5) Angstrom at 20 degreesC and Z = 4. It contains a distorted VO6 octahedron with a short V-O bond of 1.552(6) Angstrom, a long one of 2.276(5) Angstrom trans to this, and four equatorial V-O bonds in the range 1.881(6)-1.960(6) A. The deformation of the VO6 octahedron is less pronounced compared to that of the known oxo sulfato V(V) compounds. Each VO3+ group is coordinated to five sulfate groups of which two are unidentately coordinated and three are bidentate bridging to neighboring VO3+ groups. The length of the S-O bonds in the S-O-V bridges of the two unidentately coordinated sulfato groups are 1.551(6) Angstrom and 1.568(6) Angstrom, respectively, which are unusually long compared to our earlier measurements of sulfate groups in other V(111), V(IV), and V(V) compounds.

General information
State: Published
Organisations: Department of Chemistry, University of Patras, Foundation for Research and Technology-Hellas
Authors: Karydis, D. (Ekstern), Boghosian, S. (Ekstern), Nielsen, K. (Intern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Pages: 2417-2421
Publication date: 2002
Main Research Area: Technical/natural sciences
Publication information
Journal: INORGANIC CHEMISTRY
Volume: 41
EPR and UV/VIS spectroscopic investigations of VO2+ complexes and compounds formed in alkali pyrosulfates

The catalytically important molten salt-gas system M2S2O7-M2SO4-V2O5/SO2(g) (M = Na, K, Rb, Cs) has been investigated by X- and Q-band EPR spectroscopy. In order to obtain information about the V(IV) complex formation in the melts, samples rather dilute in V2O5 were quenched from the molten state at 450-460°C to 0°C. EPR spectra of the quenched samples were recorded on samples with alkali to vanadium (M/V) ratios 40, 80 and 160. The spectra show that two V(IV) complexes dominate in the melt regardless of the type of alkali metal ion. In systems with low activity of sulfate a paramagnetic V(IV) complex with g(parallel) = 1.915, g(perpendicular) = 1.978 and line widths 5-15 Gauss is observed. In systems saturated with M2SO4 the obtained EPR spectra show a paramagnetic complex with the g-tensors g(parallel) = 1.930, g(perpendicular) = 1.980 and line widths 20-60 Gauss. These results fit very well with the assumption that the species VO(SO4)(2-) and SO42- are in equilibrium with VO(SO4)(3-) and VO(SO4)(4-). It has also been shown for the system M2S2O7-M2SO4(sat)-V2O5/SO42-(g) that the line widths in the system increase with higher cation radius, and depend linearly on the volume fraction of the sample occupied by the cation. This indicates that spin-spin relaxation effects are the major contribution to line broadening. Combining information from UV/VIS and EPR spectra shows that the VO2+ unit in the molten salt solvent exhibits electronic properties close to aqueous solutions of V(IV).

Etude thermodynamique des systèmes binaires MHSO4-NHSO4 (M,N=Na,K,Rb),

Molten Salt Electrocatalytic Membrane Cells for Flue Gas Cleaning.
Molten V2O5/Cs0.9K0.9Na0.2S2O7 and V2O5/K2S2O7 catalysts as electrolytes in an electrocatalytic membrane separation device for SO2 removal

Bench scale fuel cell tests have been carried out on the SO2 oxidation catalyst systems V2O5/M2S2O7 (M = alkali) used as electrolytes in a standard molten carbonate fuel cell (MCFC) fuel cell setup for removal of SO2 from power plant flue gases. Porous LiINi(1-x)O electrodes were used both as anode and cathode. The cleaning cell removes SO2 when a potential is applied across the membrane, potentially providing cheap and ecological viable means for regeneration of SO2 from off-gases into high quality H2SO4. Results show that successful removal of up to 80% SO2 at 450 degreesC can be achieved at approximately 5 mA cm(-2). However, the data obtained during the experiments explain the current limitations of the process, especially in terms of electrolyte wetting capability and acid/base chemistry of the electrolyte.
SO2 oxidation catalyst model systems characterized by thermal methods
The molten salts M2S2O7 and MHSO4, the binary molten salt systems M2S2O7-MHSO4 and the molten salt-gas systems M2S2O7 V2O5 and M2S2O7-M2SO4 V2O5 (M = Na, K, Rb, Cs) in O-2, SO2 and At atmospheres have been investigated by thermal methods like calorimetry, Differential Enthalpic Analysis (DEA) and Differential Scanning Calorimetry (DSC). Fundamental thermodynamic data like temperatures and molar heats of solid-solid transition and fusion, phase diagrams, heat capacities of solids and liquids, heat of mixing and heats of complex formation have been obtained and the results are discussed in relation to the mechanism of SO2 oxidation by V2O5 based industrial catalysts.

General information
State: Published
Organisations: Department of Chemistry, Centre National de la Recherche Scientifique, Institut Universitaire des Systèmes Thermiques Industriels
Authors: Hatem, G. (Ekstern), Eriksen, K. M. (Intern), Gaune-Escard, M. (Ekstern), Fehrmann, R. (Intern)
Pages: 323-331
Publication date: 2002
Main Research Area: Technical/natural sciences

Publication information
Journal: TOPICS IN CATALYSIS
Volume: 19
Issue number: 3-4
ISSN (Print): 1022-5528
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): SJR 0.974 SNIP 0.878 CiteScore 2.55
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.945 SNIP 0.789 CiteScore 2.41
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.989 SNIP 0.862 CiteScore 2.29
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.125 SNIP 0.837 CiteScore 2.67
The partial molar enthalpies of mixing of NaHSO₄ and KHSO₄ have been measured at 528 K by dropping samples of pure compounds into molten mixtures of NaHSO₄ and KHSO₄ in Calvet calorimeter. From these values the molar enthalpy of mixing has been deduced. The same method has been used for the determination of the heat capacity of the two pure compounds in the solid and liquid states. The phase diagram of this system has been confirmed by conductometric and thermal analysis methods. By an optimization method the excess entropy of the liquid mixtures was also calculated.

