3.3.3 Number Of Papers In National/International Conference Proceedings During The Year

INDEX SHEET

Sl. No	Name of the teacher	Department	Title of the paper	Year of publication	ISBN number of the proceeding	Pg No
90	Devaraja C	PHY	Electrical Properties of Praseodymium Oxide Doped Boro-Tellurite Glasses	2015-2016	20190	90
91	R.G.Deshpande	ME	Controlling Mechanical Properties of warm extruded V-65 alloy	2015-2016	2214-7853	91
92	R.G.Deshpande	ME	Machining with Cryogenically Treated Carbide Cutting Tool Inserts	2015-2016	2214-7853	92
93	R G Deshpande	ME	Controlling Thermo-Mechanical Properties of Warm Rolled Commercial Al-Cu-Mg Alloy by Addition of Second Phase Particles	2015-2016	2214-7853	93
94	Dr.Sasmita Mohapatra	EC	Stable Cluster Maintenance Scheme for Bee-AdHoc-C: An Energy-Efficient and Scalable Multipath Routing Protocol for MANET	2015-2016	978163248 082-8	94

Principal
Sapthagiri College of Engineering
14/5, Chikkasandra, Hesaraghatta Main Road
Bengaluru - 560 057

Electrical Properties of Praseodymium Oxide Doped Boro-Tellurite Glasses

Jagadeesha Gowda.G.V[1], Devaraja.C[2], B.Eraiah[3]

[1]Dept. of Physics, Sapthagiri College of Engineering,Bengaluru,India.Email:jagadeeshphy@rediffmail.com
[2]Dept.of Physics, Nagarjuna college of engineering and Technology, Bengaluru. Email: deva.drr @rediffmail.com
[3]Dept.of Physics, Bangalore University, Bengaluru,India.Email:eraiah@rediffmail.com

Abstract: Glasses of the composition xPr_6O_{11}- (35-x)TeO_2-65B_2O_3 (x=0, 0.1 to 0.5 mol %) have been prepared using the melt quenching method. The ac and dc conductivity of glass have been measured over a wide range of frequencies and temperatures. Experimental results indicate that the ac conductivity depend on temperature, frequency and Praseodymium content. The conductivity as a function of frequency exhibited two components: dc conductivity (σ_{dc}), and ac conductivity (σ_{ac}). The activation energies are estimated and found to be decreases with composition. The impedance plot at each temperature appeared as a semicircle passes through the origin.

INTRODUCTION

The use of glasses both as electrolyte and electrode materials has given a boost to the study of ion transport in glasses and search for a new glassy material. Boro-Tellurite glasses in particular have attracted a lot of attention because of their high ionic conductivity, especially when mixed with Te^+ ion. This property makes a basis for their applications in electrochemistry as solid electrolytes [1]. It is well known that Tellurite ion conducting batteries developed high voltages and high energy density due to their light weight and highly electropositive character of the Tellurite metal [2].

Impedances are complex and from the Cole-Cole plot of these complex quantities, one extracts not only conductivities but limiting high and low frequency dielectric constants. The conductivity is generally studied as a function of temperature and it may also depend on structural changes in the material. In this point of view it is interesting because the conductivity of vitreous material is caused by at least two different contributions. The first one is thermal activation, the conductivity increases with temperature according to the Arrhenius law. The second one is the structural change of the glass with temperature and composition, which also causes a variation of conductivity. Therefore it is also interesting to understand the dynamics of the mobile ions in solid ion conductors by interpreting the frequency dependent features in their dielectric response [3]. In an effect to understand the electrical properties of Pr_6O_{11}-TeO_2-B_2O_3 glass system has been taken up for the present investigation.

In this paper we report both dc and ac conductivity on Pr_6O_{11}- TeO_2-B_2O_3 glasses over wide range of compositions, temperatures and frequency.

MATERIALS AND METHODS

The glasses with composition xPr_6O_{11}-(35-x) TeO_2-65B_2O_3, (x=0, 0.1 to 0.5 mol %) have been prepared by melt quenching method [4]. The prepared samples were taken in the form of circular disc of diameter of about 1 cm and thickness of about 0.1 cm for electrical relaxation measurements. Before making electrical measurements, the sample surfaces were polished, then coated with silver paste and dried over 6 to 12 hours at 330K. The electrical measurements were carried out by sandwiching the samples between electrical leads made up of copper.

