SURYA ENGINEERING COLLEGE, ERODE- 638 107
(Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
Accredited by NAAC & Recognized by UGC under section 2(f) of the UGC act 1956)
Erode - Perundurai Highway, Mettukadai, Erode - 638107 | Phone: 0424- 2555018 | Mobile:98425 11455 | E-mail:principal@surya.ac.in

Research Papers Published Details

2022-23	2021-22	2020-21	2019-20	2018-19
5	8	10	4	3

SURYA ENGINEERING COLLEGE, ERODE
(Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai)
Erode - Perundurai Highway, Mettukadai, Erode - 638107.
Ph.0424-2555018 | Mobile No:98425 11455 | Email: secerode@gmail.com

Title of paper	Name of the author/s	Name of journal	Link to article / paper / abstract of the article
Improvement of Weld Bead Characteristics in Gas Metal ARC Welding of SA515 Carbon Steel by Applying Alternating Shielding Gas Flow Techinque	Dr.A. Palanisamy	Transaction of FAMENA	https://www.doi.org/10.21278/TOF.471032821
Influence of Metal Sulfide Coated Steel Fibers on the Friction and Wear Performance of Brake Friction Composites	Dr.S. Manoharan	Tribology International	https://www.sciencedirect.com/science/article/abs/pii/S0301679X22004959
Photocatalytic Activity Induced by Metal Nanoparticles Synthesized by Sustainable Approaches-A Comprehensive Review	Dr.S.R. Boselin Prabhu	Frontiers in Chemistry	https://www.frontiersin.org/articles/10.3389/fchem.2022.917831/full

Corporate Social Responsibility of Canara Bank–a Systematic Status Review	Dr.S.R. Boselin Prabhu	International Journal of Business Information Systems	https://www.inderscienceonline.com/doi/abs/10.1504/IJBIS.2022.124934
Controlled Synthesis of Ag/CuO Nanocomposites: Evaluation of Their Antimycobacterial, Antioxidant and Anticancer Activities	Dr.S.R. Boselin Prabhu	Applied Physics A	https://www.link.springer.com/article/10.1007/s00339-022-05748-x
Alginate Hydrogel Adsorbents in Adsorption of Inorganic and Organic Pollutants: A Review	Dr.S.R. Boselin Prabhu	Asian Journal of Chemistry	https://www.researchgate.net/publication/361565069_Alginate_Hydrogel_Adsorbents_in_Adsorption_of_Inorganic_and_Organic_Pollutants_A_Review
Happiness In Method of Learning Predictor with Fusion of Various ml Algorithms in Post Covid Situation School Board Exam Students	Mrs.P. Murugapriya	Journal of positive school psychology	https://www.journalppw.com/index.php/jpsp/article/view/1845

An evaluation of Noble Nanocomposites Based on Zinc Oxide: Synthesis, Characterization, Environmental, Optical and Biomedical Applications	Dr.S.R. Boselin Prabhu	Journal of Optoelectronic and Biomedical Materials	https://www.chalcogen.ro/151_PrashanthGK.pdf
Sustainable Characterization of Silane Treated and Untreated Psidium Guajava Stem Natural Fibers Based Automobile Brake Pads	Dr.S. Manoharan	Journal of Natural Fibers	https://www.doi.org/10.1080/15440478.2021.1958429
Evaluation of Quality of Ground Water Due to Trace Elements in the Proximity of River Noyyal, Tiruppur, South India	Dr.S.R. Boselin Prabhu	Pollution Research	http://www.envirobiotechjournals.com/article_abstract.php?aid=11983&iid=341&jid=4
Effects of Dry Turning Parameters of Incoloy 800H Superalloy using Taguchi-Based Grey Relational Analysis and Modeling by Response Surface Methodology	Dr.A. Palanisamy	Proc IMechE Part C: J Mechanical Engineering Science	https://www.journals.sagepub.com/doi/abs/10.1177/0954406221100892 4?journalCode=picb

Synergistic Effect of Steel Slag-Molybdenum Disulfide Particles on Fade-Recovery Performances of Non-asbestos Organic Friction Material	Dr.S. Manoharan	Industrial Lubrication and Tribology	https://www.emerald.com/insight/content/doi/10.1108/ILT-06-2020-0216/full/html
Novel Foam Adsorbents in Dyes and Heavy Metals Removal: A Review	Dr.S.R. Boselin Prabhu	Asian Journal of Chemistry	https://www.asianpubs.org/index.php/ajchem/article/view/18061
Evaluation of Antimicrobial, Antioxidant, and Cytotoxicity Activities of CUO Nanopellets Synthesized by Surfactant-free Hydrothermal Method	Dr.S.R. Boselin Prabhu	Journal of Testing and Evaluation	https://www.astm.org/jte20200538.html
Influence of Heat Treatment on the Mechanical and Tribological Properties of Incoloy 800H Superalloy	Dr.A. Palanisamy	Archives of Civil and Mechanical Engineering	https://www.link.springer.com/article/10.1007/s43452-020-00171-6
An Elitist Control Scheme for Power flow Management in Smart Grid System: a Hybrid Optimization Scheme	Dr.S.R. Boselin Prabhu	Energy Sources, Part A: Recovery, Utilization, and Environmental Effects	https://www.tandfonline.com/doi/abs/10.1080/15567036.2021.2001118

Influence of Premixed Dual Metal Sulfides on the Tribological Performance of Copper-Free Brake Friction Materials	Dr.S. Manoharan	Industrial Lubrication and Tribology	https://www.emerald.com/insight/content/doi/10.1108/ILT-03-2020-0116/full/html
Effect of Vitamin-C on Structural,Thermal and Optical Properties of Lithium Sulfate Monohydrate Crystal	Dr.S.R. Boselin Prabhu	Journal of Materials Science: Materials in Electronics	https://www.link.springer.com/article/10.1007/s10854-020-05218-1
Evaluation of Structural, Optical and Dielectric Characterization of Adipic Acid Crystals Grown in Aqueous Solution of L-alanine	Dr.S.R. Boselin Prabhu	Journal of Materials Science: Materials in Electronics	https://www.link.springer.com/article/10.1007/s10854-020-04816-3
Role of Machine Learning Algorithms Intrusion Detection in WSNs: A Survey',	Dr.E. Baraneetharan	Journal of Information Technology and Digital World	https://www.irojournals.com/itdw/article/view/2/3/4
Cost Effective and Natural Plant Based Coagulant for Removal of Chloride from Potable Water	Dr.S.R. Boselin Prabhu	Asian Journal of Chemistry	https://www.asianpubs.org/index.php/ajchem/article/view/2043

An Experimental Research on GPS Based Boundary Intruding Boat Monitoring System	Dr.S.R. Boselin Prabhu	International Journal of Innovative Technology and Exploring Engineering	https://www.ijitee.org/wp-content/uploads/papers/v8i9S2/I10790789S219.pdf
Evaluation of various benchmark processes with appropriate controller design in LabVIEW platform	Dr.S.R. Boselin Prabhu	Journal of Instrumentation	https://www.iopscience.iop.org/article/10.1088/1748-0221/14/05/T05008/meta
Optimization of Cylindrical Grinding Process Parameters using Meta-Heuristic Algorithms	Dr.A. Palanisamy	Indian Journal of Engineering & Materials Sciences	http://www.op.niscpr.res.in/index.php/IJEMS/article/view/45971
Implementation of Smart Helmet Using Solar Power	Mr.M. Gobalakrishnan	Suraj Punj Journal For Multidisciplinary Research	https://www.spjmr.com/gallery/21-spjmr-710.f.pdf

M. Mariappan ✉
N.L. Parthasarathi
R. Ravindran
K. Lenin
A. Palanisamy

https://doi.org/10.21278/TOF.471032821
ISSN 1333-1124
eISSN1849-1391

IMPROVEMENT OF WELD BEAD CHARACTERISTICS IN GAS METAL ARC WELDING OF SA515 CARBON STEEL BY APPLYING ALTERNATING SHIELDING GAS FLOW TECHNIQUE

Summary

High service temperature of pressure vessel components necessitates the use of welded SA515 grade carbon steel components. The gas metal arc welding (GMAW) process using CO_2 as shielding gas is known for its undesirable spatter behaviour and inferior weld quality. The alternating shielding gas flow (ASGF) technique is proposed in this study using the shielding gases, viz. CO_2 and argon to overcome this difficulty. The welding current, stand-off distance, and shielding gas flow were all varied to improve the bead-on-plate profile geometry. The bead profile parameters such as depth of penetration, bead width, and bead height are considered as weld bead parameters. The following methods are used: correlation analysis, analysis of variance (ANOVA), modelling, and grey relational analysis (GRA). According to the findings, the welding current and ASGF are the most influential parameters impacting the weld bead characteristics. By increasing the welding current, the bead profile parameters increase linearly. The geometry of the bead profile was improved by using the GRA.

Key words: *GMAW; alternating shielding gas flow (ASGF); weld bead geometry; correlation; analysis of variance*

1. Introduction

SA515 Grade 70 carbon steel is used to manufacture components that are exposed to high temperatures, such as pressure vessels, furnaces, and coils. The gas metal arc welding (GMAW) process using CO_2 shielding gas was formerly applied to weld this material. The more weld spatter there is, the less stable the arc becomes. The ASGF technique turned out to be a promising approach to achieving transient arc characteristics. As a result, bead-on-plate experiments were carried out on this material preceding the bead-on-joint investigations. Furthermore, several traditional solutions for improving bead-on-plate profile characteristics were applied in the past. A study carried out on GTAW welding of DH36 grade as well as a cooled copper plate demonstrated that alternating the shielding gases, namely helium and argon, resulted in better weld bead characteristics. Appropriate pulsing frequency and flow rate resulted in a 13 % increase in the penetration of the weld [1]. The heat input and thermal pulse

[22] Yao P, Zhou K, Lin H, Xu, Z et al. Exploration of weld bead forming rule during double-pulsed GMAW process based on grey relational analysis. Materials, **2019**, 12(22), p.3662. https://doi.org/10.3390/ma12223662

[23] Sudhakaran R, VelMurugan V, Senthil Kumar K M et al. Effect of welding process parameters on weld bead geometry and optimization of process parameters to maximize depth to width ratio for stainless steel gas tungsten arc welded plates using genetic algorithm. European Journal of Scientific Research, **2011**, 62(1), 76-94.