**General information**

State: Published
Organisations: Department of Chemistry, Faculté des Sciences St Jérôme
Authors: Eriksen, K. M. (Intern), Fehrmann, R. (Intern), Hatem, G. (Ekstern)
Pages: 25-30
Publication date: 2002
Main Research Area: Technical/natural sciences

**Publication information**

Journal: Journal of Thermal Analysis and Calorimetry
Volume: 68
An ESR Investigation of VO_{2+} Complexes in Alkali Pyrosulfate

**General information**

State: Published
Organisations: Department of Chemistry
Authors: Rasmussen, S. B. (Intern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Publication date: 2001
Event: Poster session presented at 9th International Symposium on Magnetic Resonance in Colloid and Interface Science, St. Petersburg, Russia.
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 50561
Publication: Research › Poster – Annual report year: 2001

Calorimetric and spectroscopic measurements on the SO_{2} oxidation catalyst model system M_{2}S_{2}O_{7}-M_{2}SO_{4}-V_{2}O_{5}/SO_{2}(g) or Ar(g) (M = K or Cs) at 430-470 degrees C

**General information**

State: Published
Organisations: Department of Chemistry, Institut Universitaire des Systèmes Thermiques Industriels
Authors: Hatem, G. (Ekstern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Pages: 187-193
Publication date: 2001
Main Research Area: Technical/natural sciences

**Publication information**

Journal: Thermochimica Acta
Volume: 379
Issue number: 1-2
ISSN (Print): 0040-6031
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): SJR 0.683 SNIP 1.17 CiteScore 2.4
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.706 SNIP 1.125 CiteScore 2.18
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.916 SNIP 1.489 CiteScore 2.56
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.628 SNIP 1.513 CiteScore 2.33
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.75 SNIP 1.424 CiteScore 2.1
Conductivity, thermal measurements, X-ray investigations, and phase diagram of the Na2S2O7-K2S2O7 system

General information
State: Published
Organisations: Department of Chemistry, Faculté des Sciences St Jérôme
Authors: Rasmussen, S. B. (Intern), Eriksen, K. M. (Intern), Hatem, G. (Ekstern), da Silva, F. (Ekstern), Ståhl, K. (Intern), Fehrmann, R. (Intern)
Pages: 2747-2752
Publication date: 2001
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Physical Chemistry Part B: Condensed Matter, Materials, Surfaces, Interfaces & Biophysical
Volume: 105
Issue number: 14
ISSN (Print): 1520-6106
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed Yes
Scopus rating (2016): SJR 1.348 SNIP 1.02 CiteScore 3.03
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.367 SNIP 1.096 CiteScore 3.25
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.44 SNIP 1.14 CiteScore 3.28
Web of Science (2014): Indexed yes
DeNOx and DeSOx Catalysts - Structure, Properties and Deactivation.

General information
State: Published
Organisations: Department of Chemistry
Authors: Rasmussen, S. B. (Intern), Rasmussen, R. C. (Intern), Eriksen, K. M. (Intern), Nielsen, K. (Intern), Winnick, J. (Ekstern), Fehrmann, R. (Intern)
Publication date: 2001
Event: Poster session presented at 6th International Symposium on Molten Salt Chemistry and Technology, Shanghai, China.
Main Research Area: Technical/natural sciences
Environmental Catalysis - SO2 Oxidation Catalysts, Structure, Activity and Deactivation

General information
State: Published
Organisations: Department of Chemistry
Authors: Rasmussen, S. B. (Intern), Eriksen, K. M. (Intern), Nielsen, K. (Intern), Fehrmann, R. (Intern)
Publication date: 2001
Event: Poster session presented at MSDG Christmas Meeting, London, United Kingdom.
Main Research Area: Technical/natural sciences
Source: orbit
Publication: Research › Poster – Annual report year: 2001

Oxidation of SO2 from Diluted Gases over Mesoporous V-Cs-SiO2 Catalysts

General information
State: Published
Organisations: Department of Chemistry
Authors: Caraba, R. M. (Ekstern), Alifanti, M. (Ekstern), Pârvulescu, V. (Ekstern), Boghosian, S. (Ekstern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Publication date: 2001
Event: Poster session presented at 5th European Congress on Catalysis, Limerick, Ireland.
Main Research Area: Technical/natural sciences
Source: orbit
Publication: Research › Poster – Annual report year: 2001

Rh/NORBOS Hydroformylation of SAP Catalysts: Structure and Reactivity

General information
State: Published
Organisations: Department of Chemistry
Authors: Riisager, A. (Intern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Publication date: 2001
Event: Poster session presented at 100. Bunsentagung, Stuttgart, Germany.
Main Research Area: Technical/natural sciences
Source: orbit
Publication: Research › Poster – Annual report year: 2001

Røggasrensning-katalysatorer og processer under udvikling.

General information
State: Published
Organisations: Department of Chemistry
Authors: Rasmussen, R. C. (Intern), Rasmussen, S. B. (Intern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Pages: 4
Publication date: 2001
Main Research Area: Technical/natural sciences

Publication information
Journal: Dansk Kemi
Volume: 82
Issue number: 11
ISSN (Print): 0011-6335
Ratings:
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
SCR by NH3 Over Impregnated Fiber-Glass Catalysts

General information
State: Published
Organisations: Department of Chemistry
Authors: Suchnev, A. P. (Ekstern), Masters, S. G. (Intern), Goncharou, V. B. (Ekstern), Ba'zhinimaev, B. S. (Ekstern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern), Toktarev, A. V. (Ekstern), Simonova, L. G. (Ekstern), Barelko, V. V. (Ekstern)
Publication date: 2001
Event: Poster session presented at 17th North American Catalysis Society Meeting, Toronto, Canada.
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 42923
Publication: Communication › Journal article – Annual report year: 2001

Selective catalytic reduction of NO by NH3 over high surface area vanadia-silica catalysts

General information
State: Published
Organisations: Department of Chemistry, University of Bucharest, Technical University of Denmark
Authors: Caraba, R. (Ekstern), Masters, S. (Ekstern), Eriksen, K. M. (Intern), Parvulescu, V. (Ekstern), Fehrmann, R. (Intern)
Pages: 191-200
Publication date: 2001
Main Research Area: Technical/natural sciences