Precision impendence analyzer [Agilent-4294A] was used to measure the capacitance (C_p) and conductance (G) in the frequency range from 6Hz to 10MHz. Measurements were made in temperature ranges from 343 K to 443 K. A home built cell assembly (2-terminal capacitor configuration and spring loaded silver electrodes) was used for

International Conference on Condensed Matter and Applied Physics (ICC 2015)
AIP Conf. Proc. 1728, 020190-1–020190-4; doi: 10.1063/1.4946241
Published by AIP Publishing. 978-0-7354-1375-7/$30.00

Materials Today: Proceedings
Volume 4, Issue 2, Part A, 2017, Pages 322-329

Controlling Mechanical Properties of Warm Extruded Commercial V-65 Alloy

R.G. Deshpande

Show more

https://doi.org/10.1016/j.matpr.2017.01.028

Abstract

V-65 (Russian grade) is commercial Aluminium alloy used in making rivets in aerospace applications as it exhibits relatively high shear strength and plasticity. Controlling properties of this alloy by the addition of second phase particles in the form Zirconium that hinders grain growth by exerting Zener drag is discussed in this work. The alloys were subjected to differential thermal analysis and peaks were observed at 419^0c, indicating the dissolution of Al_3Zr particles. The alloy was warm extruded at 300 & 350^0c and the kinetics of Recrystallization was followed by image analysis on samples of recrystallized at 420^0c for various times assuming that short duration of anneal would not dissolve Al_3Zr because of diffusion coefficient of Zirconium in Aluminium is low. Detailed microstructure analysis indicated the Al_3Zr particles exerted pinning pressure on grain boundaries effectively producing fine grains. These results were justified by the volume fraction analysis of grains. Transmission Electron Microscopy was also conducted and the fine particles were found to be Al_3Zr particles with L_{1-2} crystal structure and lattice parameter 4.08 A^0.The cube grains were identified by etch pit technique and it was found that addition of Zr did not alter the number of cube grains. These cube grains facilitate the alloy in deep drawing and its application in the fuselage of an aeroplane

Previous Next

Keywords

Mechanical properties; Hot Extrusion; V-65 Alloy

Recommended articles Citing articles (0)

Materials Today: Proceedings
Volume 5, Issue 1, Part 1, 2018, Pages 1872-1878

Machining With Cryogenically Treated Carbide Cutting Tool Inserts

R.G. Deshpande [a], K.A. Venugopal [b]

Show more

https://doi.org/10.1016/j.matpr.2017.11.288

Abstract

With the development newer materials for aerospace, marine, automobile industries it became inevitable to develop new cutting tool materials with competitive performanceand productivity. In this regard Sintered Carbide tools were developed to meet the modern machining requirements. But they failed miserably to due to rapid wear in machining high strength and temperatureresistance alloy. This necessitated the need for bringing out innovative changes in machining process and controlling the various parameters associated. One such promising technique is subjecting the tool inserts to Cryogenic Treatment to alter the mechanical properties like hardness, strength and Wear resistance. Cryogenic treatment refers to process of exposing the metals to temperatures below -180°C and soaking for a predetermined period and then allowing ascending back to room temperature at slow cooling rates. In the present work, uncoated Tungsten Carbide cutting tool inserts of geometry SNMG 120408-MR4 have been used. The inserts were cryogenically treated at -183°C and were subjected to tempering in electric muffle furnace by placing on refractory brick at temperatures 250 °C and 300 °C for 120 minutes both followed by air cooling and furnace cooling. The samples showed appreciable improvement in hardness and microstructure study revealed that carbide phase distribution was fairly uniform with binder phase segregating slightly in few cases. Under all cutting velocities, Cryo-treated and tempered inserts showed the highest tool life and wear resistance. It was found that tempering has a significant influence on the phases present in WC+Co inserts and subsequently influences their machining performance. Cryogenic treatment significantly improved the mechanical properties of both the tested tool materials.

Previous Next

Keywords

Cryogenic Treatment; Tempering; Carbide tool inserts

Special issue articles Recommended articles Citing articles (3)

Materials Today: Proceedings
Volume 4, Issue 8, 2017, Pages 7579-7585

Controlling Thermo-Mechanical Properties of Warm Rolled Commercial Al-Cu-Mg Alloy by Addition of Second Phase Particles

R.G. Deshpande

Show more

https://doi.org/10.1016/j.matpr.2017.07.090

Abstract

Al-Cu-Mg (V65) alloy is widely used for making rivet as is significantly shows slower natural aging response, which gives flexibility to carryout riveting operation even after four days after solution heat treatment and natural aging at room temperature. In Aluminium alloys a fine-grained structure shows better strength than coarse grained alloy as the former has a greater total grain boundary area to stop the dislocation motion. These features can be controlled by thermo mechanical processing of the material which may be carried in cold or hot conditions with intermediate anneals. Controlling Thermo Mechanical Properties of this alloy has extensively been discussed. One of the successful methods in this regard is the addition of second phase particles which exert a Zener drag by controlling the curvature of the grains and thereby inducing fine grain sizes. In the present work Zirconium was added to the alloy in the form of second phase particles. Addition of Zirconium to commercial Al-Cu-Mg alloy (V-65) alloy has pronounced effect in forming bimodal distribution of Al3Zr particles. The fine particles produce fine grain structure and coarse particles stimulate nucleation of recrystallization by a mechanism called Particle Stimulated Nucleation. In the present work the alloys were subjected to differential thermal analysis (D.T.A) and peaks were observed at around 420°C, indicating the dissolution of Al3Zr particles. The alloy was warm rolled at 300 & 350°C and the kinetics of Recrystallization was followed by image analysis on samples of recrystallized at 420°C for various times assuming that short duration of anneal would not dissolve Al3Zr because of diffusion coefficient of Zirconium in Aluminium is low. Transmission Electron Microscopy was also conducted and the fine particles were found to be Al3Zr particles with L1-2 crystal structure and lattice parameter 4.08 A^0.The volume fractions of recrystallized grains were measured which showed considerable reduction indicating the fine grained structure in the final product

Previous Next

Keywords

Al-Cu-Mg alloy; Mechanical Properties; Second Phase Particles

Proc. of The Third Intl. Conf. on Advances in Computing, Control and Networking - ACCN 2015.