[24] Balasubramanian V, Lakshminarayanan A K, Varahamoorthy R, et al. Understanding the parameters controlling plasma transferred arc hardfacing using response surface methodology. Materials and Manufacturing Processes, **2008**, 23(7), 674-682. https://doi.org/10.1080/15560350802316744

[25] Pal K, and Pal S K, Effect of pulse parameters on weld quality in pulsed gas metal arc welding: a review. Journal of materials engineering and performance, **2011**, 20(6), pp.918-931. https://doi.org/10.1007/s11665-010-9717-y

[26] Deshmukh DD, and Kalyankar VD, Deposition Characteristics of Multitrack Overlay by Plasma Transferred Arc Welding on SS316Lwith Co-Cr Based Alloy-Influence of process parameters. High-Temperature Materials and Processes, **2019**, 38, 248-263. https://doi.org/10.1515/htmp-2018-0046

[27] TernerM, BayarsaikhanTA, Hong, H U, et al. Influence of gas metal arc welding parameters on the bead properties in automatic cladding. Journal of Welding and Joining, **2017**, 35(1), 16-25. https://doi.org/10.5781/JWJ.2017.35.1.16

[28] Gupta S K, Mehrotra S, Raja A R, et al. Effect of welding speed on weld bead geometry and percentage dilution in gas metal arc welding of SS409L, Materials Today: Proceedings, **2019**, 18, 5032-5039. https://doi.org/10.1016/j.matpr.2019.07.497

[29] Tseng K H, and Wang NS, Research on bead width and penetration depth of multicomponent flux-aided arc welding of grade 316 L stainless steel. Powder Technology, **2017**, 311, 514-521. https://doi.org/10.1016/j.powtec.2017.02.005

[30] Sathiya P, Aravindan S, Jeyapaul R, et al. Optimizing the weld bead characteristics of super austenitic stainless steel (904L) through grey-based Taguchi method, Multidiscipline Modeling in Materials and Structures, **2010**, 6, 2, 206 - 213. https://doi.org/10.1108/15736101011067993

[31] Aloraier A, Almazrouee A, ShehataT,et al. Role of welding parameters using the flux-cored arc welding process of low alloy steels on bead geometry and mechanical properties. Journal of materials engineering and performance, **2012**, 21(4), 540-547. https://doi.org/10.1007/s11665-011-9948-6

Submitted: 29.7.2021

Accepted: 12.01.2023

M. Mariappan*
Mookambigai College of Engineering, Pudukkottai, Tamil Nadu, India
N.L. Parthasarathi
Indira Gandhi Centre for Atomic Research - Kalpakkam, Tamil Nadu, India
R. Ravindran
Akshaya College of Engineering and Technology, Coimbatore, Tamil Nadu, India
K. Lenin
K. Ramakrishnan College of Engineering, Tiruchirapalli, Tamil Nadu, India
A. Palanisamy
Surya Engineering College, Erode, Tamil Nadu, India
*Corresponding Author:
mmariappan1809@gmail.com

ScienceDirect

Tribology International
Volume 176, December 2022, 107924

Influence of metal sulfide coated steel fibers on the friction and wear performance of brake friction composites

R. Vijay [a], B. Surya Rajan [b], K. Sathickbasha [b], P. Hariharasakthisudhan [c], D. Lenin Singaravelu [a], S. Manoharan [d], P. Balaji [b], A.B. Mohamed Ashfaq Ahmed [b], P. Baskara Sethupathi [e]

[a] Department of Production Engineering, National Institute of Technology, Tiruchirappalli, Tamil Nadu, India
[b] Department of Mechanical Engineering, B.S. Abdur Rahman Crescent Institute of Science and Technology, Chennai, Tamil Nadu, India
[c] Department of Mechanical Engineering, Sri Krishna College of Technology, Kovaipudur, Coimbatore, Tamil Nadu, India
[d] Department of Mechanical Engineering, Surya Engineering College, Erode, Tamil Nadu, India
[e] Department of Automobile Engineering, SRM Institute of Science and Technology, SRM Nagar, Kattankulathur - 603 203, Chengalpattu, Tamil Nadu, India

Received 16 April 2022, Revised 28 August 2022, Accepted 7 September 2022, Available online 9 September 2022, Version of Record 14 September 2022.

What do these dates mean?

Check for updates

https://doi.org/10.1016/j.triboint.2022.107924
Get rights and content

Abstract

The tribological performance of iron sulfide and antimony trisulfide coated steel fibers was assessed by reinforcing the brake pad composition following the Indian Standard IS2742. The worn surfaces were analysed using SEM and 3D surface profilometer. The brake pads containing metal sulfide-coated steel fiber

frontiers | Frontiers in Chemistry

REVIEW
published: 02 September 2022
doi: 10.3389/fchem.2022.917831

Photocatalytic Activity Induced by Metal Nanoparticles Synthesized by Sustainable Approaches: A Comprehensive Review

Prashanth Gopala Krishna[1†], Prabhu Chandra Mishra[2], Mutthuraju Mahadev Naika[3], Manoj Gadewar[4], Prashanth Paduvarahalli Ananthaswamy[5], Srilatha Rao[6], Sivadhas Rosejanet Boselin Prabhu[7], Kalanakoppal Venkatesh Yatish[8], Holenarasipura Gundurao Nagendra[9], Mahmoud Moustafa[10,11], Mohammed Al-Shehri[10], Saurabh Kumar Jha[2,12,13*†], Bharat Lal[14] and Sreeja Mole Stephen Santhakumari[15]*

[1]Department of Chemistry, Sir M. Visvesvaraya Institute of Technology, Affiliated to Visvesvaraya Technological University, Bengaluru, India, [2]Department of Biotechnology, School of Engineering & Technology, Sharda University, Greater Noida, India, [3]Department of Chemistry, Sai Vidya Institute of Technology, Affiliated to Visvesvaraya Technological University, Bengaluru, India, [4]Department of Pharmacology, School of Medical and Allied Sciences, KR Mangalam University, Gurgaon, India, [5]Department of Chemistry, PES College of Engineering, Affiliated to Visvesvaraya Technological University, Mandya, India, [6]Department of Chemistry, Nittę Meenakshi Institute of Technology, Affiliated to Visvesvaraya Technological University, Bengaluru, India, [7]Department of ECE, Surya Engineering College, Mettukadai, India, [8]Centre for Nano and Material Sciences, Jain University, Bengaluru, India, [9]Department of Bio Technology, Sir M. Visvesvaraya Institute of Technology, Affiliated to Visvesvaraya Technological University, Bengaluru, India, [10]Department of Biology, Faculty of Science, King Khalid University, Abha, Saudi Arabia, [11]Department of Botany and Microbiology, Faculty of Science, South Valley University, Qena, Egypt, [12]Department of Biotechnology, School of Applied and Life Sciences (SALS), Uttaranchal University, Dehradun, India, [13]Department of Biotechnology Engineering and Food Technology, Chandigarh University, Mohali, India, [14]Department of Pharmaceutics, School of Medical and Allied Sciences, KR Mangalam University, Gurgaon, India, [15]Department of ECE, Christu Jyothi Institute of Technology and Science, Janagon, India

OPEN ACCESS

Edited by:
Mithun Kumar Ghosh,
Govt College Hatta, India

Reviewed by:
Sandip Kumar Chandraker,
Indira Gandhi National Tribal University, India
Raja Selvaraj,
Manipal Institute of Technology, India

***Correspondence:**
Prashanth Gopala Krishna
prashanth_chem@sirmvit.edu
prashaanthgk@gmail.com
Saurabh Kumar Jha
saurabh.jha@sharda.ac.in

†ORCID:
Prashanth Gopala Krishna
http://orcid.org/0000-0001-6691-4030
Saurabh Kumar Jha
https://orcid.org/0000-0002-7437-0755

Specialty section:
This article was submitted to Photocatalysis and Photochemistry, a section of the journal Frontiers in Chemistry

Received: 11 April 2022
Accepted: 06 June 2022
Published: 02 September 2022

Citation:
Krishna PG, Chandra Mishra P, Naika MM, Gadewar M, Ananthaswamy PP, Rao S, Boselin Prabhu SR, Yatish KV, Nagendra HG, Moustafa M, Al-Shehri M, Jha SK, Lal B and Stephen Santhakumari SM (2022) Photocatalytic Activity Induced by Metal Nanoparticles Synthesized by Sustainable Approaches: A Comprehensive Review. Front. Chem. 10:917831. doi: 10.3389/fchem.2022.917831

Nanotechnology is a fast-expanding area with a wide range of applications in science, engineering, health, pharmacy, and other fields. Among many techniques that are employed toward the production of nanoparticles, synthesis using green technologies is the simplest and environment friendly. Nanoparticles produced from plant extracts have become a very popular subject of study in recent decades due to their diverse advantages such as low-cost synthesis, product stability, and ecofriendly protocols. These merits have prompted the development of nanoparticles from a variety of sources, including bacteria, fungi, algae, proteins, enzymes, etc., allowing for large-scale production with minimal contamination. However, nanoparticles obtained from plant extracts and phytochemicals exhibit greater reduction and stabilization and hence have proven the diversity of properties, like catalyst/photocatalyst, magnetic, antibacterial, cytotoxicity, circulating tumor deoxy ribo nucleic acid (CT-DNA) binding, gas sensing, etc. In the current scenario, nanoparticles can also play a critical role in cleaning wastewater and making it viable for a variety of operations. Nano-sized photocatalysts have a great scope toward the removal of large pollutants like organic dyes, heavy metals, and pesticides in an eco-friendly and sustainable manner from industrial effluents. Thus, in this review article, we discuss the synthesis of several metal nanoparticles using diverse plant extracts, as well as their characterization via techniques like UV–vis (ultraviolet–visible), XRD (X-ray diffraction),

Asian Journal of Chemistry; Vol. 34, No. 7 (2022), 1625-1632

ASIAN JOURNAL OF CHEMISTRY

https://doi.org/10.14233/ajchem.2022.23712

REVIEW

Alginate Hydrogel Adsorbents in Adsorption of Inorganic and Organic Pollutants: A Review

SELVARAJ SURESH[1], S. RAVICHANDRAN[2], ISHAN Y. PANDYA[3], S.S. SREEJA MOLE[4], S.R. BOSELIN PRABHU[5,*] and G.K. PRASHANTH[6]

[1]Department of Chemistry, St. Martin's Engineering College, Secunderabad-500100, India
[2]Department of Chemistry, Lovely Professional University, Phagwara-144 411, India
[3]Research & Development, Gujarat Ecological Education and Research (GEER) Foundation, Gujarat-382007, India
[4]Department of Electronics and Communication Engineering, Christu Jyothi Institute of Institute of Technology and Science, Jangaon-506167, India
[5]Department of Electronics and Communication Engineering, Surya Engineering College, Mettukadai-638107, India
[6]Department of Chemistry, Sir M. Visvesvaraya Institute of Technology (Affiliated to Visvesvaraya Technological University, Belagavi), Bengaluru-562157, India

*Corresponding author: E-mail: eben4uever@gmail.com

Received: 4 January 2022; *Accepted*: 25 March 2022; *Published online*: 15 June 2022; AJC-20832

The present review discusses various alginate hydrogel adsorbents with unique adsorption performance in environmental remediation. Novel alginate composites were developed with, high swelling capacity and capable of adsorbing toxic inorganic and organic pollutants. Alginate hydrogel adsorbents were developed with a single network and double network structure with excellent adsorption ability in removal of toxic inorganic and/or organic pollutants. Alginate with single or double network composite hydrogels were developed when alginate was combined with graphene/chitosan/polymer to get superior adsorbents in removal of toxic pollutants. Acrylic acid/alginate hydrogel in recent studies are efficient in the elimination of inorganic and organic contaminants. This review will generate interest to researchers to develop novel alginate composite hydrogels with unique properties in the adsorption of toxic inorganic, organic contaminants. This work provides a worthy challenge and the future possibility of designing novel alginate materials for various applications.

Keywords: Alginate hydrogel, Dye, Heavy metals, Adsorption, Adsorption capacity.

INTRODUCTION

The present worldwide concern on the toxicity of water pollutants such as, toxic inorganic elements, organic dyes, pharmaceutical and other industrial organic wastes is a great challenge in developing countries [1-7]. The agricultural and industrial discharges with toxic inorganic and organic pollutants are non-biodegradable water contaminants that lead to serious health hazards in human beings through the food chain [8-11]. Some organic and inorganic pollutants were encountered as worst contaminants in water bodies with persistent nature that adversely affect the aquatic environment [12]. Hence there is more interest to explore an efficient methodology for pollutant removal from contaminated water. A few remediation techniques were utilized for the evacuation of harmful toxins, for example photocatalytic degradation [13], chemical precipitation [14], reverse osmosis [15], adsorption [16-18], *etc.*, Some skill methods used in treatment are costly, difficult for operation and time consuming, however an advantageous simple and high efficient treatment method in the removal of pollutants is adsorption. In literature, preparation of alginate hydrogel was used as efficient adsorbents with good adsorption performance in removal of dyes, heavy metals, pharmaceutical, other organic wastes. Also some alginate hydrogel composites prove to be promising materials in removal of toxic organic and inorganic contaminants and this has created interest to various researchers and scientists to develop novel alginate hydrogel adsorbents with unique properties and superior adsorption performance in treating contaminated water.