Publication information
Journal: APPLIED CATALYSIS B-ENVIRONMENTAL
Volume: 34
Issue number: 3
ISSN (Print): 0926-3373
Ratings:
BFI (2017): BFI-level 2
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 2
Scopus rating (2016): SJR 2.583 SNIP 2.12 CiteScore 8.86
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.26 SNIP 2.081 CiteScore 7.72
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.232 SNIP 2.164 CiteScore 6.92
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.345 SNIP 2.134 CiteScore 6.42
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.629 SNIP 2.236 CiteScore 6.08
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
Structure and Reactivity of Rh/NORBOS Hydroformylation Catalysts

General information
State: Published
Organisations: Department of Chemistry
Authors: Riisager, A. (Intern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Publication date: 2001
Event: Poster session presented at 5th European Congress on Catalysis, Limerick, Ireland.
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 42881
Publication: Research - peer-review › Journal article – Annual report year: 2001

Sulfate Solubility and Sulfato Complex Formation of V(V) and V(IV) in Pyrosulfate Melts

General information
State: Published
Organisations: Department of Chemistry, Department of Chemistry
Authors: Rasmussen, S. B. (Intern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Pages: 161-174
Publication date: 2001

Host publication information
Title of host publication: Proceedings of the International Jondal 2000 Symposium
Main Research Area: Technical/natural sciences
Conference: Jondal Symposium, 01/01/2000
Source: orbit
Thermodynamic study of the molten salt binary system KHSO4-NaHSO4

General information
State: Published
Organisations: Department of Chemistry
Authors: Eriksen, K. M. (Intern), Fehrmann, R. (Intern), Hatem, G. (Ekstern)
Publication date: 2001
Event: Poster session presented at Journées de Calorimétrie et d'Analyse Thermique, Hammamet, Tunisia.
Main Research Area: Technical/natural sciences

Diagramme de Phases du Systeme Binaire CsHSO4-Cs2S2O7

General information
State: Published
Organisations: Department of Chemistry
Authors: Rasmussen, S. B. (Intern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern), Hatem, G. (Ekstern)
Pages: 42-45
Publication date: 2000
Host publication information
Title of host publication: Proc. XXVI Journees d'Etude des Equilibres entre Phases, eds. C. Bergman and G. Hatem
Place of publication: Marseille, France
Publisher: Comptes Rendus CNRS Université de Provence
Main Research Area: Technical/natural sciences
Source-ID: 176728

Electrochemical Flue Gas Cleaning Using Molten Pyrosulfate-Based Membranes

General information
State: Published
Organisations: Department of Chemistry
Authors: Rasmussen, S. B. (Intern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern), Winnick, J. (Ekstern)
Pages: 694-697
Publication date: 2000
Host publication information
Title of host publication: Twelfth International Symposium on Molten Salts, ed. P. Trulove et al.
Place of publication: Pennington, N.J., USA
Publisher: Electrochemical Society, Incorporated
Main Research Area: Technical/natural sciences
Source-ID: 176727

Environmental Catalysis - Pilled Clay DeNOX Catalysts and Electrocatalytical DeSOX Process

General information
State: Published
Organisations: Department of Chemistry
Authors: Mattsson, R. (Ekstern), Rasmussen, S. B. (Intern), Erksen, K. M. (Intern), Winnick, J. (Ekstern), Fehrmann, R. (Intern)
Pages: 341
Publication date: 2000
Main Research Area: Technical/natural sciences
On the solid phases in the Na2S2O7 - K2S2O7 phase diagram

General information
State: Published
Organisations: Department of Chemistry, Université de Provence
Authors: Ståhl, K. (Intern), Hatem, G. (Ekstern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Pages: P5
Publication date: 2000
Conference: 31. Danske Krystallografmøde, København, 01/01/2000
Main Research Area: Technical/natural sciences

Electrochemical Flue Gas Cleaning using Molten Pyrosulfate-Based Membranes

General information
State: Published
Organisations: Department of Chemistry, Georgia Institute of Technology
Authors: Rasmussen, S. B. (Intern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern), Winnick, J. (Ekstern)
Pages: 2326
Publication date: 1999
Conference: 196th Meeting of the Electrochemical Society, Honolulu, Hawaii, United States, 17/10/1999 - 17/10/1999
Main Research Area: Technical/natural sciences

EPR Spectroscopic Characterization of DeNox and SO2 Oxidation Catalysts and Model-Systems

General information
State: Published
Organisations: Department of Chemistry, Hempel A/S, B.P. Chemicals SA, Boreskov Institute of Catalysis
Authors: Eriksen, K. M. (Intern), Jensen, C. (Ekstern), Rasmussen, S. B. (Intern), Oehlers, C. (Ekstern), Bal'zhinimaev, B. (Ekstern), Fehrmann, R. (Intern)
Pages: 465
Publication date: 1999
Main Research Area: Technical/natural sciences
Equilibres entre Phases dans les Melanges Rb2S2O7-V2O5

General information
State: Published
Organisations: Department of Chemistry, Université de Provence
Authors: Hatem, G. (Ekstern), Gaune-Escard, M. (Ekstern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Pages: 122-125
Publication date: 1999
High-Temperature Multinuclear NMR Studies of Vanadia Catalysts for SO2 Oxidation

General information
State: Published
Organisations: Department of Chemistry, Boreskov Institute of Catalysis
Authors: Lapina, O. B. (Ekstern), Terskikh, V. V. (Ekstern), Shubin, A. A. (Ekstern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Pages: 255
Publication date: 1999
Main Research Area: Technical/natural sciences

Publication information
Journal: Colloids and Surfaces A: Physicochemical and Engineering Aspects
ISSN (Print): 0927-7757
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.93 SJR 0.797 SNIP 1.104
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.803 SNIP 1.116 CiteScore 2.83
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.843 SNIP 1.252 CiteScore 2.81
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.811 SNIP 1.255 CiteScore 2.6
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.841 SNIP 1.189 CiteScore 2.34
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.812 SNIP 1.183 CiteScore 2.43
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.872 SNIP 1.115
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.848 SNIP 1.059
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.886 SNIP 1.041
Scopus rating (2007): SJR 0.795 SNIP 0.978
Scopus rating (2006): SJR 0.822 SNIP 1.091
Scopus rating (2005): SJR 0.813 SNIP 1.004
Scopus rating (2004): SJR 0.844 SNIP 1.106
Scopus rating (2003): SJR 0.824 SNIP 1.033
Web of Science (2003): Indexed yes
Progress on the mechanistic understanding of SO2 oxidation catalysts

For almost a century vanadium oxide based catalysts have been the dominant materials in industrial processes for sulfuric acid production. A vast body of information leading to fundamental knowledge on the catalytic process was obtained by Academician [G.K. Boreskov, Catalysis in Sulphuric Acid Production, Goskhimizdat (in Russian), Moscow, 1954, p. 348]. In recent years these catalysts have also been used to clean flue gases and other SO2 containing industrial off-gases. In spite of the importance and long utilization of these industrial processes, the catalytic active species and the reaction mechanism have been virtually unknown until recent years.

