

Volume 2 Issue 11, October 2015

**International Journal of Advanced Engineering
and Nano Technology**



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1.	Authors:	Abdelzاهر E. A. Mostafa	1-6
Paper Title:	Studying the Effect of Using Nano-Materials on the Performance of Cold Recycled Asphalt Pavement Mixes		
<p>Abstract: Recycling asphalt pavement creates a cycle of reusing materials that optimizes the use of natural resources. Reclaimed asphalt pavement (RAP) is a useful alternative to virgin materials because it reduces the need to use virgin aggregate.[1] In this investigation, it has been studied the effect of nano material such as nano silica and nano carbon on the mechanical properties of marshall specimen. Tests were carried out on cold RAP with slow setting emulsion. Optimum percent of emulsion was obtained from previous research. After determination the optimum percent of nano silica and nano carbon tubes, these percent used with optimum percent of latex to studding the improvement in mechanical properties. The results showed that, there is improvement in stability about 150% by used nano materials.</p> <p>Keywords: Cold Asphalt Mixtures; Asphalt Emulsions; Polymers; Nano-Materials.</p> <p>References:</p> <ol style="list-style-type: none"> 1. J.-Y. Yu, P.-L. Cong, and S.-P. Wu, "Laboratory Investigation on the Properties of Asphalt Modified with Epoxy Resin," <i>Journal of Applied Polymer Science</i>, vol. 113, pp. 3557–3563, 2009. 2. Audrey Copeland. (2011). "Reclaimed Asphalt Pavement in Asphalt Mixtures: State of the Practice", Federal Highway Administration 6300 Georgetown Pike McLean, VA 22101 3. Guidelines for Cold In-Place Recycling, (1991). "Asphalt Recycling and Reclaiming Association", Annapolis, MD. 4. Pavement Recycling Guidelines for Local Governments - Reference Manual. (1987). Report No. FHWA-TS-87-230, FHA, U.S. Department of Transportation, Washington DC. 5. L.E. Santaucci and M.T. Hayashida. (1983). "Design and Testing of Cold-Recycled Asphalt Mixes", <i>Proceedings of AAPT</i>, Vol. 52. 6. Torbjörn Jacobson. (2002) "Cold Recycling Of Asphalt Pavement - Mix In Plant", Swedish National Road and Transport Research Institute SE-581 95 Linköping Sweden 7. F. L. Roberts, P. S. Kandhal, E. R. Brown, D. Y. Lee and T. W. Kennedy. (1996). "Hot Mix Asphalt Materials, Mixture Design and Construction". United States of America: National Centre for Asphalt Technology. 8. N. Thom. (2008). "Principles of Pavement Engineering". London: Thomas Telford. 9. M. A. Shaffii, M. Y. A. Rahman, and J. Ahmad. (2011). "Polymer Modified Asphalt Emulsion". <i>International Journal of Civil & Environmental Engineering</i>. 11(6): 43–49. 10. Didier Lesueu. (2011). "Polymer Modified Bitumen Emulsions", <i>Materials R&D Manager</i>, Rue de l'Industrie, 31, 1400 Nivelles – Belgium 11. Zhanping You "Nanomaterials in Asphalt Pavements. (2013). "Technological University, Department of Civil and Environmental Engineering, Michigan Houghton, Michigan, 49931-1295, USA, DOI:10.6135/ljprpt.Org.Tw/2013.6(3).Iv, ISSN 1997-1400 Int. J. Pavement Res. Technol. 6(3) 12. Felice Giuliani, Silvia Rastelli. (2004). "An Analytical Approach To Evaluate The Performance Of Cold Recycled Asphalt Mixtures", <i>Dipartimento Di Ingegneria Civile, Dell'ambiente, Del Territorio E Architettura Università Degli Studi Di Parma, Italia.</i> 13. Resperio. (2008). "IntegraBase & Nanotechnology: Modifying Asphalt on a Molecular Level". www.resperion.com. 			
	Authors:	Abdel Zaher Mostafa, Ahmed El-Desouky	
Paper Title:	Validating Newly Developed Criteria of Stripping Prediction Using Egyptian Mixes		
<p>Abstract: Many transportation agencies in North America and Egypt have reported that stripping can be a significant issue in most pavement distresses such as rutting, fatigue cracking, ravelling, potholes, and flushing. In addition, Canadian airfield asphalt concrete pavements, especially in the Atlantic, Central, and Pacific regions, show evidence of stripping due to moisture susceptibility. It is recognized that density and in-place air-void content (AVC) are important parameters of a properly constructed asphalt pavement. The first objective of this research was to investigate different factors that may affect stripping evaluation. During the development stage samples representing four Canadian airfield mixes were prepared and tested to investigate the effect of soaking duration, air voids content, and soaking temperature. The results of the air-void investigation, which were compatible with the concept of Pessimism theory, showed that samples should be prepared with an air-void content of more than 8.5%, with a soaking duration of 6 to 8 hours and soaking temperature of 70 °C. The second objective of this research is to validate the developed criteria of stripping prediction on Egyptian mixes. The validation was carried out using Egyptian mixes with five different anti-stripping agents and it showed that the developed stripping evaluation guidelines has the ability to predict the effect of anti-stripping agents on the retained tensile strength of the examined mixes.</p> <p>Keywords: Asphalt Mixtures, Evaluation, Field, Laboratory, Stripping, Testing Procedures.</p> <p>References</p> <ol style="list-style-type: none"> 1. Abdelzاهر E. A. Mostafa and M. S. OUF (2010). "Theoretical And Experimental Study To The Relation Between Air Void Content And Stripping Prediction Of Airfield Asphalt Pavement" <i>American Society Of Civil Engineers</i>, 6th International Engineering and Construction, Conference (IECC'6), Cairo, Egypt, June 28-30, 2010. 2. American Association of State Highway and Transportation Officials. 1989. Standard method of test for resistance of compacted bituminous mixture to moisture induced damage (T283). <i>Standard Specifications for Transportation Materials and Methods of Sampling and Testing</i>. AASHTO, Washington, D.C. 3. Asphalt Institute. 1987. Cause and prevention of stripping in asphalt pavements. <i>Educational Series ES-10</i>, Second Edition, College Park, MD. 			