Alginate hydrogel adsorbents: Sodium alginate is a nontoxic and inexpensive natural polysaccharide [19-21] having hydroxyl and carboxyl groups that can be effectively crosslinked with Ca^{2+}, Fe^{3+}, Y^{3+} ions. Alginate is usually modified using varying physico-chemical process to increase its

Controlled synthesis of Ag/CuO nanocomposites: evaluation of their antimycobacterial, antioxidant, and anticancer activities

Published: 25 June 2022

Volume 128, article number 614, (2022) Cite this article

Applied Physics A

Aims and scope

Submit manuscript

G. K. Prashanth, H. M. Sathyananda, P. A. Prashanth, Manoj Gadewar, M. Mut Nagabhushana, C. Shivakumara, Srilatha Rao & Dibyalochan Mohanty

S. R. Boselin Prabhu

Department of ECE, Surya Engineering College, Mettukadai, 638107, India

Abstract

Herein we summarize the production of silver/copper oxide nanocomposites (Ag/CuO NCs) by a facile solution combustion method with the aid of abio-fuel as reductant. Powder XRD results revealed the formation of Ag/CuO NCs with average crystallite size ranging from 20 to 25 nm. These NCs were tested for their antimycobacterial activity against four mycobacterium species namely *Mycobacterium tuberculosis H37Rv ATCC 27294, Mycobacterium abscessus ATCC 19977, Mycobacterium fortuitum ATCC 6841, Mycobacterium chelonae ATCC* and anticarcinogenic activity on breast cancer cell line MDA-MB-231. Scavenging activity was evaluated by the 2, 2-diphenyl-1-picrylhydrazyl hydrate (DPPH) method. Results indicated that the Ag/CuO NCs had higher anticancer and slightly better scavenging activities than the undoped CuO nanoparticles.

INDERSCIENCE Online

NO ACCESS

Corporate social responsibility of Canara Bank – a systematic status review

R.V. Naveenan, T. Jarin and S.R. Boselin Prabhu

Published Online: 22 Jul 2022

Abstract

Critiques claim that the very concept of corporate social responsibility (CSR) is an agenda of the North, which has a narrow focus. Organisations devise a special system to undertake socially responsible activities and report the same. Such organisations are equally supported by banks that are considered to be one of the pillars of the society. Banks have a key role to perform, not only financially but also socially. As a part of society, they contribute to the society through its CSR activities. Thus, banks were observed to be involved in numerous social responsibility activities for the development of society. This study aims at analysing the trends in CSR activities of Canara Bank. This helps us to understand various contributions made by Canara Bank for various social improvement activities. The study is conducted to understand and analyse the various CSR activities accomplished by the bank.

Keywords

India, commercial banks, corporate social responsibility, CSR, community welfare, public sector banks

PRINCIPAL
SURYA ENGINEERING COLLEGE,
METTUKADAI, KATHIRAMPATTY (Po).
ERODE - 638 107

Journal of Positive School Psychology
2022, Vol. 6, No. 2, 2652 – 2656

HAPPINESS IN METHOD OF LEARNING PREDICTOR WITH FUSION OF VARIOUS ML ALGORITHMS IN POST COVID SITUATION SCHOOL BOARD EXAM STUDENTS

Dr G Revathy[1], Dr.Shaji. K. A. Theodore[2], Mrs P Murugapriya[3] & K Nirmala devi[4]

[1]*Assistant Professor III, School of Computing, SASTRA Deemed University, India. Email revathyjayabaskar@gmail.com*
[2]*Faculty of IT - Networking, Dept of IT, University of Technology and Applied Sciences , Al-MUSANNA, Sultanate of Oman. Email: shaji@act.edu.om*
[3]*Professor and Head, Department of Computer Science and Engineering,Surya Engineering College,Erode. Email murugapriyaphd@gmail.com*
[4]*Assistant Professor, B.Com.(Information System Management), Soka Ikeda College of Arts and Science for Women, Chennai. Email nirmaladevimca2006@gmail.com*

ABSTRACT

Covid 19's youngsters are feeling insecure and uneasy during the Pandemic. The most serious source of concern is that, due to the Corona outbreak, students were compelled to attend their classes online and then take their board examinations in person. Use machine learning models to collect data from students once a week to boost student happiness. The youngsters will report information regarding their whereabouts, smartphone usage, and behavioural responses once a week. The model can tell the difference between students who are happy and those who are sad. Depressed students are given extra attention to help them cope with the exam. We looked at a few different machine learning models and discovered that the average categorization accuracy is around 80%.

Keywords: Students, Board Exams, Health, Happiness, Machine learning

INTRODUCTION

Due of the fear of face-to-face tests, depression is common among school-aged board exam students. As a result, it's critical to comprehend the components that influence depression resistance. Overall wellbeing, which includes elements like self-reported happiness, social support, and work engagement, has been found to relate to an individual's resiliency and ability to bear stressful life events without becoming sad in a body of studies. Depression is influenced by physiological causes as well. Numerous studies have found a link between sleep disorders and depression , and physical health is highly linked to depression and happiness.

By examining the interaction between characteristics including sleep, social and physical activity, stress, and happiness, this study increases our understanding of the role of affect in resiliency and wellness. In an ideal world, we'd look at the things that have a positive and negative impact on an individual's overall well-being. We rely on self-reported measures of wellbeing, such as stress, health, and happiness, because wellbeing cannot be evaluated directly. We will focus heavily on happiness because self-reported happiness is strongly correlated with depression measures [6], so we can not only discover factors that contribute to happiness, but also use machine learning methods to build a system that can automatically detect when a college student is becoming vulnerable to depression.

This approach could be used to direct prompt interventions, preventing serious depression-related effects such as suicide. We look at a variety of data sources to help us in our investigation: Questions about academic activities, sleep, drug and alcohol usage, and exercise were asked in the survey. Data from phones, including phone calls, SMS, and usage

Journal of Optoelectronic and Biomedical Materials Vol. 13, No. 4, October - December 2021, p. 151-169

An evaluation of noble nanocomposites based on zinc oxide: synthesis, characterization, environmental, optical and biomedical applications

G. K. Prashanth [a*], M. S. Dileep[b], P.A. Prashanth[c], S. S. Sreeja Mole[d], S. R. Boselin Prabhu[e], B. M. Nagabhushana[f], S. Ravichandran[g], N. P. Bhagya[h]

[a]*Department of Chemistry, Sir M. Visvesvaraya Institute of Technology, Bengaluru-562157, India, Affiliated to Visvesvaraya Technological University, Belagavi-590 018, India.*

[b]*Department of Physics, Sir M. Visvesvaraya Institute of Technology, Bengaluru-562157, India, Affiliated to Visvesvaraya Technological University, Belagavi-590018, India.*

[c]*Department of Chemistry, PES College of Engineering, Mandya-571401, Affiliated to Visvesvaraya Technological University, Belagavi-590018, India.*

[d]*Department of ECE, Christu Jyothi Institute of Institute of Technology and Science, Jangaon, Telangana-506167, India.*

[e]*Department of ECE, Surya Engineering College, Mettukadai-638107, India.*

[f]*Department of Chemistry, M. S. Ramaiah Institute of Technology, Bengaluru-560 054, Affiliated to Visvesvaraya Technological University, Belagavi-590018, India.*

[g]*Department of Chemistry, Lovely Professional University, Phagwara, Punjab-144001, India.*

[h]*Department of Chemistry, Sai Vidya Institute of Technology, Bengaluru-560064, Affiliated to Visvesvaraya Technological University, Belagavi-590 018, India.*

Metal oxide nanocomposites have concerned an obvious agreement of consideration because of their enormous applications in numerous domains like photocatalyst, catalysis, biological and sensors. The conservational purification technology is getting advanced by the development of heterostructured semiconductor photocatalysts. In this paper, we documented a comparative analysis of synthesis process (Solution-based methods, High temperature-based methods and Electrical methods) and characterisation techniques such as Transmission electron microscopy, X-ray diffraction, Fourier-transform infrared spectroscopy and Scanning electron microscopy on various noble Nanocomposites (NCs) of metal (M) - zinc oxide (ZnO/ZO). This review inclines over multiple stat-of-the-art applications like photocatalytic, catalyst, sensor and biological activities. It could be concluded from this study that, the catalytic activity of noble M-ZO nanostructures depends not only on the noble metal species, but on the catalytic material architecture as well. The future research and development challenges together with future prospects are critically presented.

(Received July 8, 2021; Accepted November 11, 2021)

Keywords: M-ZnO, NCs, Synthesis, Characterisation, Photocatalysis, Catalyst, Sensor, Biological activity, Thermal, Electrical, Antimicrobial, Mechanical and optical properties

1. Introduction

Recently, nanocomposites (NCs) of metal-oxide is one of the evolving research domain owing to its smaller size, unique structure, photocatalytic, thermal, electrical, antimicrobial, mechanical and optical properties [1],[2]. NCs of metal-oxide are mostly formed by the mixture of two or more metal oxides with specific concentrations [3]. NCs of metal oxide finds applicable in numerous applications like sensors, photocatalytic activity, catalytic activity, antimicrobial activity, Deoxy ribonucleic acid (DNA) binding property, anticancer activity, magnetic property,

* Corresponding author: eben4uever@gmail.com

Journal of Natural Fibers ›
Volume 19, 2022 - Issue 14

Research Article

Sustainable Characterization of Silane Treated and Untreated *Psidium Guajava* Stem Natural Fibers Based Automobile Brake Pads

Sundarrajan Dharmakrishnan ✉, Pitchipoo Pandian, **Manoharan Sembian**

b Department of Mechanical Engineering, Surya Engineering College, Erode, India

Pages 7982-7995 | Published online: 17 Aug 2021

Cite this article https://doi.org/10.1080/15440478.2021.19584

ABSTRACT

The present study deals with the extraction and characterization of untreated and silane-treated natural fibers from stems of *Psidium guajava* (Guava plants) for automobile brake pad applications. The extraction of fibers was done from the *Psidium guajava* plant stems by the retting process followed by silane treatment. The untreated and silane-treated *Psidium guajava* fibers were analyzed for chemical, physical, and crystalline properties. These fibers were used in the brake pad composite developed using conventional industrial processes and analyzed for various performance characteristics as per industrial standards. The tribological performance of the developed brake pads was measured using the Chase test following IS 2742 Part-4 of 1994

or SAE J661:2012. It was found that silane-treated *Psidium guajava* fibers had acrystalline of 42%, while it was 27% for untreated *Psidium guajava* fibers. The brake pads

Poll Res. 40 (4) : 1301-1308 (2021)

ISSN 0257–8050

EVALUATION OF QUALITY OF GROUND WATER DUE TO TRACE ELEMENTS IN THE PROXIMITY OF RIVER NOYYAL, TIRUPPUR, SOUTH INDIA

RAVICHANDRAN S.[1], S. CHITRADEVI[2], S.G.D. SRIDHA[3], JAISON MULERIKKAL[4], G.K. PRASHANTH[5], R. SARAVANAKUMAR[6], S.R. BOSELIN PRABHU[7]* AND M.S. DILEEP[8]

[1]Department of Chemistry, Lovely Professional University, Phagwara 144 411, Punjab, India
[2]Department of Chemistry, Rajalakshmi Institute of Technology, Chennai 600 124, T.N., India
[3]Department of Applied Geology, University of Madras, Guindy Campus, Chennai 600 025,T.N., India
[4] Department of Information Technology, Rajagiri School of Engineering and Technology, Kochi 682 039, India
[5]Department of Chemistry, Sir M.Visvesvaraya Institute of Technology, Bengaluru 562 157, Affiliated to Visvesvaraya Technological University, Belagavi 590 018, India
[6]Department of Wireless Communication, Institute of ECE, Saveetha School of Engineering, Saveetha Institute of Medical and Technical Sciences, Chennai 602 105, Tamilnadu, India.
[7]Department of ECE, Surya Engineering College, Mettukadai 638 107, India
[8]Department of Physics, Sir M.Visvesvaraya Institute of Technology, Bengaluru 562 157, Affiliated to Visvesvaraya Technological University, Belagavi 590 018, India

(Received 14 February, 2021; accepted 30 April, 2021)

ABSTRACT

In this present investigation, the level of penetration of trace elements in and around the Noyyal river water was carried out. Trace metal concentrations of copper, cadmium, iron, lead, zinc, manganese and cobalt of groundwater samples of the study areawere determined using Atomic Absorption Spectrometry during different periods of pre-monsoon and post-monsoon of the year 2018 and 2019. The percolation of the polluted water from river Noyyal is found to be higher in the southern part when compared to northern part which may be attributed to the slope and differential soil characteristics. Spatial distribution map of most of the trace metals in the groundwater of the study area was found to be well within the permissible limit for irrigation.