It is now recognized that the working catalyst is well described by the molten salt/gas system M2S2O7-MHSO4-V2O5/SO2-O2-SO3-H2O-CO2-N2 (M=Na, K, Cs) at 400-600 degrees C and that vanadium complexes play a key role in the catalytic reaction mechanism.

A multi-instrumental investigation that combine the efforts of four groups from four different countries has been carried out on the model system as well as on working industrial catalysts. Detailed information has been obtained on the complex and on the redox chemistry of vanadium. Based on this, a deeper understanding of the reaction mechanism has been achieved. (C) 1999 Elsevier Science B.V. All rights reserved.
**Redox Equilibria in SO2 Oxidation Catalysts**

**General information**  
State: Published  
Organisations: Department of Chemistry, Foundation for Research and Technology-Hellas  
Authors: Rasmussen, S. B. (Intern), Eriksen, K. M. (Intern), Boghosian, S. (Ekstern), Fehrmann, R. (Intern)  
Pages: 204-207  
Publication date: 1999  
Conference: The International George Papatheodorou Symposium, Patras, Greece, 01/01/1999  
Main Research Area: Technical/natural sciences

**Publication information**  
Original language: English  
Source: orbit  
Source-ID: 175044  
Publication: Research - peer-review › Journal article – Annual report year: 1999

**Sulfato Complex Formation of V(V) and V(IV) in Pyrosulfate Melts Investigated by Potentiometry and Spectroscopic Methods**

**General information**  
State: Published
Thermal and Conductometric Investigations and Phase Diagram of the Rb$_2$S$_2$O$_7$-V$_2$O$_5$ System

General information
State: Published
Organisations: Department of Chemistry, Université de Provence
Authors: Abdoun, F. (Ekstern), Hatem, G. (Ekstern), Gaune-Escard, M. (Ekstern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Pages: 3559
Publication date: 1999
Main Research Area: Technical/natural sciences

Publication information
Volume: 103
Original language: English
Source: orbit
Source-ID: 174079
Publication: Research - peer-review › Journal article – Annual report year: 1999

Thermal Properties of the Compounds and Binary Systems, M$_2$S$_2$O$_7$, MHSO$_4$, M$_2$S$_2$O$_7$-MHSO$_4$, M$_2$S$_2$O$_7$-V$_2$O$_5$ (M=Na, K, Rb, Cs).

General information
State: Published
Organisations: Department of Chemistry, Université de Provence
Authors: Hatem, G. (Ekstern), Gaune-Escard, M. (Ekstern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Pages: 73-77
Publication date: 1999
Main Research Area: Technical/natural sciences

Host publication information
Title of host publication: Thermal Properties of the Compounds and Binary Systems, M$_2$S$_2$O$_7$, MHSO$_4$, M$_2$S$_2$O$_7$-MHSO$_4$, M$_2$S$_2$O$_7$-V$_2$O$_5$ (M=Na, K, Rb, Cs).
Place of publication: Patras, Greece
Main Research Area: Technical/natural sciences
Conference: Proc. Int. G.N. Papatheodorou Symposium, Patras, Greece, 01/01/1999
Source: orbit
Source-ID: 174115
Publication: Research - peer-review › Journal article – Annual report year: 1999

Conductivity, NMR Measurements and Phase Diagram of the K$_2$S$_2$O$_7$-V$_2$O$_5$ System

General information
State: Published
Organisations: Department of Chemistry, Hempel A/S, Université de Provence, Boreskov Institute of Catalysis
Authors: Folkmann, G. E. (Ekstern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern), Gaune -Escard, M. (Ekstern), Hatem, G. (Ekstern), Lapina, O. B. (Ekstern), Terskikh, V. (Ekstern)
Pages: 24-28
Publication date: 1998
Main Research Area: Technical/natural sciences

Publication information
Conductrometric, density and thermal measurements of the M2S2O7 (M = Na, K, Rb, Cs) salts

Physico-chemical properties, such as densities, conductivities, enthalpies of phase transitions and melting points, have been measured and summarised for the alkali pyrosulphates Na2S2O7, K2S2O7, Rb2S2O7, Cs2S2O7. The densities of the molten pyrosulphates could be expressed by the linear expression \( \rho = A + B(T - T_m) \) where \( T_m \) is the middle temperature of the temperature range measured, i.e. from the melting point and up to 550 degrees C at the maximum.

The specific conductivities of the molten pyrosulphates have been expressed by the equation \( \rho = A + B(T - T_m) + C(T - T_m)^2 + D(T - T_m)^3 \) in the temperature range from the melting point and up to 500 degrees C at the maximum. From these measurements also the activation energy for the equivalent conductivity of the alkali cations in the melts could be calculated and compared to the analogous alkalisulphates.

By calorimetric investigations of the alkali pyrosulphates the temperatures of fusion, the enthalpies and entropies of fusion and possible solid-solid transitions together with the molar heat capacities of the solid and liquid pyrosulphates at 300-800 K, have been obtained and discussed in relation to the conductrometric measurements and the few related previous investigations. (C) 1998 Elsevier Science B.V.