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Authors:	H. El-Didamony, B. A. Sabrah, S. Abd El-Aleem Mohamed, H. Gouda
Paper Title:	Effect of Nanosilica on The Formation of Calcium sulphoaluminate Hydrates Prepared from Nanomaterials
<p>Abstract: Nano-materials such as nanosilica (NS), nano-calcium hydroxide {Ca(OH)₂}, and nano-aluminum hydroxide {Al(OH)₃} have been synthesized using a suitable method. In addition, gypsum has been prepared by precipitation method. The as prepared nano materials are characterized using x-ray diffraction (XRD), transmission electron microscopy. The average particle sizes are 15 nm, 49 nm and 25 for NS, Ca(OH)₂ and Al(OH)₃, respectively. These nano-materials are mixed with gypsum in a stoichiometric ratio to form ettringite as well as monosulphate mixes. NS was added to these mixes and hydrated at room temperature up to 28 days. All hydrated samples were characterized by performing chemical methods, XRD, differential thermal analysis, and thermal gravimetric analysis techniques. It was found that, the disappearance of Ca(OH)₂ due to its consumption during the reaction with NS stabilizes ettringite formation.</p> <p>Keywords: Ettringite, ettringite+NS, hydration time, characterization techniques.</p> <p>References:</p> <ol style="list-style-type: none"> 1. Hou P., Qian J., Cheng X., and Shah S. P., "Effects of the pozzolanic reactivity of nano-SiO₂ on cement-based Materials", Cem. Concr. Compos.; 55 (2015), pp. 250–258. 2. Sanchez F., and Sobolev K., "Nanotechnology in concrete—a review", Cem. Concr. Res.; 24 (2010), pp. 2060-2071. 3. Zyganitidis I., Stefanidou M., Kalfagiannis N., and Logothetidis S., "Nano-mechanical characterization of cement-based pastes enriched with SiO₂ nano-particles", Mat. Sci. Eng. B; 176 (9) (2011), pp. 1580–1584. 4. Singh L. P., Karade S. R., Bhattacharyya S. K., Yousuf M. M., and Ahalawat S., "Beneficial role of nano-silica in cement based materials—a review", Cem. Concr. Res.; 47 (2013), pp. 1069-1077. 	
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Authors:	E. Pradyumna, N. Sreelekha, D. Amaranatha Reddy, K.R. Gunasekhar, K. Subramanyam
Paper Title:	Dopant Induced Room Temperature Ferromagnetism in Spintronic SnO₂: Co Nanoparticles