KEY WORDS : Ground water, Trace elements, River Noyyal, Water quality.

INTRODUCTION

Metals are non-biodegradable and accumulative in nature. Elevated emissions and their deposition over time can lead to anomalous enrichment, causing metal contamination of the surface environment (Xiao *et al.*, 2018; Fikret *et al.*, 2020; Xu *et al.*, 2020). The prolonged presence of contaminants in the urban environment particularly in urban soils, and their close proximity to the human population can significantly amplify the exposure of the urban population to metals through inhalation, ingestion, and dermal contact (Malakar *et al.*, 2019; Tsering *et al.*, 2019). A human health concern is usually associated with excessive exposures to metals that cause toxic effects to biological organisms, referred to as trace metals of environmental concern (Tudi *et al.*, 2020; Kelly *et al.*, 2020). These trace metals may include non-essential ones, such as Cd and Pb that can be toxic even at trace levels, and other indirect consequences of trace metal contamination of the urban environment include the subsequent migration of pollutants to receiving bodies of water through urban runoff, resulting in the trace metal

[2,3]Associate Professor, [4]Professor, [5]Assistant Professor, [6,7]Associate Professor, [8]Assistant Professor

PRINCIPAL
SURYA ENGINEERING COLLEGE,
METTUKADAI, KATHIRAMPATTY (Po),
ERODE - 638 107

Original Article

Institution of MECHANICAL ENGINEERS

Journal of MECHANICAL ENGINEERING SCIENCE

Proc IMechE Part C:
J Mechanical Engineering Science
2022, Vol. 236(1) 607–623

DOI: 10.1177/09544062211008924
journals.sagepub.com/home/pic
SAGE

Effects of dry turning parameters of Incoloy 800H superalloy using Taguchi-based Grey relational analysis and modeling by response surface methodology

A Palanisamy[1], N Jeyaprakash[2,3], V Sivabharathi[4] and S Sivasankaran[5]

Abstract

Incoloy 800H is an austenitic Fe-Ni-Cr based superalloy and used in many applications due to their high corrosion resistance and creep-strength. However, this alloy is difficult to machine or cut material because of their eminent characteristics such as rapid-work hardening, lesser thermal conductivity and easy to tool-material attraction. Hence, the necessary experimental investigation is required to study and optimize the turning parameters of this alloy. This work presents the investigation of turning parameter effects on the Incoloy 800H superalloy with cryogenically treated cutting tool. The dry turning experiments were conducted based on Taguchi L_9 Orthogonal array (OA) with the input parameters of cutting speed, feed rate and depth of cut. The outputs such as material removal rate, surface roughness, cutting force and tool-tip temperature were considered as the responses. The measured output responses were optimized and modeled using Taguchi-based Grey relational analysis (GRA) and response surface methodology (RSM), respectively. The tool flank wear and tool life were examined on coated insert with cryogenically treated, coated insert (without cryogenic treatment) and uncoated insert for comparison. The results revealed that greater amount of tool-wear reduction was observed in the case of coated tool with-cryogenically treated about 47.88%, coated tool without-cryogenically treated about 27.51% when compared with an uncoated tool. Besides, analysis of variance (ANOVA) was performed to find the most significant parameter over the obtained responses. The obtained mathematical model through RSM was agreed with the experimental result. Further, the machined surface topography was examined using White Light Interferometer (WLI).

Keywords

Incoloy 800H, dry turning, surface roughness, Grey relational analysis, response surface methodology

Date received: 19 March 2021; accepted: 20 March 2021

Introduction

Incoloy 800H is an austenitic Fe-Ni-Cr based superalloy and introduced to the industry in the year of 1950. The components such as heat exchanger in conventional petrochemical and power plants, nuclear power plant, steam generator tubes are usually made by Incoloy 800H superalloy due to their high corrosion resistance and creep-strength.[1] Further, the boiler and pressure vessel commissioning are being accepted by the American society of mechanical engineers (ASME) for using Incoloy 800H material into the pressure vessels application since 1963. Also, the petrochemical industries, furnace cracker tubes, high-temperature furnaces, components of nuclear power

[1]Department of Mechanical Engineering, Surya Engineering College, Erode, India
[2]Additive Manufacturing Center for Mass Customization Production, National Taipei University of Technology, Taipei, Taiwan
[3]Graduate Institute of Manufacturing Technology, National Taipei University of Technology, Taipei, Taiwan
[4]Department of Mechanical Engineering, St. John College of Engineering and Management, Palghar, India
[5]Department of Mechanical Engineering, Qassim University, Buraidah, Saudi Arabia

Corresponding author:
N Jeyaprakash, Additive Manufacturing Center for Mass Customization Production, National Taipei University of Technology, Taipei, Taiwan.
Email: prakash@ntut.edu.tw

Synergistic effect of Steel Slag-Molybdenum disulfide particles on fade-recovery performances of non-asbestos organic friction material

Sundarrajan D. *(Department of Mechanical Engineering, P.S.R Engineering College, Virudhunagar, India)*
Pitchipoo Pandian *(Department of Mechanical Engineering, P.S.R Engineering College, Virudhunagar, India)*
Manoharan Sembian *(Department of Mechanical Engineering, Surya Engineering College, Erode, India)*

Industrial Lubrication and Tribology
ISSN: 0036-8792
(International Standard Serial Number.)
Article publication date: 23 September 2020
Issue publication date: 4 March 2021

Abstract

Purpose

This paper aims to deal with the synergistic effect of steel slag-molybdenum disulfide particles on fade-recovery performances of non-asbestos organic friction material.

Design/methodology/approach

The brake friction materials were developed by using steel slag and molybdenum disulfide particles as individual and combination in the formulation. The brake friction materials were developed in the form of standard brake pads as per the industrial practice. The physical, mechanical and thermal properties of the developed brake pads were tested as per the industrial standards. The tribological properties were analyzed using the Chase test as per IS2742-Part-4. Worn surface analysis was done using a scanning electron microscope.

Findings

pads formulation to enhance the tribological performance by producing stabilized friction with undulations.

Asian Journal of Chemistry; Vol. 33, No. 3 (2021), 499-508

ASIAN JOURNAL OF CHEMISTRY

https://doi.org/10.14233/ajchem.2021.22987

REVIEW

Novel Foam Adsorbents in Dyes and Heavy Metals Removal: A Review

SURESH SELVARAJ[1], S. RAVICHANDRAN[2], S.R. BOSELIN PRABHU[3,*], G.K. PRASHANTH[4] and H.M. SATHYANANDA[4]

[1]Department of Chemistry, QIS College of Engineering and Technology, Ongole-523272, India
[2]Department of Chemistry, Lovely Professional University, Phagwara-144411, India
[3]Department of ECE, Surya Engineering College, Mettukadai-638107, India
[4]Department of Chemistry, Sir M. Visvesvaraya Institute of Technology (Affiliated to Visvesvaraya Technological University, Belagavi), Bengaluru-562157, India

*Corresponding author: E-mail: eben4uever@gmail.com

Received: 12 September 2020; *Accepted*: 21 January 2021; *Published online*: 16 February 2021; AJC-20240

The present review comprises various novel foam adsorbents with unique adsorption performance in process of removal of dyes and heavy metals. Water pollution because of toxic dyes and heavy metals and its ill-effect on the ecosystem is of great concern to researchers, as it affects the living creatures on the planet. Novel foam adsorbents from carbon foam, chitosan foam, metal foam and polymer foam were developed as efficient materials with good chelating ability to adsorb dyes and heavy metal ions. Novel carbon foam adsorbents were reported to have superior adsorption capacity in removal of dyes and heavy metals. This review aims to look at various novel foam adsorbents used in adsorption studies and their potential in dyes and heavy metals removal. This work provides a worthy challenge and the future possibility for designing novel foam materials for various applications.

Keywords: Novel foam adsorbents, Dyes, Heavy metals, Adsorption, Adsorption capacity.

INTRODUCTION

Dyes and heavy metals contamination in water are associated with danger in human health due to their toxic, carcinogenic and mutagenic effects [1]. The accumulation of dyes and heavy metals in water leads to bioaccumulation in aquatic biota and pose serious health risks that significantly affect the biodiversity in the environment. Dyes and heavy metals used during the industrial processing find their way in mixing with surface water through effluents from textiles, metal plating, fertilizers, pharmaceutical, mineral processing industries [2]. Due to the toxic effects of industrial wastewater, there is a need to treat the dyes and heavy metals contaminated water to preserve the environment. A wide variety of treatment methodologies were in current use with different degree of success, such as chemical precipitations [3], photocatalysis [4], electrochemical method [5], reverse osmosis [6], adsorption [7,8], *etc.* Of all the treatment methods, adsorption has gained significant interest in testing novel materials by researchers due to its simplicity, the highest efficiency in the removal of pollutants. In literature, novel foam adsorbents were prepared and used as efficient adsorbents in adsorption studies. Moreover, some foam adsorbents proved to be promising materials in dyes and heavy metals removal and this have created interest to various researchers and scientists to develop novel foam adsorbents with superior adsorption capacity [9]. The development of novel foam adsorbents and their improved efficiency in removal of dyes and heavy metals in contaminated water and this has gained significant interest among researchers.

Toxic dyes and heavy metals: Dyes are needed for industrial process to colour variety of products. The dye contaminated water leads to various health issues that affect kidney, liver, brain, central nervous system and skin problems [10]. The existence of dyes in surface water imparts colour even at very low concentrations and resists the entry of light and harms the aquatic systems. The non-biodegradable dyes from textile, paper and pulp, paint and tannery industries if improperly managed significantly alters the quality of soil and water and

Journal Published Online: 16 March 2021

Volume 49, Issue 6

Evaluation of Antimicrobial, Antioxidant, and Cytotoxicity Activities of CuO Nanopellets Synthesized by Surfactant-Free Hydrothermal Method

CODEN: JTEVAB

Abstract

Copper oxide nanopellets (CONPs) were produced by hydrothermal strategy. The particles were characterized by distinctive techniques. The synthesized particles were found to have pellet morphology with nonuniform thickness and varying sizes extending between 200 and 550 nm. Studies revealed their microbial nature against both Gram-positive and Gram-negative microscopic organisms, specifically *Staphylococcus aureus*, *Bacillus subtilis*, *Pseudomonas fluorescens*, and *Escherichia coli* and a plant parasitic pathogen *Fusarium oxysporum*. Studies demonstrated the antioxidant ability of CONPs at higher concentrations. In this paper, cytotoxicity was measured by blood hemolysis. Anticancer activity of CONPs tested against PC-3, HCT116, A549 and MDA-MB-231 cell lines after 24 hours exhibited IC_{50} values of 72.27, 144.2, 173.9, and 13.07 µg/mL, respectively. Although these phenomena have been determined in other reports, this report is indeed of significance for CONPs within the particle length of 200–550 nm.