General information
State: Published
Organisations: Department of Chemistry, Université de Provence
Authors: Hatem, G. (Ekstern), Abdoun, F. (Ekstern), Gaune-Escard, M. (Ekstern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern), Eriksen, S. (Intern)
Pages: 33-42
Publication date: 1998
Main Research Area: Technical/natural sciences

Publication information
Journal: Thermochimica Acta
Volume: 319
Issue number: 1-2
ISSN (Print): 0040-6031
Ratings:
- BFI (2017): BFI-level 1
- Web of Science (2017): Indexed Yes
- BFI (2016): BFI-level 1
- Scopus rating (2016): SJR 0.683 SNIP 1.17 CiteScore 2.4
- Web of Science (2016): Indexed yes
- BFI (2015): BFI-level 1
- Scopus rating (2015): SJR 0.706 SNIP 1.125 CiteScore 2.18
- Web of Science (2015): Indexed yes
- BFI (2014): BFI-level 1
- Scopus rating (2014): SJR 0.916 SNIP 1.489 CiteScore 2.56
- Web of Science (2014): Indexed yes
- BFI (2013): BFI-level 1
- Scopus rating (2013): SJR 0.628 SNIP 1.513 CiteScore 2.33
- ISI indexed (2013): ISI indexed yes
- Web of Science (2013): Indexed yes
- BFI (2012): BFI-level 1
- Scopus rating (2012): SJR 0.75 SNIP 1.424 CiteScore 2.1
- ISI indexed (2012): ISI indexed yes
- Web of Science (2012): Indexed yes
- BFI (2011): BFI-level 1
- Scopus rating (2011): SJR 0.588 SNIP 1.286 CiteScore 1.99
- ISI indexed (2011): ISI indexed yes
- Web of Science (2011): Indexed yes
Diagramme d’Equilibre des Phases du Systeme NaHSO4-Na2S2O7 et Grandeur Thermodynamiques d’Exces

General information
State: Published
Organisations: Department of Chemistry, Université de Provence
Authors: Hatem, G. (Ekstern), Rasmussen, S. B. (Intern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Publication date: 1998

Host publication information
Title of host publication: XXIV JEEP
Place of publication: Nancy, France
Publisher: Universite Henri Poincare
Main Research Area: Technical/natural sciences
Conference: Journees d’Etude des Equilibres Entre Phases, Nancy, France, 01/01/1998
Source: orbit
Source-ID: 170634
Publication: Research › Article in proceedings – Annual report year: 1998

Electrochemical and Spectroscopic Study on V(V) and V(IV) Sulfate Complex Formation in Pyrosulfate Melts.

General information
State: Published
Organisations: Department of Chemistry
Authors: Fehrmann, R. (Intern), Eriksen, K. M. (Intern)
Pages: 455-458
Publication date: 1998
Main Research Area: Technical/natural sciences

Publication information
Journal: Molten Salt Forum
Volume: 5-6
Original language: English
Source: orbit
Source-ID: 170608
Publication: Research - peer-review › Journal article – Annual report year: 1998
Noter og øvelser til 21390 Datalogi for K-retningen

General information
State: Published
Organisations: Department of Chemistry
Authors: Eriksen, K. M. (Intern)
Number of pages: 88
Publication date: 1998

Publication information
Original language: Danish
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 170703
Publication: Research - peer-review › Book – Annual report year: 1998

Phase Diagram of the K2S2O7-V2O5- and Rb2S2O7-V2O5 Systems

General information
State: Published
Organisations: Department of Chemistry, Université de Provence
Authors: Abdoun, F. (Ekstern), Hatem, G. (Ekstern), Gaune-Escard, M. (Ekstern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Pages: 493-496
Publication date: 1998
Main Research Area: Technical/natural sciences

Publication information
Journal: Molten Salt Forum
Volume: 5-6
Original language: English
Source: orbit
Source-ID: 170611
Publication: Research - peer-review › Journal article – Annual report year: 1998

Phase Diagrams and Physico-Chemical Properties of the M2S2O7-V2O5 Systems (M=Na,K,Rb,Cs)

General information
State: Published
Organisations: Department of Chemistry, Université de Provence
Authors: Hatem, G. (Ekstern), Gaune-Escard, M. (Ekstern), Fehrmann, R. (Intern), Eriksen, K. M. (Intern)
Pages: 483-90
Publication date: 1998

Host publication information
Title of host publication: Molten Salts XI
Place of publication: Pennington,N.J.
Publisher: The Electrchemical Society,Inc.
Main Research Area: Technical/natural sciences
Conference: 193rd Electrochemical Society Meeting, San Diego, California, United States, 03/05/1998 - 03/05/1998
Source: orbit
Source-ID: 170646
Publication: Research - peer-review › Article in proceedings – Annual report year: 1998

Pollution Control by Catalysis: Final Report

General information
State: Published
Organisations: Department of Chemistry
Authors: Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Number of pages: 35
Publication date: 1998
Spectroscopic and Electrochemical Investigations on the M2SO4-V2O5 System (M=Alkali) and Characterization of Compounds

General information
State: Published
Organisations: Department of Chemistry, Georgia Institute of Technology, University of Patras
Authors: Schmidt, D. S. (Ekstern), Winnick, J. (Ekstern), Boghosian, S. (Ekstern), Fehrmann, R. (Intern), Eriksen, K. M. (Intern)
Pages: 491-498
Publication date: 1998

Host publication information
Title of host publication: Molten Salts XI
Place of publication: Pennington, N.J.
Publisher: The Electrochemical Society, Inc.
Main Research Area: Technical/natural sciences
Conference: 193rd Electrochemical Society Meeting, San Diego, California, United States, 03/05/1998 - 03/05/1998
Source: orbit
Source-ID: 170649
Publication: Research - peer-review › Report – Annual report year: 1998

Thermodynamics and Complex Formation in Pyrosulfate Melts

General information
State: Published
Organisations: Department of Chemistry, Université de Provence
Authors: Fehrmann, R. (Intern), Eriksen, K. M. (Intern), Rasmussen, S. B. (Intern), Gaune-Escard, M. (Ekstern), Hatem, G. (Ekstern)
Pages: 63-64
Publication date: 1998