ISBN: 978-1-63248-082-8 doi: 10.15224/ 978-1-63248-082-8-03

Stable Cluster Maintenance Scheme for Bee-AdHoc-C: An Energy-Efficient and Scalable Multipath Routing Protocol for MANET

Sasmita Mohapatra, Dr.M.Siddappa

Abstract—**Mobile ad hoc network (MANET) is one of the most important and unique network in wireless network which has brought maximum mobility and scalability. High efficient routing is an important issue in the design of limited energy resource MANETs. Many research work have been conducted by the researchers in the field of routing protocols for MANETs for making it energy efficient as the nodes are with limited resources in terms of battery supplied energy, storage and processing capability. In this paper we have proposed a new technique of routing protocol which utilizes the concept of swarm intelligence in which bee inspired routing is chosen as the ultimate routing protocol for energy efficient MANETs. To make the system more energy efficient we have chosen the clustered based approach as Bee-AdHoc-C. Bee-AdHoc-C is an evolution from Bee-AdHoc which is a bee inspired routing protocol for MANETs. This method provides parallel routing by which it reduces the overhead and improves the scalability of the system. We have also proposed a Stable Cluster Maintenance Scheme which focuses on minimizing the CH changing. By the proposed method the MANET routing can be properly balanced in terms of energy consumption with a stable cluster network. The results are shown for analysis of clustering overhead, cluster member and cluster head change for different speed and pause time.**

Keywords— **MANET;Energy Efficiency; Swarm Intelligence; Bee-AdHoc-C; Cluster; Improved Clustering Scheme; Routing Overhead)**

I. Introduction

MANET is self-organizing, rapidly deployable which does not require any fixed infrastructure. Mobile nodes self-organize to form a network over radio links [1]. As the nodes in the MANET are battery operated so there are possibilities that some of the nodes may fail for communication in between for which care has been taken to make the MANETs energy efficient [2, 3, 5].

Sasmita Mohapatra , Research Scholar
Dept. of Electronics and Communication Engineering,
Sri Siddhartha Academy of Higher Education, Tumkur, India

Dr.M.Siddappa, Professor and Head of the Department
Dept. of Computer Science and Engineering,
Sri Siddhartha Academy of Higher Education, Tumkur, India

In this purpose the swarm intelligence concept is considered as one of the best way [4]. Swarm intelligence (SI) [6] is the collective behavior of decentralized, self-organized systems, natural or artificial. Bio inspired, Swarm Intelligence approaches are more promising for ad hoc and wireless AdHoc networks due to Locality of interactions, Availability of multiple paths, Self-organizing behaviors, Failure backup. Recent research has proven that both multipath and clustering communication is very efficient routing methods in MANETs. Clustering has been widely used to extend the network lifetime and achieve network scalability.

In this paper we have discussed regarding the architecture and working of the bee-AdHoc network required for energy efficient MANETs. Ultimately we have tried to get the best protocol for energy efficient MANETs as Bee-AdHoc-C with proposed algorithm which minimizes CH changing.

II. Architecture of Bee AdHoc Network

In Bee Ad-Hoc, each MANET node contains at the network layer a software module called hive, which consists of three parts: the packing floor, the entrance, and the dance floor. The structure of the hive is shown in Fig. 1

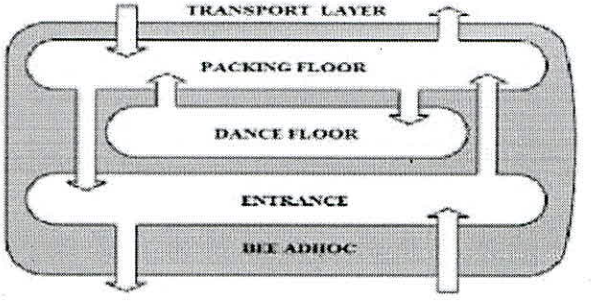

Fig-1: Architecture of Bee AdHoc Network

Packing Floor- Once a data packet arrives from the transport layer, a matching forager for it is looked up on the dance floor. If a forager is found then the data packet is encapsulated in its payload. Otherwise, the data packet is temporary buffered waiting for a returning forager.

Entrance- The entrance is an interface to the lower-level MAC layer. If the packet is a forager and the current node is its destination, then the forager is forwarded to the packing