4.	<p>Abstract: Pristine and Co doped SnO₂ nanoparticles were synthesized in aqueous solution by facile chemical co-precipitation method with polyethylene glycol (PEG) as a capping agent. The as prepared samples were characterized by X-ray diffraction (XRD), transmission electron microscopy (TEM), high resolution transmission electron microscopy (HRTEM), Fourier transform infrared (FTIR) spectra and vibrating sample magnetometer (VSM). XRD patterns revealed that particles of all samples were crystallized in single phase rutile type tetragonal crystal structure (P4₂/mnm) of SnO₂. TEM images indicated spherical shape of nanoparticles with a size ranging from 25-35 nm. FTIR spectra suggested that the PEG simply coexisted with the SnO₂ surface nanoparticles and inhibited the agglomeration of the nanoparticles. Magnetization measurements revealed that all the Co doped SnO₂ nanoparticles exhibited ferromagnetic signal which became stronger with increasing Co content. Variation of ferromagnetic order with Co content from vibration sample magnetometer is endorsed to the anti-ferromagnetic (AFM) interactions among the magnetic ions as anticipated by the bound magnetic polarons (BMP) theory.</p> <p>Keywords: Chemical synthesis, PEG, TEM, BMP model.</p> <p>References:</p> <ol style="list-style-type: none"> H. Ohno, Making Nonmagnetic Semiconductors Ferromagnetic, <i>Science</i> 281 (1998) 951-956. S.A. Wolf, D.D. Awschalom, R.A. Buhrman, J.M. Daughton, S. Von Molnar, M.L. Roukes, A.Y. Chtchelkanova, D.M. Treger, <i>Spintronics: A Spin-Based Electronics vision for the Future</i>, <i>Science</i> 294 (2001) 1488-1495. G.A. Prinz, <i>Magnetoelectronics</i>, <i>Science</i> 282 (1998) 1660-1663. J. K. Furdyna, Diluted magnetic semiconductors, <i>J. Appl. Phys.</i> 64 (1988) R29-64. S. Datta, B. Das, Electronic analog of the electro-optic modulator, <i>Appl. Phys. Lett.</i> 56 (1990) 665-667. C.B. Fitzgerald, M. Venkatesan, A.P. 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Murali, D. Amaranatha Reddy, R.P. Vijayalakshmi, Enhanced room temperature ferromagnetism in polyethylene glycol capped Sn_{0.99-x}CuxCr_{0.01}O₂ nanoparticles, <i>IJITEE</i>, 4 (2014) 27-32. K. Subramanyam, N. Sreelekha, G. Murali, D. Amaranatha Reddy, R.P. Vijayalakshmi, Influence of Co co-doping on structural, optical and magnetic properties of SnO₂:Cr nanoparticles, <i>Superlattices Microstruct.</i> 82 (2015) 207-218. B.D. Cullity, <i>Elements of X-Ray Diffraction</i>, Wesley, London, 1978. M. Sudha, S. Senthilkumar, R. Hariharan, A. Suganthi, M. Rajarajan, Synthesis, characterization and study of photocatalytic activity of surface modified ZnO nanoparticles by PEG capping, <i>J. Sol-Gel Sci. Technol.</i> 65 (2013) 301-310. R. Hariharan, S. Senthil kumar, A. Suganthi, M. Rajarajan, Synthesis and characterization of doxorubicin modified ZnO/PEG nanomaterials and its photodynamic action, <i>J. Photochem. Photobiol. B</i> 116 (2012) 56-65. S. Gnanam, V. Rajendran, Preparation of Cd-doped SnO₂ nanoparticles by sol-gel route and their optical properties, <i>J Sol-Gel Sci Technol.</i> 56 (2010) 128-133. A. Kaminski and S. Das Sarma, Polaron percolation in diluted magnetic semiconductors, <i>Phys. Rev. Lett.</i> 88 (2002) 247202-4. J. M. D. Coey, M. Venkatesan and C. B. Fitzgerald, Donor impurity band exchange in dilute ferromagnetic oxides, <i>Nat. Mater.</i> 4 (2005) 173-179. 	22-26						