Host publication information
Title of host publication: Proceedings of the International Terje Østvold Symposium
Place of publication: Trondheim, Norway
Publisher: Norwegian University of Science and Technology
Main Research Area: Technical/natural sciences
Conference: International Terje Østvold Symposium, Røros, 01/01/1998
Source: orbit
Source-ID: 170684
Publication: Research - peer-review › Article in proceedings – Annual report year: 1998

Catalytic Activity and Deactivation of SO2 Oxidation Catalysts in Simulated Power Plant Flue Gases

General information
State: Published
Organisations: Department of Chemistry, Imperial College London, CE/HT, Patras, Foundation for Research and Technology-Hellas
Authors: Masters, S. G. (Ekstern), Chrissanthopoulos, A. (Ekstern), Eriksen, K. M. (Intern), Boghosian, S. (Ekstern), Fehrmann, R. (Intern)
Pages: 16-24
Publication date: 1997
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Catalysis
Volume: 166
ISSN (Print): 0021-9517
Ratings:
BFI (2017): BFI-level 2
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 2
Scopus rating (2016): SJR 2.441 SNIP 2.154 CiteScore 7.27
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.703 SNIP 2.198 CiteScore 7.23
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.685 SNIP 2.25 CiteScore 6.92
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.56 SNIP 2.108 CiteScore 6.42
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 3.005 SNIP 2.277 CiteScore 6.17
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 3.11 SNIP 2.207 CiteScore 6.23
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 3.376 SNIP 2.213
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 2.951 SNIP 2.158
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 3.115 SNIP 2.184
Web of Science (2008): Indexed yes
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 3.129 SNIP 2.023
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 2.986 SNIP 2.16
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 2.64 SNIP 1.964
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 2.147 SNIP 1.87
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 2.49 SNIP 1.803
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 2.943 SNIP 1.931
Web of Science (2001):Indexed yes
Scopus rating (2000): SJR 2.85 SNIP 2.22
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 2.635 SNIP 2.013
Original language: English
Source: orbit
Source-ID: 168796
Publication: Research - peer-review › Journal article – Annual report year: 1997
Electrochemical and Spectroscopic Study on V(V) and V(IV) Sulfate Complex Formation in Pyrosulfate Melts

General information
State: Published
Organisations: Department of Chemistry
Authors: Fehrmann, R. (Intern), Eriksen, K. M. (Intern)
Publication date: 1997

Host publication information
Title of host publication: Book of Abstracts
Main Research Area: Technical/natural sciences
Conference: 5th International Symposium on Molten Salt Chemistry and Technology, Dresden, Germany, 24/08/1997 - 24/08/1997
Source: orbit
Source-ID: 168805
Publication: Research › Article in proceedings – Annual report year: 1997

Formation of Oxosulfato Complexes of Vanadium in Pyrosulfate and Sulfate Melts

General information
State: Published
Organisations: Department of Chemistry
Authors: Fehrmann, R. (Intern), Eriksen, K. M. (Intern), Rasmussen, S. B. (Intern)
Publication date: 1997

Host publication information
Title of host publication: Book of Abstracts
Main Research Area: Technical/natural sciences
Conference: Molten Salts Discussion Group, London, 01/01/1997
Source: orbit
Source-ID: 168810
Publication: Research › Article in proceedings – Annual report year: 1997

High Temperature Multinuclear NMR Studies of the Melts M2S2O7-V2O5 (M=K,Na, Cs)

General information
State: Published
Organisations: Department of Chemistry, Boreskov Institute of Catalysis
Authors: Lapina, O. B. (Ekstern), Mastikhin, V. (Ekstern), Terskikh, V. V. (Ekstern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Publication date: 1997

Host publication information
Title of host publication: Book of Abstracts
Main Research Area: Technical/natural sciences
Conference: 5th International Symposium on Molten Salt Chemistry and Technology, Dresden, Germany, 24/08/1997 - 24/08/1997
Source: orbit
Source-ID: 168804
Publication: Research › Article in proceedings – Annual report year: 1997

High Temperature NMR Studies of the Glass-Crystal Transition in the Cs2S2O7-V2O5 System

General information
State: Published
Organisations: Department of Chemistry, Boreskov Institute of Catalysis
Authors: Lapina, O. B. (Ekstern), Terskikh, V. V. (Ekstern), Shubin, A. A. (Ekstern), Mastikhin, V. (Ekstern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Pages: 9188-9194
Publication date: 1997
Main Research Area: Technical/natural sciences
Hysteresis Phenomena in Sulfur Dioxide Oxidation over Supported Vanadium Catalysts

General information
State: Published
Organisations: Department of Chemistry, Imperial College London
Authors: Masters, S. G. (Ekstern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Pages: 227-233
Publication date: 1997
Main Research Area: Technical/natural sciences

Model Systems of SO2 Oxidation Catalysts: Thermal, Spectroscopic and Electrochemical Characterization

General information
State: Published
Organisations: Department of Chemistry, Institut Universitaire des Systèmes Thermiques Industriels, Boreskov Institute of Catalysis
Authors: Hatem, G. (Ekstern), Gaune-Escard, M. (Ekstern), Lapina, O. B. (Ekstern), Terskikh, V. V. (Ekstern), Fehrmann, R. (Intern), Eriksen, K. M. (Intern)
Pages: 389-390
Publication date: 1997

Host publication information
Title of host publication: Book of Abstracts
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 168802
Publication: Research › Article in proceedings – Annual report year: 1997

Multinuclear NMR Studies of the Glass - Crystal Transition in V2O5 - Cs2S2O7 System

General information
State: Published
Organisations: Department of Chemistry, Boreskov Institute of Catalysis
Authors: Lapina, O. B. (Ekstern), Terskikh, V. V. (Ekstern), Shubin, A. A. (Ekstern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Pages: 22-23
Publication date: 1997

Host publication information
Title of host publication: Book of Abstracts
Main Research Area: Technical/natural sciences
Conference: The Second International Memorial G.K.Boreskov Conference, Novosibirsk, 01/01/1997
Source: orbit
Source-ID: 168800
Phase Diagram of the K2S2O7-V2O5 and Rb2S2O7-V2O5 Systems

General information
State: Published
Organisations: Department of Chemistry, Institut Universitaire des Systèmes Thermiques Industriels
Authors: Abdoun, F. (Ekstern), Hatem, G. (Ekstern), Gaune-Escard, M. (Ekstern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Publication date: 1997