Author Information

Sathyananda, H. M.

Centre for Research and Evaluation, Bharathiar University, Coimbatore, Tamilnadu, India Department of Chemistry, Sir M. Visvesvaraya Institute of Technology, Bengaluru, Karnataka, India Visvesvaraya Technological University, Jnana Sangama, Belagavi, Karnataka, India

Prashanth, P. A.

Centre for Research and Evaluation, Bharathiar University, Coimbatore, Tamilnadu, India Visvesvaraya Technological University, Jnana Sangama, Belagavi, Karnataka, India Department of Chemistry, PES College of Engineering, Mandya, Karnataka, India

Prashanth, G. K.

Department of Chemistry, Sir M. Visvesvaraya Institute of Technology, Bengaluru, Karnataka, India Visvesvaraya Technological University, Jnana Sangama, Belagavi, Karnataka, India

Nagabhushana, B. M.

Visvesvaraya Technological University, Jnana Sangama, Belagavi, Karnataka, India Department of Chemistry, M. S. Ramaiah Institute of Technology, Bengaluru, Karnataka, India

Krishnaiah, G. M.

Department of Chemistry, Sir M. Visvesvaraya Institute of Technology, Bengaluru, Karnataka, India Visvesvaraya Technological University, Jnana Sangama, Belagavi, Karnataka, India

Nagendra, H. G.

Visvesvaraya Technological University, Jnana Sangama, Belagavi, Karnataka, India Department of Bio-Technology, Sir M. Visvesvaraya Institute of Technology, Bengaluru, Karnataka, India

Dileep, M. S.

Visvesvaraya Technological University, Jnana Sangama, Belagavi, Karnataka, India Department of Physics, Sir M. Visvesvaraya Institute of Technology, Bengaluru, Karnataka, India

Ananda, S.

Department of Chemistry, University of Mysore, Mysuru, Karnataka, India

Boselin Prabhu, S. R.

Department of Electronics and Communication Engineering, Surya Engineering College, Erode, Tamilnadu, India

Pages: 11

Price: $25.00

Stock #: JTE20200538

ISSN: 0090-3973

DOI: 10.1520/JTE20200538

PRINCIPAL
SURYA ENGINEERING COLLEGE,
METTUKADAI, KATHIRAMPATTY (Po).
ERODE - 638 107

Influence of heat treatment on the mechanical and tribological properties of Incoloy 800H Superalloy

Original Article Published: 08 January 2021

Volume 21, article number 10, (2021) Cite this article

Archives of Civil and Mechanical Engineering

Aims and scope

Submit manuscript

A. Palanisamy, N. Jeyaprakash, V. Sivabharathi & S. Sivasankaran

Abstract

The selection and use of high strength alloys with high wear resistance (at room and high temperature) are mandatory in aerospace, nuclear, automotive, petroleum, space, furnace, and chemical industries in which Incoloy 800H superalloy is the right choice. However, this alloy is under the class of 'difficult to cut material' caused by their significant properties. In the present work, the heat treatment on Incoloy 800H superalloy was carried out at 1075 °C for 60 min and then the samples were cooled in the air (air cooling, AC) and furnace (furnace cooling, FC) to modify the microstructure. The mechanical and tribological behavior were examined on the heat-treated samples at room temperature to eliminate the effect of dynamic strain aging (DSA) which usually occurs at

Energy Sources, Part A: Recovery, Utilization, and Environmental Effects ›
Latest Articles

Research Article

An elitist control scheme for power flow management in smart grid system: a hybrid optimization scheme

Dr. Ganapathia Pillai Kannayeram, Dr. Rathinam Muniraj, Dr. Nattanmai Balasubramanian Prakash, Dr. Thankaswamy Jarin & Dr. Sivadhas Rosejanet Boselin Prabhu

Received 28 Jul 2020, Accepted 02 Oct 2021, Published online: 26 Dec 2021

Cite this article https://doi.org/10.1080/15567036.2021.2001118 Check for updates

Full Article Figures & data References Citations Metrics

Reprints & Permissions Read this article

ABSTRACT

In this manuscript, an elitist power flow management (PFM) scheme of PV/FC/battery/SCAP in smart grid (SG) system is proposed. The proposed structure has photovoltaic (PV) generator (Maximum Power Point Tracking (MPPT) and power limitation mode), battery storage, fuel cell (FC), and super capacitor (SCAP). The proposed method is the consolidation of binary adaptation of ant lion optimizer (BALO) and squirrel search optimizer (SSO), and hence it is known BALSO method. H... BALO is generated the inverter control pulses depends on power transfer an...ments among source and load side. The formulation of multiobjective function

10.24425/acs.2021.137427

Archives of Control Sciences
Volume 31(LXVII), 2021
No. 2, pages 447–476

Unified design method of time delayed PI controller for first order plus dead-time process models with different dead-time to time constant ratio

Arun R. PATHIRAN, R. MUNIRAJ, M. WILLJUICE IRUTHAYARAJAN, S.R. Boselin PRABHU and T. JARIN

The time delay element present in the PI controller brings dead-time compensation capability and shows improved performance for dead-time processes. However, design of robust time delayed PI controller needs much responsiveness for uncertainty in dead-time processes. Hence in this paper, robustness of time delayed PI controller has been analyzed for First Order plus Dead-Time (FOPDT) process model. The process having dead-time greater than three times of time constant is very sensitive to dead-time variation. A first order filter is introduced to ensure robustness. Furthermore, integral time constant of time delayed PI controller is modified to attain better regulatory performance for the lag-dominant processes. The FOPDT process models are classified into dead-time/lag dominated on the basis of dead-time to time constant ratio. A unified tuning method is developed for processes with a number of dead-time to time constant ratio. Several simulation examples and experimental evaluation are exhibited to show the efficiency of the proposed unified tuning technique. The applicability to the process models other than FOPDT such as high-order, integrating, right half plane zero systems are also demonstrated via simulation examples.

Key words: PI controller, time delayed PI controller, dead-time compensation

A.R. Pathiran (e-mail: arun.pathiran@gmail.com) is with Department of Electrical and Electronics Technology, Ethiopian Technical University, Addis Ababa, Ethiopia.

R. Muniraj (e-mail: munirajphd@gmail.com) is with Department of Electrical and Electronics Engineering, P.S.R. Engineering College, Sivakasi, Virudhunagar District, Tamilnadu, India.

M.W. Iruthayarajan (e-mail: m.willjuice@gmail.com) is with Department of Electrical and Electronics Engineering, National Engineering College, Kovilpatti, India.

S.R.B. Prabhu (e-mail: eben4uever@gmail.com) is with Department of Electronics and Communication Engineering, Surya Engineering College, Mettukadai, India.

T. Jarin (corresponding author, e-mail: jeroever2000@gmail.com) is with Department of Electrical and Electronics Engineering, Jyothi Engineering College, Thrissur, India.

Received 11.08.2020. Revised 29.04.2021.

Influence of premixed dual metal sulfides on the tribological performance of copper-free brake friction materials

Vijay R., Manoharan S., Nagarajan S., Lenin Singaravelu D.

Industrial Lubrication and Tribology
ISSN: 0036-8792
(International Standard Serial Number.)
Article publication date: 14 October 2020
Issue publication date: 4 March 2021

Abstract

Purpose

The purpose of this study is to deals with the effect of premixed dual metal sulfides (tin disulfide + iron disulfide) as a replacement for antimony trisulfide on the tribological performance of brake friction materials.

Design/methodology/approach

In this study, brake friction materials were developed by using premixed dual metal sulfides as a replacement for antimony trisulfide in the formulation. The brake friction materials were developed in the form of standard brake pads as per the industrial practice. Thermal stability was measured for varying ingredients and developed brake pads using thermogravimetric analysis. The physical, mechanical and thermal properties of the developed brake pads were tested as per the industrial standards. The tribological properties were analyzed using the Chase test as per SAE J661. Worn surface analysis was done using a scanning electron microscope.

Findings

The experimental results indicate that the brake pads filled with premixed dual metal sulfides had good thermal stability, physical, chemical and mechanical properties with stable friction and less wear rate due to better lubrication preventing friction undulations.

Originality/value

This paper explains the influence of premixed dual metal sulfides as a replacement for antimony trisulfide in brake pads formulation to enhance the tribological performance by preventing friction undulations.

Effect of vitamin-C on structural, thermal, and optical properties of lithium sulfate monohydrate crystal

Published: 20 January 2021

Volume 32, pages 4798–4804, (2021) Cite this article

Journal of Materials Science: Materials in Electronics

Aims and scope

Submit manuscript

M. S. Dileep ✉, G. K. Prashanth & S. R. Boselin Prabhu

Abstract

A single crystal of vitamin-C-doped lithium sulfate (VCLSM) was grown at room temperature from aqueous solution by slow evaporation method. The as-grown crystals were found to be transparent and yellow in color. Powder X-ray diffractogram of the pure and doped crystals was recorded and various planes were identified for their corresponding reflections. The X-ray diffraction (XRD) analysis validated the crystalline nature of the samples. Single crystal X-ray diffraction study revealed the structure of the crystals and also revealed their monoclinic crystal system with space group $P2_1$. The vibrational modes of different functional groups present in the compound were analyzed using Fourier transform infrared (FTIR) spectral analysis. Thermal characteristics study

Original Article

Emperor Journal of Applied Scientific Research
ISSN No. 2581-964X(O)
2021, Vol. 3 Issue-2

http://ejasr.mayas.info

Conduct appraisal of steel fiber reinforced concrete beams in terms of flexion and shear

S. Kamalkannan[1], S. Thowfica[2]
[1,2]Assistant Professor, Department of Civil Engineerig,
Surya engineering college, Mettukadai
Email: kannanapr20@gmail.com
Email: taufiq.1000@gmail.com

Abstract

This An investigational research included continuing on through the direct of shafts under flexure. These days perilous occasion like shiver, wind power, etc expects a colossal part in the improvement business. So structures and other improvement work should be coordinated in agreeable manner, which struggle with higher burdens and seismic forces. Versatility and energy osmosis limit are the basic central of the shake safe new development. Fiber kept up strong social affairs high strength, improved pliability and redesiging energy upkeep limit. In this fiber is melded various degrees to extend the strength of concrete. In this we add various admixtures like silica rage as a cementitious material to secure strength when it is mixed in with water and cerahyper plasizicer as a tolerance admixture to diminishing the water solid degree and extending the value of the strong. By then this paper presents the eventual outcomes of a nonlinear Finite Element (FE) evaluation drove on Reinforced High Performance Concrete (HPC). Showing the conflicting lead of looked after strong, which is both non-homogeneous and isotropic, is an aggravating go against in the bound part evaluation of fundamental orchestrating enhancements.