5.	<table border="1"> <tr> <td>Authors:</td> <td>Stavros Sakellariou, Fani Samara, Stergios Tampekis, Athanasios Sfougaris, Olga Christopoulou</td> </tr> <tr> <td>Paper Title:</td> <td>Targeting To an Efficient Prevention Strategy of Forest Fires, Estimating The Fire Hazard on Islands The Case Study of Thasos Island, Greece</td> </tr> <tr> <td>Abstract:</td> <td>Forests provide plenty of fundamental tangible and intangible goods to our planet, from vital chemical substances (O₂) to more economic issues (wood for economic activity and heating etc.). Hence, besides the ecological role of forest fires at our ecosystems, an efficient prevention strategy for confronting recurrent and destructive fires is considered of crucial importance. Primary objective of the paper is the estimation of fire hazard in Thasos island taken into consideration all the factors which are conducive to forest fires ignition and spreading. The pillar of the methodology lies in the fact that a unique fire risk map will be created based on the local characteristics, namely, topography (aspect and</td> </tr> </table>	Authors:	Stavros Sakellariou, Fani Samara, Stergios Tampekis, Athanasios Sfougaris, Olga Christopoulou	Paper Title:	Targeting To an Efficient Prevention Strategy of Forest Fires, Estimating The Fire Hazard on Islands The Case Study of Thasos Island, Greece	Abstract:	Forests provide plenty of fundamental tangible and intangible goods to our planet, from vital chemical substances (O ₂) to more economic issues (wood for economic activity and heating etc.). Hence, besides the ecological role of forest fires at our ecosystems, an efficient prevention strategy for confronting recurrent and destructive fires is considered of crucial importance. Primary objective of the paper is the estimation of fire hazard in Thasos island taken into consideration all the factors which are conducive to forest fires ignition and spreading. The pillar of the methodology lies in the fact that a unique fire risk map will be created based on the local characteristics, namely, topography (aspect and	27-32
Authors:	Stavros Sakellariou, Fani Samara, Stergios Tampekis, Athanasios Sfougaris, Olga Christopoulou							
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slope); fuels characteristics and the proximity from the road and urban network. Taking into account the individual contribution to the overall fire hazard of all these factors, we developed a model for estimating the fire hazard of any given area, overlapping all the essential thematic maps. We identified some critical areas which are characterized very susceptible and they situated in the interior and the western part of the study area, where mixed and very flammable fuels take place along with steep ground and south aspect. This project may be quite applicable to any territory, adjusted to the local differences and peculiarities. The importance of such a project is prominent, while it constitutes a project with great added value, least cost and if it may be combined with other supporting activities to maximize the forest fires prevention and safeguarding the cultural and ecological wealth.

Keywords: Forest fires, Fire hazard, islands, Thasos, Greece.

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