Host publication information
Title of host publication: Book of Abstracts
Main Research Area: Technical/natural sciences
Conference: 5th International Symposium on Molten Salt Chemistry and Technology, Dresden, Germany, 24/08/1997 - 24/08/1997
Source: orbit
Source-ID: 168806
Publication: Research › Article in proceedings – Annual report year: 1997

Phase Transitions in Model Systems for SO2 Oxidation

General information
State: Published
Organisations: Department of Chemistry, Institut Universitaire des Systèmes Thermiques Industriels, Boreskov Institute of Catalysis
Authors: Eriksen, K. M. (Intern), Fehrmann, R. (Intern), Hatem, G. (Ekstern), Gaune-Escard, M. (Ekstern), Lapina, O. B. (Ekstern), Terskikh, V. V. (Ekstern)
Number of pages: 830
Publication date: 1997

Host publication information
Title of host publication: Book of Abstracts Vol. 2
Place of publication: Krakow
Publisher: Institute of Catalysis and Surface Sciences
Main Research Area: Technical/natural sciences
Conference: 3rd European Congress on Catalysis, Krakow, Poland, 31/08/1997 - 31/08/1997
Source: orbit
Source-ID: 168807
Publication: Research › Article in proceedings – Annual report year: 1997

Progress on the Mechanistic Understanding of SO2 Oxydation Catalysts

General information
State: Published
Organisations: Department of Chemistry, Boreskov Institute of Catalysis, Foundation for Research and Technology-Hellas
Authors: Lapina, O. B. (Ekstern), Bal'zhinimaev, B. S. (Ekstern), Boghosian, S. (Ekstern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Pages: 201-206
Publication date: 1997

Host publication information
Title of host publication: Book of Abstracts
Main Research Area: Technical/natural sciences
Conference: The Second International Memorial G.K.Boreskov Conference, Novosibirsk, 01/01/1997
Source: orbit
Source-ID: 168803
Publication: Research › Article in proceedings – Annual report year: 1997

Spectroscopic Investigation of SO2 Oxidation Catalysts

General information
State: Published
Structure and Properties of SO2 Oxidation Catalysts

Conduvtivity, NMR, Thermal Measurements and Phase Diagram of the K2S2O7-KHSO4 System.

Crystal Structure and Spectroscopic Characterization of the Mixed Valence V(IV)-V(V) Compound K6(VO)4(SO4)8
Deactivation, Hysteresis Phenomena and Crystallization Modelling of SO2 Oxidation Catalysts.

General information
State: Published
Organisations: Department of Chemistry, BP Chemicals, Institute of Catalysis
Authors: Oehlers, C. (Ekstern), Fehrmann, R. (Intern), Eriksen, K. M. (Intern), Sheinin, D. E. (Ekstern), Balzhinimaev, B. S. (Ekstern), Elokhin, V. I. (Ekstern)
Publication date: 1996

Host publication information
Title of host publication: Book of Abstracts
Place of publication: Åbo, Finland
Publisher: The Association of Finnish Chemical Societies
Main Research Area: Technical/natural sciences
Conference: 7th Nordic Symposium on Catalysis, Turku, Finland, 02/06/1996 - 02/06/1996
Source: orbit
Source-ID: 166817
Publication: Research › Article in proceedings – Annual report year: 1996

Molten Salt Catalysts for Sulfuric Acid Production and SO2 Removal From Flue Gas: Final Technical Report

General information
State: Published
Organisations: Department of Chemistry
Authors: Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Publication date: 1996

Publication information
Original language: English
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 166772
Publication: Research - peer-review › Report – Annual report year: 1996

Physico-Chemical and Structural Properties of DeNOx - and SO2-Oxidation Catalysts.

General information
State: Published
Organisations: Department of Chemistry, BP Chemicals, Foundation for Research and Technology-Hellas
Authors: Masters, S. G. (Intern), Oehlers, C. (Ekstern), Nielsen, K. (Intern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern), Boghosian, S. (Ekstern), Chrissanthopoulos, A. (Ekstern)
Number of pages: 1,140
Publication date: 1996

Host publication information
Title of host publication: Abstract Book
Place of publication: Pennington, NJ
Publisher: Electrochemical Society, Incorporated
Main Research Area: Technical/natural sciences
Conference: 10th International Symposium on Molten Salts, Los Angeles, USA, 01/01/1996
Source: orbit
Source-ID: 166801
Publication: Research › Article in proceedings – Annual report year: 1996
Physico-Chemical and Structural Properties of DeNOx and SO2 Oxidation Catalysts
Commercial catalysts for NOx removal and SO2 oxidation and their model systems have been investigated by spectroscopic, thermal, electrochemical and X-ray methods. Structural information on the vanadium complexes and compounds as well as physico-chemical properties for catalyst model systems have been obtained. The results are discussed in relation to proposed reaction mechanisms.

General information
State: Published
Organisations: Department of Chemistry, Department of Chemistry, B.P. Chemicals SA, Foundation for Research and Technology-Hellas
Authors: Masters, S. G. (Intern), Oehlers, C. (Ekstern), Nielsen, K. (Intern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern), Chrissanthopoulos, A. (Ekstern), Boghosian, S. (Ekstern)
Number of pages: 567
Pages: 74-79
Publication date: 1996

Host publication information
Title of host publication: Molten Salts X
Place of publication: Pennington,NJ
Publisher: Electrochemical Society, Incorporated
ISBN (Print): 1-56677-159-5
Main Research Area: Technical/natural sciences
Conference: International Symposium on Molten Salts : 189th Meeting of The Electrochemical Society, Los Angeles,USA, 01/01/1996
Source: orbit
Source-ID: 166574
Publication: Research › Article in proceedings – Annual report year: 1996


General information
State: Published
Organisations: Department of Chemistry, Institute of Catalysis
Authors: Lapina, O. B. (Ekstern), Mastikhin, V. M. (Ekstern), Shubin, A. (Ekstern), Terskikh, V. (Ekstern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Publication date: 1996

Host publication information
Title of host publication: Abstract Book
Main Research Area: Technical/natural sciences
Conference: 28th Congress Ampere, Cantebury,UK, 01/01/1996
Source: orbit
Source-ID: 166830
Publication: Research › Article in proceedings – Annual report year: 1996

The Cs2S2O7-V2O5 Catalyst Model Melt System: 51V and 133Cs NMR Measurements at High Temperature.