Keywords: flexure, fiber looked after strong, flexibility, water solid degree

I. Introduction

Concrete is an essential fragments exist in advancements and expansions in different plans. Understanding the response of these parts during stacking is crucial for the improvement of an as simple beneficial and safe development. Different procedures have been utilized to look at the response of central parts. Test based testing has been everything viewed as used as an approach to manage see explicit bits and the effects of structure strength under stacking. While this is a strategy that produces authentic response, it is extraordinarily drawn-out and the use of materials can be especially outrageous. The utilization of restricted area evaluation to consider these parts has likewise been used. Of late, regardless, the use of restricted part evaluation has expanded because of moving data and cutting points of PC programming and stuff. It has now become the choice structure to confine solid basic territories. The usage of program to show these parts is much faster, and unfathomably sensible. The usage of FEA has been the maintained strategy to consider the direct of concrete. This increase work contains spaces of study, for instance, Behavior at first Cracking, Behavior at Initial Cracking, Behavior past First Cracking, ,Load-Deformation Response of control section and Application of Effective Prestress, Self-Weight, Zero Deflection, Decompression, Initial Cracking, Secondary Linear Region, Behavior of Steel Yielding and Beyond, Flexural Limit State of prestressed strong bar . The monograph contains commitments that chart uses of the bound part framework for taking apart post-top cyclic direct and versatility of kept up strong portions. The objective of this paper was to examine and survey the utilization of the restricted segment methodology for the evaluation of made strong sections. Most importantly, shaping review was worked with to survey past test and quick systems related to looked after concrete.

The agreement relied upon kept up strong area direct from the start breaking, lead past first breaking, direct of help yielding and past, strength limit state, load-distortion response, and bond plan. The results got was twirled around, like before additionally assessment of first breaking load, crazy weight, work done in straight and nonlinear territory, and weight redirection nature between these undeniable help level of the reasonable shaft.

Giuseppe Campione.et.al: The flexural direct of plain and wiry made cement (FRC) sends under monotonic and cyclic exercises was examined. The most conspicuous fibers utilized are jumble steel ones, and the best rate for crucial application is some spot in the degree of 0.5% and 1.5% by volume of concrete. The test outcomes got show that the use of fibers, in a correct rate for chief purposes, and in blend in with standard steel supports allows the achievement of better shows stood separated from those of regularly made transmits.

Original Article

Emperor Journal of Applied Scientific Research
ISSN No. 2581-964X(O)
2021, Vol. 3 Issue–I

http://ejasr.mayas.info

Performance Evaluation of Reinforced Flyash Aggregate Concrete and its Strength and Ductility Uniqueness

S. Kamalkannan [1] , M. Chinnasamy [2]
[1,2]Assistant Professor, Department of Civil Engineerig,
Surya engineering college, Mettukadai
Email: kannanapr20@gmail.com

Abstract

Aggregates are the huge constituents in concrete. They offer body to the strong, decrease shrinkage and effect economy. Earlier, aggregates were considered as misleadingly inactive materials yet at this point it has been seen that a part of the sums are artificially unique and besides that particular sums show substance bond at the interface of aggregate and paste. The major real factors that the all out have 70-80 percent of the volume of concrete, is undoubtedly considerable.In the assessment, fly trash sums will be used in concrete and its effect on strength of strong will be examined. The fly flotsam and jetsam will be assembled in Mettur Thermal Power Plant. By then the solid fly trash degrees of 12.5:87.5,15:85,17.5:82.5 will be gotten to get fly flotsam and jetsam aggregates. The atom size scattering, express gravity ,mass density,Impact test on all out will be driven. M20 assessment of strong will be considered. The new strong tests Slump test &Compacting factor test will be coordinated. For the plain concrete and fly garbage complete concrete of Beams, Cylinders and Cubes will be anticipated. All of the models will be reestablished in an easing tank.The plain and fly trash all out strong models will be pursued for 7 days, 28 days and 56 days strength. The tests will be coordinated on these plain and fly garbage all out strong models. The results will be coordinated and taken a gander at by drawing bar graphs. Taking into account the results obtained, finishes and thoughts will be made.

Keywords: Compressive strength, Flexure strength, Flyash complete concrete,

I. Introduction

Fly garbage isn't a dirtying mechanical waste, anyway a resource material supportive for various improvement applications, in cement and concrete. The utilization of fly flotsam and jetsam in India has extended liberally recently. Both coarse and fine sums for making concrete are gotten meager, and various metropolitan networks and towns generally speaking including India, don't allow the quarrying of sand or stone. This issue will end up being incredibly extraordinary in the near future. These sums, just as being lightweight, are not presented to stomach settling agent all out reactions. India produces around 100 million tones of fly flotsam and jetsam consistently as of now. The projections reliant upon energy needs of India show that this total will addition to around 200 million tons by year 2015, as coal will remain to be the huge wellspring of energy in India and elsewhere in the world. In the improvement business, fly trash is used in housetop security, Trench rebuilding, Road course of action, Bridge projection, Land recuperation, void filling, Light weight pre cast blocks, Fire resistance, Insulation outburst and soil change.

Elective materials are Fly trash coarse aggregates, Construction pounding waste, Broken glasses,Rubber wastes,Silica sand. Reused strong aggregate (RCA) is gotten essentially by crushing and taking care of strong segments that have been as of late used being developed, where the stone work content material, including around a 30-35 percent of material under 4mm, is dealt with to a plant wherein the fines are disengaged. The association has conveyed great aggregate and the investigation has shown that there is no decrease in the properties of mid-range grade concrete, with the use of 20% reused aggregate and 80 percent customary stone. The above materials are used being developed works, anyway essentially sand and aggregates are extensively used in concrete. Fly garbage is described in Cement and Concrete Terminology (ACI Committee 116) as "the finely segregated coming about due to the consuming of ground or powdered coal, which is moved from the firebox through the warmer by pipe gases." Fly trash is a consequence of coal – ended electric delivering plants. Two sorts of fly flotsam and jetsam are conveyed, according to such a coal used. Anthracite and bituminous coal produces fly flotsam and jetsam named Class F. Class C fly flotsam and jetsam is made by burning-through lignite or sub-bituminous coal. Class C fly garbage is best for the applications presented in the Green Building Guide and is the principal sort offered for private applications from arranged mix suppliers. Fly flotsam and jetsam is one of three general sorts of coal consuming results (CCBP'S). The use of these results offers common advantages by diverting the material from the waste stream, diminishing the energy interest in dealing with virgin materials, directing virgin materials, and easing pollution.

PRINCIPAL
SURYA ENGINEERING COLLEGE.
METTUKADAI, KATHIRAMPATTY (Po).
ERODE - 638 107

Original Article

Emperor Journal of Applied Scientific Research
ISSN No. 2581-964X(O)
2021, Vol. 3 Issue–1

http://ejasr.mayas.info

Performance Evaluation of Reinforced Flyash Aggregate Concrete and its Strength and Ductility Uniqueness

S. Kamalkannan [1] , M. Chinnasamy [2]
[1,2]Assistant Professor, Department of Civil Engineerig,
Surya engineering college, Mettukadai
Email: kannanapr20@gmail.com

Abstract

Aggregates are the huge constituents in concrete. They offer body to the strong, decrease shrinkage and effect economy. Earlier, aggregates were considered as misleadingly inactive materials yet at this point it has been seen that a part of the sums are artificially unique and besides that particular sums show substance bond at the interface of aggregate and paste. The major real factors that the all out have 70-80 percent of the volume of concrete, is undoubtedly considerable.In the assessment, fly trash sums will be used in concrete and its effect on strength of strong will be examined. The fly flotsam and jetsam will be assembled in Mettur Thermal Power Plant. By then the solid fly trash degrees of 12.5:87.5,15:85,17.5:82.5 will be gotten to get fly flotsam and jetsam aggregates. The atom size scattering, express gravity ,mass density,Impact test on all out will be driven. M20 assessment of strong will be considered. The new strong tests Slump test &Compacting factor test will be coordinated. For the plain concrete and fly garbage complete concrete of Beams, Cylinders and Cubes will be anticipated. All of the models will be reestablished in an easing tank.The plain and fly trash all out strong models will be pursued for 7 days, 28 days and 56 days strength. The tests will be coordinated on these plain and fly garbage all out strong models. The results will be coordinated and taken a gander at by drawing bar graphs. Taking into account the results obtained, finishes and thoughts will be made.

Keywords: Compressive strength, Flexure strength, Flyash complete concrete,

I. Introduction

Fly garbage isn't a dirtying mechanical waste, anyway a resource material supportive for various improvement applications, in cement and concrete. The utilization of fly flotsam and jetsam in India has extended liberally recently. Both coarse and fine sums for making concrete are gotten meager, and various metropolitan networks and towns generally speaking including India, don't allow the quarrying of sand or stone. This issue will end up being incredibly extraordinary in the near future. These sums, just as being lightweight, are not presented to stomach settling agent all out reactions. India produces around 100 million tones of fly flotsam and jetsam consistently as of now. The projections reliant upon energy needs of India show that this total will addition to around 200 million tons by year 2015, as coal will remain to be the huge wellspring of energy in India and elsewhere in the world. In the improvement business, fly trash is used in housetop security, Trench rebuilding, Road course of action, Bridge projection, Land recuperation, void filling, Light weight pre cast blocks, Fire resistance, Insulation outburst and soil change.

Elective materials are Fly trash coarse aggregates, Construction pounding waste, Broken glasses,Rubber wastes,Silica sand. Reused strong aggregate (RCA) is gotten essentially by crushing and taking care of strong segments that have been as of late used being developed, where the stone work content material, including around a 30-35 percent of material under 4mm, is dealt with to a plant wherein the fines are disengaged. The association has conveyed great aggregate and the investigation has shown that there is no decrease in the properties of mid-range grade concrete, with the use of 20% reused aggregate and 80 percent customary stone. The above materials are used being developed works, anyway essentially sand and aggregates are extensively used in concrete. Fly garbage is described in Cement and Concrete Terminology (ACI Committee 116) as "the finely segregated coming about due to the consuming of ground or powdered coal, which is moved from the firebox through the warmer by pipe gases." Fly trash is a consequence of coal – ended electric delivering plants. Two sorts of fly flotsam and jetsam are conveyed, according to such a coal used. Anthracite and bituminous coal produces fly flotsam and jetsam named Class F. Class C fly flotsam and jetsam is made by burning-through lignite or sub-bituminous coal. Class C fly garbage is best for the applications presented in the Green Building Guide and is the principal sort offered for private applications from arranged mix suppliers. Fly flotsam and jetsam is one of three general sorts of coal consuming results (CCBP'S). The use of these results offers common advantages by diverting the material from the waste stream, diminishing the energy interest in dealing with virgin materials, directing virgin materials, and easing pollution.

PRINCIPAL
SURYA ENGINEERING COLLEGE.
METTUKADAI, KATHIRAMPATTY (Po).
ERODE - 638 107

Published: 15 November 2020

Evaluation of structural, optical, and dielectric characterization of adipic acid crystals grown in aqueous solution of L-alanine

M. S. Dileep, G. K. Prashanth & S. R. Boselin Prabhu

Journal of Materials Science: Materials in Electronics **31**, 22893–22904 (2020)

Abstract

In this paper, adipic acid crystals were grown using slow evaporation method in aqueous solution of L-alanine at room temperature. X-ray diffraction investigation shows that the crystal belongs to P21/n space group. EDAX study confirms the occurrence of elements in the crystal. The crystal is thermally stable up to 124 °C. Further, the grown crystals were exposed to Co-60 gamma radiations with different doses of 1 Mrad, 3 Mrad, and 5 Mrad at normal room temperature. After gamma irradiation, a small change in the intensity and a slight shift in the Powder X-Ray Diffraction (PXRD) peaks were seen. UV–visible analysis reveals an increase in reflectance after gamma irradiation. Increase in dielectric constant, dielectric loss, and AC conductivity was observed by dielectric studies. Second Harmonic Generation (SHG) efficiency of the crystal is 0.42 times that of the standard Potassium Dihydrogen Phosphate (KDP) crystal and is increased moderately up to the gamma irradiation dosage of 3 Mrad.

Poll Res. 39 (4) : 1180-1187 (2020)

ISSN 0257–8050

TREATMENT OF POTABLE WATER SAMPLES USING ECO-FRIENDLY *PHYLLANTHUS EMBLICA* – A SOLUTION FOR WATER POLLUTION

THAMARAI SELVI C.[1], RAVICHANDRAN S.[2], BOSELIN PRABHU S.R.[3], PRASHANTH G.K.[4], KRISHNAIAH G.M[4]. AND SATHYANANDA H.M.[4]

[1]*Department of Biotechnology, Mother Teresa Women's University, Kodaikanal 62 4101, India*
[2] *Chemistry, Lovely Professional University, Phagwara 144 411, Punjab, India*
[3] *ECE, Surya Engineering College, Mettukadai 638 107, India*
[4]*Department of Chemistry, Sir M. Visvesvaraya Institute of Technology, Bengaluru 562 157, Affiliated to Visvesvaraya Technological University, Belagavi 590 018, India*

(Received 29 March, 2020; Accepted 20 May, 2020)

ABSTRACT

The problems of water pollution in the rich and the poor nations are different in various aspects. In this paper, the potable water samples were collected in and around typical distillery industry from Puliyamarathadi, Sangaramoorthy Patti, Muthalakam Patti, Varatharajan Puram, Kullapuram, Cement Road, Villapuram, Pottal Patti, Karisal Kulam, and Palrangapuram in Madurai district. The present study is mainly aimed to remove the TDS, water hardness and chloride from potable water using natural coagulants. The main objective of this research work is to collect and analyze the physico-chemical characteristics of the potable water samples, to assess the microbial population present in the samples, to remove the impurities from contaminated water samples using natural coagulants such as *Strychnos potatorum* L seeds and *Phyllanthus emblica* wood, to find the phyto-compounds present in the coagulants using GC-MS technique, to assess the antimicrobial activity of natural coagulants, and to identify the coagulant protein present in the plant material.

KEY WORDS : Drinking water, Water Pollution, Natural coagulants, Microbial population, Water samples

INTRODUCTION

In this study, plant based materials such as *Phyllanthus emblica* wood, and *Strychnos potatorum* L seed powder were used to remove the impurities from the water samples. It was observed that the treatment with the wood pieces of *Phyllanthus emblica* showed the higher reduction of impurities from the water than nirmali seeds and the optimum dosage was found to be 1g. The potable water samples were treated with different dosages of *Strychnos potatorum* seed powder. Among the dosages, higher reduction of impurities was observed in 0.4 g of seed powder. The active bio-compounds present in the plant materials were extracted with aqueous, methanol, chloroform and petroleum ether and qualitatively analyzed. The plant materials showed the presence of carbohydrate, saponin, tannin, alcohols, alkaloids, acids, esters, long chain hydrocarbons, steroids, amino acid and nitro compounds.

The GC-MS characterization of both the plant material showed the presence of bio active compounds have different important biological activities such as pharmacological, antibacterial, antifungal, antilisterial, antihypertensive, anti-inflammatory, urokinase, reductase activity on the nature of elemental composition. The potable water contaminated with pathogenic microorganisms and it was confirmed by the presence of microbes includes *Escherichia coli, Pseudomonas, Staphylococcus* and *Bacillus species*. Antimicrobial activity of the

Journal of Information Technology and Digital World (2020)
Vol.02/ No. 03
Pages: 161-173
https://www.irojournals.com/itdw/
DOI: https://doi.org/10.36548/jitdw.2020.3.004

Role of Machine Learning Algorithms Intrusion Detection in WSNs: A Survey

Dr. E. Baraneetharan,
Associate Professor & Head,
Department of Electrical and Electronics Engineering,
Surya Engineering College,
Erode, India.

Abstract Machine Learning is capable of providing real-time solutions that maximize the utilization of resources in the network thereby increasing the lifetime of the network. It is able to process automatically without being externally programmed thus making the process more easy, efficient, cost-effective, and reliable. ML algorithms can handle complex data more quickly and accurately. Machine Learning is used to enhance the ability of the Wireless Sensor Network environment. Wireless Sensor Networks (WSN) is a combination of several networks and it is decentralized and distributed in nature. WSN consists of sensor nodes and sinks nodes which have a property of self-organizing and self-healing. WSN is used in other applications, such as biodiversity and ecosystem protection, surveillance, climate change tracking, and other military applications.Now-a-days, a huge development is seen in WSNs due to the advancement of electronics and wireless communication technologies, several drawbacks like low computational capacity, small memory, and limited energy resources infrastructure needs physical vulnerability to require source measures where privacy plays a key role.WSN is used to monitor the dynamic environments and to adapt to such situation sensor networks need Machine Learning techniques to avoid unnecessary redesign. Machine learning techniques survey for WSNs provide a wide range of applications in which security is given top priority. To secure data from attackers the WSNs system should be able to delete the instruction if any hackers/attackers are trying to steal data.

Keywords: Intrusion Detection System (IDS), Security, Wireless Sensor Network (WSN), Attacks, Reinforcement Learning (RL), Denial-of-Service (DoS), Networks, Machine Learning (ML)

1. Introduction

Wireless Sensor Networks (WSNs) are considered aslow power consumption candidates for processing and contemptible in features that are used in different fields to collect information on human activities and behavior, to supervise various natural activities, and so on. Security is the main issue in WSNs. The two major groups areActive and Passive. In Passive attacks, here they are unseen and tap the link above to store data; or remove the performance element of the internet. Broken node, tampering, traffic is some of the types in the passive attack. The essential attacks of the network which attack itself in active attack and the reason for attacks might be this and can also be detected [13]. For some time, the services may be stopped or corrupted because of these attacks. Many types of attacks are grouped as jamming, hole- attacks, Denial-of-Service (DoS), Sybil types, and flooding.The activity of the network is passively or actively achieved. "Intrusion Prevention," Don't avoid instruction, then "Intrusion Detection," will take place.Intrusion Detection Systems (IDSs) gives a few information to other supportive Systems: detection and position of intruder, intrusion instance, type of intrusion, where this intrusion occurs. Such information can be useful in mitigating and remedying the cause of attacks, as more information on an intrusion is provided. So,the detection of intrusion systems is useful in network security.

Wireless Networks are considered as a non-trivial and complicated process for its performance and optimization. WSN has to fulfill all the set of operations. Figure 1 explains the design of WSN with gametheory which helps to counter a variety of intrusions on the network. WSN includes the network requirements as the power resources for a while in which WSN needs to communicate with a centralized or a remote base station to sense the data and for subsequent analysis. WSN mainly concentrates on Quality of Service (QoS) and Network Security to prevent the DoS attack (Denial of Service) with the addition of Intrusion detection. Packet Forwarding, data collection, and target tracking are considered to be integral objectives of the WSN.

ISSN: 2582-2012 (online)
Submitted: 01.08.2020
Accepted: 22.08.2020
Published: 29.08.2020

Asian Journal of Chemistry; Vol. 32, No. 4 (2020), 871-875

ASIAN JOURNAL OF CHEMISTRY

https://doi.org/10.14233/ajchem.2020.22478

Cost Effective and Natural Plant Based Coagulant for Removal of Chloride from Potable Water

THAMARAISELVI CHANDRAN[1], SOFIAVIZHIMALAR ASAITHAMBI[1], NANDHINI SENTHILKUMAR[1], VASANTHY MUTHUNARAYANAN[2], RAVICHANDRAN SUBRAMANIAN[3] and BOSELIN PRABHU S.R.[4,*]

[1]Department of Biotechnology, Mother Teresa Women's University, Kodaikanal-624101, India
[2]Department of Environmental Biotechnology, Bharathidasan University, Tiruchirappalli-620024, India
[3]Department of Chemistry, Lovely Professional University, Phagwara-144 411, India
[4]Department of Electronics and Communication Engineering, Surya Engineering College, Mettukadai-638107, India

*Corresponding author: E-mail: eben4uever@gmail.com

Received: 3 November 2019; *Accepted*: 28 November 2019; *Published online*: 25 February 2020; AJC-19805

In present study, water quality was assessed by collecting ten water samples in and around Tiruppur city of India. The physico-chemical characterisation of the water samples were analyzed using standard protocols. The samples with higher chloride content (3106 mg/L) was found in Ganapathy Palayam sample, the value was higher than the BIS prescribed limit. The sample was subjected to treatment with various dosages of the phyto coagulating agent *Tamarindus indica* L. seed powder and its polysaccharide. The maximum 51 % of chloride reduction was obtained with 0.3 g of seed polysaccharide, and it was taken as optimum dosage. The raw seed removed 47 % of chloride by the dosage 0.4 g. The seed powder was characterized by GC-MS and FT-IR analysis. The GC-MS chromatogram showed the presence of various phytocompounds such as lupanine, cyclopropane octanoic acid, ascorbic acid, octadecanoic acid in the plants. The functional groups found in the seed powder were characterized by FTIR analysis. The evaluated results confirmed the contamination of potable water in Tiruppur city by the dyeing industries located near the water sources. The present work concluded that tamarind seed coagulants are efficient, eco-friendly, low-cost and easily available material, which could be used for the treatment of potable water.

Keywords: Potable water, Tamarind seed, Polysaccharide, Contamination, Chloride.

INTRODUCTION

Water is one of the most indispensable and valuable natural resource, and it is a fundamental need for all living organisms to maintain their life cycle. Water is used for numerous purposes, as well as many industrial applications and its development. Contaminated drinking water, along with poor cleanliness and unhygiene, approximately 10 % of diseases world wide including 4 billion cases of diarrhoea and 1.8 million deaths occurs annually [1,2]. Particularly, children and elder people are suffering from chronic diseases due to contaminated water usage. One-sixth of the world's population suffers from the water scarcity [3]. Environmental pollution is a worldwide issue, mainly due to industrialization and urbanization, and it affects the human health, plants, animals and properties also. Larger volume of untreated industrial effluents that were introduced into open lands lead to water and land pollution. Several physical and chemical methods are available for the treatment of potable water [4]. But, these methods are of higher cost, not recommended for rural area and produce solid waste. The disposal of solid wastes also needs further treatment for its disposal. Hence, eco-friendly and low-cost phytocoagulant *Tamarindus indica* L. was selected and used for water treatment.

Tamarindus indica L. tree belongs to Fabaceae family. India and Thailand are the major producer and consumer, and generating 3,00,000 and 1,40,000 tons of tamarind fruit annually. It is one of the most significant edible fruit used as a flavouring agent in cooking, juices, preparation of beverages, human nutrition and medicinal value. The ancient tribal people prepare decoction by using the tamarind plant parts and used for medi-

International Journal of Innovative Technology and Exploring Engineering (IJITEE)
ISSN: 2278-3075, Volume-8, Issue- 9S2, July 2019

An Experimental Research on GPS Based Boundary Intruding Boat Monitoring System

R. Puviarasi, M. Mageshwaran, Mritha Ramalingam, S.R.Boselin Prabhu

Abstract— Boundary detection and alert system is a straightforward and effective idea, which utilizes Internet of Things technology. By utilizing this framework border monitoring is 100% protected and secure. It naturally alarms the intruder when the vehicle goes over the specific range in borders. This is finished by a sensor called Global positioning system (GPS). It detects the current position of the vehicle and switch on the caution framework naturally. In this anticipate, no need of manual operations like on time and off time setting. GPS and IoT are the fundamental segments of the task. The resistances of the alert system changes as per the distance between the current position of the vehicle and the border get decreased or increased.