General information
State: Published
Organisations: Department of Chemistry, Institute of Catalysis
Authors: Lapina, O. B. (Ekstern), Terskikh, V. (Ekstern), Eriksen, K. M. (Intern), Fehrmann, R. (Intern)
Publication date: 1996

Host publication information
Title of host publication: Book of Abstracts
Place of publication: Åbo,Finland
Publisher: Association of Finnish Chemical Societies
Main Research Area: Technical/natural sciences
Conference: 7th Nordic Symposium on Catalysis, Turku, Finland, 02/06/1996 - 02/06/1996
Source: orbit
Source-ID: 166808
Publication: Research › Article in proceedings – Annual report year: 1996
Projects:

**Deterioration of collagen in parchment**
Manuscripts of parchment belong to the most valuable objects of European cultural heritage. With the increasing air pollution the deterioration of parchment is severely accelerated, and within a few decades, an enormous demand for conservation and restauration is expected. A research group with participants from Austria, Belgium, Denmark, Great Britain and France has been established to examine the mechanisms of deterioration. The experimental techniques used in the analyses are X-ray fiber diffraction, electron paramagnetic resonance spectroscopy, hydrothermal stability measurements and amino acid determination.

Department of Chemistry
Department of Chemistry
School of Conservation
Centre de recherches sur la conservation des documents graphiques
KIK

**University of East Anglia**
Period: 01/11/1996 → 31/10/1999
Number of participants: 8
Project participant:
Ståhl, Kenny (Intern)
Eriksen, Kim Michael (Intern)
Rasmussen, Søren Birk (Intern)
Larsen, R. (Ekstern)
Chahine, C. (Ekstern)
Wouters, J. (Ekstern)
Brimblecombe, P. (Ekstern)

Project Manager, organisational:
Nielsen, Kurt (Intern)

**Financing sources**
Source: Unknown
Name of research programme: Ukendt
Amount: 1,000,000.00 Danish Kroner

**Electrochemical and Spectroscopic Investigation of Electrochemical Cells and Catalysts**
The project is concerned with a study of the different non-aqueous chemical processes using electrochemical (cyclic voltammetry, square-wave voltammetry, chronoamperometry etc.) and spectroscopic (Raman, IR, ESR, NMR etc.) techniques. All the studied processes involve electrochemical steps or electrochemical techniques were used for their study. The project involves investigation of following electrochemical reaction or systems: 1. Electroplating with refractory metals (niobium, tantalum) from molten salts. 2. Phosphoric acid, molten carbonate and solid oxide fuel cells. 3. Development of the active materials for nickel-metal hydride batteries. 4. Study of the mechanism of the catalytic SO2
Structural studies of inorganic materials

Crystal structures, i.e. the atomic arrangements in crystalline materials, form the basis for our understanding and development of inorganic materials. In this project crystal structures are determined and studied by means of single-crystal and powder diffraction methods using conventional and synchrotron X-rays, as well as neutron sources. It is also the aim of this project to explore the possibilities and develop crystallography as a tool for structural studies. The crystallographic studies are complemented by electron microscopy, spectroscopy, thermal, electro-chemical and kinetic methods. Among the materials studied are vanadium containing catalysts, where the catalytic properties are relying on the variability of the oxidation state of vanadium, which in turn depends on the structure hosting the vanadium ions. Another group of materials studied is optically and electro-optically active ceramics, whose polar properties can be directly related to their atomic arrangements. In yet another group of materials, minerals, new structures are determined and structurally related to known materials, and the stability fields and structural variations of solid solutions are explored.
**Financing sources**  
Source: Unknown  
Name of research programme: Ukendt  
Amount: 15,000.00 Danish Kroner  

**Inorganic Catalysis**  
Multidisciplinary investigations of structure and catalytic activity of inorganic catalysts and model systems. In collaboration with ICAT.

Department of Chemistry  
Department of Physics  
Department of Chemical and Biochemical Engineering  
University of Patras  
Université de Provence  
Institute of Catalysis  
Georgia Institute of Technology  
B.P. Chemicals SA  
Haldor Topsoe AS  
University of Copenhagen  
Period: 01/01/1993 → …  
Number of participants: 25  
Project participant:  
Eriksen, Kim Michael (Intern)  
Berg, Rolf W. (Intern)  
Holten, Bodil Fliis (Intern)  
Nielsen, Kurt (Intern)  
Rasmussen, Søren Birk (Intern)  
Mattsson, Rikke Christina (Intern)  
Barfod, Rasmus (Intern)  
Riisager, Anders (Intern)  
Boghosian, Soghomon (Ekstern)  
Hatem, Gerard (Ekstern)  
Gaune-Escard, Marcelle (Ekstern)  
Balzhinimaev, Bair (Ekstern)  
Lapina, Olga (Ekstern)  
Winnick, Jack (Ekstern)  
Oehlers, Cord (Ekstern)  
Schoubye, Peter (Ekstern)  
Topsoe, Nan Yu (Ekstern)  
Hyldtoft, Jens (Ekstern)  
Thorhauge, Max (Ekstern)  
Gabrielson, Per (Ekstern)  
Teunissen, Herman (Ekstern)  
Møller, Preben Juul (Ekstern)  
Chorkendorff, Ib (Ekstern)  
Hyldtoft, Jens (Ekstern)  
Hjortkjær, Jes (Intern)  
Project Manager, organisational:  
Fehrmann, Rasmus (Intern)  

**Financing sources**  
Source: Unknown  
Name of research programme: Ukendt  
Amount: 345,000.00 Danish Kroner
Source: Unknown
Name of research programme: Ukendt
Amount: 28,000.00 Danish Kroner
Source: Unknown
Name of research programme: Ukendt
Amount: 6,100,000.00 Danish Kroner
Source: Unknown
Name of research programme: Ukendt
Amount: 185,000.00 Danish Kroner
Project