Keywords: GPS, IoT, networking, c programing

1. INTRODUCTION

Checking ecological limits has been a fascinating subject for a long time because of logical and open security applications. From Tamil Nadu around 18,000 vessels of various types lead fishing along the India-Sri Lanka oceanic outskirt [8]. Most of the coastal area villages rely on the fishing occupation only, but crossing the borders in the ocean for any reason is treated as a national offence. Because of ignorance about as far as possible, the fishermen used to cross the oceanic fringes. When they cross the fringe, they captured or murdered by the applicable naval force and they are being stole and their water crafts are being caught by the area nations waterfront watches. Under such circumstance the lives of fishermen keeps on being in threat [6,7]. Furthermore, it has turned out to be one of the central points for misfortune in people just as their nation monetary. So to handle this situation, the awareness has to be taught to the fishermen that they have to remain inside the Indian border and not to enter the Sri Lankan border range. The technological framework should be the well-suited decision for settling the border limit crossing issue. To dispense with such troubles a framework has been produced which encourages the fishermen to know about intersection the fringe. We present framework called advanced GPS based boundary detection and alert system using IoT and GPS technology. This paper accompanies a reliable answer for this issue and shields the Indian fishermen from risky circumstance and being crossing the sea limit and spares their life and enhances the wellbeing of fishermen. The framework is planned by utilizing GPS and IoT. A GPS course gadget is a gadget that unequivocally finds current location by getting GPS coordinates from the satellites. This gadget collects the location coordinates continuously and examines where the vessel is currently moving, and it is used locate the point at where the vessel crossed the boundary. This is a critical issue related to security and creates inconvenience between the fishermen and coastguards. GPS based boundary detection and alert system is a framework which helps the fishermen by representing the border using an alert system connected with a global positioning system (GPS). The GPS collects the present scope and longitude esteems and send the coordinates to the microcontroller unit. As soon as the controller receives the current coordinates it locates the vessel with respect to the border, by contrasting the received coordinates and qualities with the predefined esteem. At the equilibrium point of both coordinates, this system intimates the fishermen that they are going to achieve the border outskirt. Remembering about existences of Indian fishermen, this gadget has been made to help them not to move past Indian fringe. It encourages the fishermen not to go a far distance of outskirt. On the off chance that the fishermen disregard the outskirt and enters the prohibited area, an alert (risk flag) is produced demonstrating that the fishermen have violated the boundary of the nation.

A GPS-based remote impromptu system is a device which is used for Checking, inquiry, and salvage marine applications in Vietnam. This system's steering convention and calculation are assessed utilizing System Test system 2 programming. The outcomes demonstrate a triumph amount of bundles transferring more than 85 %. It demonstrates the incredible capability of proposed idea. Catchphrases specially appointed system, marine observing and seeking, Worldwide Situating Framework (GPS).

The proposed framework was used for identifying the nation's border through the predetermined longitude and scope of the boundary, between Sri Lanka and India as well as everywhere throughout the world. The specific layer level for example fringe can be predefined and this can be put away in PIC microcontroller memory. The present esteem is contrasted and predefined values and if the qualities are same, quickly the specific task will be done for example the PIC microcontroller offers guidance to the caution to ringer. It likewise utilizes a data transmitter to send the message to the land, where the vessel is screened by the marine patrol [5]. The device intimate the message to the fishermen and for the marine patrol situated in the landside. This process

Revised Manuscript Received on July 18, 2019.

Dr. R. Puviarasi, Department of ECE, Saveetha School of Engineering, Saveetha Institute of Medical and Technical Sciences, Chennai 602105.

M. Mageshwaran, Department of ECE, Saveetha School of Engineering, Saveetha Institute of Medical and Technical Sciences, Chennai 602105.

Mritha Ramalingam, Faculty of Computer Systems and Software Engineering, Universiti Malaysia Pahang, Kuantan, Malaysia.

Dr.S.R.Boselin Prabhu, Associate Professor, Department of Electronics and Communication Engineering, Surya Engineering College, Mettukadai, India.

Evaluation of various benchmark processes with appropriate controller design in LabVIEW platform

R. Muniraj[1], M. Sivapalanirajan[1], T. Jarin[2,3,4] and S.R. Boselin Prabhu[5]

Published 30 May 2019 • © 2019 IOP Publishing Ltd and Sissa Medialab

Journal of Instrumentation, Volume 14, May 2019

Citation R. Muniraj *et al* 2019 *JINST* **14** T05008

DOI 10.1088/1748-0221/14/05/T05008

[1] Department of Electrical and Electronics Engineering, National Engineering College, Anna University affiliated, K.R. Nagar, Kovilpatti, Thoothukudi District, 628503 India

[2] Department of Electrical and Electronics Engineering, Jyothi Engineering College, Cheruthuruthy, Kerala, 679531 India

[3] APJ Abdul Kalam Kerala Technological University (KTU), Thiruvananthapuram, Kerala, 695016 India

[4] University of Calicut, Thenhipalam, Kerala, 673635 India

[5] Department of Electronics and Communication Engineering, Surya Engineering College, Anna University affiliated, Erode, India

1. Received 29 January 2019
2. Accepted 3 May 2019
3. Published 30 May 2019

Abstract

Engineering education needs simulation studies and it is the best way of understanding engineering concepts with minimal cost and energy. The main focus of this present work is to provide a workspace especially in LabVIEW for analyzing the performance of the system and to operate them in stable and controlled regions. LabVIEW is a simulation platform which facilitates the simulation of various systems and their response with various controllers programmed using functional blocks that are easy to understand. In this work, the benchmark test systems like DC series motor as first

Indian Journal of Engineering and Materials Sciences (IJEMS)

DOI: 10.56042/ijems.v27i2.45971

Optimization of cylindrical grinding process parameters using meta-heuristic algorithms

Rekha, Rajasekaran ; Baskar, Neelakandan ; Padmanaban, Mallasamudram Ramanathan Anantha; Palanisamy, Angappan

Abstract

Owing to the complexity of grinding process, it has been very difficult to predict the optimal machining conditionswhich have been resulted in smooth surface finish, accurate geometric measurements and higher production rate. In thiswork, empirical models for surface roughness, roundness error and metal removal rate have been developed based onregression analysis. These models have been associated the grinding process parameters (work speed, feed rate and depth ofcut) with machining performances (metal removal rate, roundness error and surface roughness). Using these models, theoptimization has been carried out based on simulated annealing (SA) and genetic algorithm (GA) which have been the twopopular meta-heuristic optimization techniques. Finally, the results of the proposed techniques I have compared andexperimentally validated.

Keyword(s)

Cylindrical grinding, Modeling, Optimization, Regression analysis, Simulated annealing, Genetic algorithm

Refbacks

There are currently no refbacks.

PRINCIPAL
SURYA ENGINEERING COLLEGE
METTUKADAI, KATHIRAMPATTY (Po),
ERODE - 638 107

IMPLEMENTATION OF SMART HELMET USING SOLAR POWER

M.GOBALAKRISHNAN[1], M.DEEPA[2], S.BHUVANESHWARI[3], T.NETHRAVATHI[4], M.RAJESWARI[5]

[1]Assistant Professor, ECE, Surya Engineering College, Erode.

[2,3,4,5] UG Scholar, ECE, Surya Engineering College, Erode, Tamilnadu.

Abstract - In Our Day To Day Life Large Percent People Die From Road Accident. A Solution Needed To Solve Problem Using A "SMART HELMET". This Smart Helmet Is An Special Idea Which Makes Rides Safer Than Before. The Main Aim Of This Helmet Unless, The Person Must Worn The Helmet. This Helmet Protect Our Skull Damage. It Uses Wirelessly Switching On A Bike, So That It Will Not Start Without Both The Key And The Helmet. The Concept Of GSM And GSP To Track The Location And Provide Medical Attention To The Rider And The Message Sent To The Predefined Numbers(Police , Relative And Ambulance). Alcohol Sensor Detects If The Person Drunken Or Not, Until The Bike Will Not Start. And Providing A Over Speed Limit (Alert), And Emergency Call Alert To The User \ Rider. Then The Project Run In A Solar Power.

Index Terms:Microcontroller Atmega32, Atmega8(Smd), Accelerometer, Gps And Gsm , Sensors,Ardunio.

I.INTRODUCTION

In today's era, especially in the young generation, the craze of motorbikes is really remarkable. The middle-class families prefer to buy motorbikes rather than four wheelers, because of their low prices. As the bikes in our country are increasing, the road mishaps are also increasing day by day, due to which many deaths occur, most of which are caused due to most common negligence of not wearing a helmet. According to a survey of **India**, there are around **698 accidents** occurring due to bike crashes per year. If accidents are one issue, lack of proper treatment is another reason for deaths. In India out of the **698 deaths** occurring annually, nearly half of the people die due to lack of proper treatment in proper time. The many reasons for this are late arrival of an ambulance, no person at the place of accident to give information to the ambulance or parents, etc.

This is a situation we observe in our day to day life; a thought of finding some solution to resolve this problem comes up with this idea of giving information about the accident as soon as possible because of **TIME**.....!!!!!!!! Matters a lot. If everything is done in time, at least, we can save half the lives that are lost due to bike accidents.

II. RELATED WORK

Many authors presented their work regarding safety against road accident. Some of them are described below:

Accident prevention and Reporting System Using GSM (sim900D) and GPS(NMEA 0183),has been described in [1].The presented system includes SONAR ranging modules, vibration sensor, three modules GPS receiver (NMEA), Microcontroller (AT89S51), GSM modem (SIM 900D) AND AN Alarm. It enables intelligent detection of an accident at any place and reports about the accident on predefined number. When the distance is too short between the vehicle and obstacle then alarm will be "ON" as an indicator to move vehicle in other direction which is safer but when a vehicle faces accident despite of alarm, immediate vibration sensor will detect the signal and Microcontroller sends the alert message through the GSM model including the location to the predefined number. This provides automatic accident prevention and reporting system.

The research paper [2] aims at finding the occurrence of any accident and reporting the location of accident to the previously coded numbers so that immediate help can be provided by ambulance or the relative concerned. GSM technology is used to intimate the vehicle position in the form of latitude and longitude coordinates through sms. The location spot is retrieved using GPS which is navigational system using a network of satellite orbiting the earth. Sensors such as vibration, alcohol and fire detectors detect signal in case of an accident occurrence and send a signal to the connected microcontroller. The controller in turn operates the relay to glow the airbag and automatically lock the brakes. This paper gives a design which have many benefits like low cost, small size. Real Time Vehicle Detection and Tracking Using GPS and GSM [3]. This paper presents review on the accident detection techniques and some future possibilities in this field. The purpose of the project is to find the vehicle and locate the vehicle by means of sending a message using a system which is placed inside a vehicle. The project is designed for vehicle accident detection and tracking system by using GSM and GPS.

III. PROPOSED SYSTEM

The idea of our work is that a biker must wear a helmet in order to start up his bike, otherwise the bike won't start. It also gives information about the location, in case, the biker meets an accident. The location of the accident is given by a **GSM module** to the cell phones of family and friends, through an **SMS**. Sending the **SMS** regarding the accident alone cannot help the rider until and unless the location of the accident is also known. So as to trace out the location of an accident, we use a **GPS module**. Thus an **SMS** containing the information about the accident as well as the location (latitude and longitude) of the area is sent to the family and friends using a microcontroller.

PRINCIPAL
SURYA ENGINEERING COLLEGE,
METTUKADAI, KATHIRAMPATTY (Po),
ERODE - 638 107