

**LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW
KARYA ILMIAH : PROSIDING**

Judul Karya Ilmiah (Prosiding) : Synthesis and Characterization of Zeolite/Magnetite Composites from Iron Sand of Marina Beach

Nama/ Jumlah Penulis : Sriatun, Adi Darmawan, Sriyanti/3 orang

Status Pengusul : Penulis pertama

Identitas Prosiding :

- a. Judul Prosiding : Advance Science Letters
- b. ISBN/ISSN : 1936-6612, EISSN: 1936-7317
- c. Thn Terbit, Tempat Pelaks. : 2017/Vol. 23 No.7 6524-6526 (3)
- d. Penerbit/Organiser : American Scientific Publishers
- e. Alamat Repository/Web : <http://www.aspbs.com/science.htm>
- Alamat Artikel : <https://doc-pak.undip.ac.id/2907/1/Artikel%20Asli.pdf>
- Url Turnitin: (8%) <https://doc-pak.undip.ac.id/2874/30/Turnitin%20C25.pdf>
- f. Terindeks di (jika ada) : **SCOPUS dan SJR 0,13**
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(beri ✓ pada kategori yang tepat) ☐ Prosiding Forum Ilmiah Nasional

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d. Kelengkapan unsur dan kualitas terbitan /prosiding (30%)	9		8,5
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Penulis Utama: 0,6 x 29 = 17,4			

Catatan Penilaian Paper oleh Reviewer :

1. Kesesuaian dan kelengkapan unsur isi prosiding:

Unsur isi prosiding sesuai dan lengkap sesuai dengan format penulisan karya ilmiah. Nilai 3

2. Ruang lingkup dan kedalaman pembahasan:

Ruang lingkup tentang sintesis dan karakterisasi komposit zeolit/magnetit dari pasir besi pantai Marina. Pembahasan cukup baik. Nilai 9

3. Kecukupan dan kemutakhiran data/informasi dan metodologi:

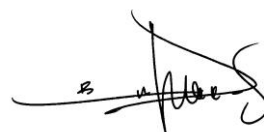
Data cukup, metodologi jelas, referensi mutakhir. Nilai 8,5

4. Kelengkapan unsur dan kualitas terbitan/ prosiding:

Unsur terbitan lengkap, kualitas cukup baik. Nilai 8,5

Semarang, 2 April 2020

Reviewer 1



Dr. Bambang Cahyono, MS

NIP. 196303161988101001

Unit Kerja : Departemen Kimia FSM UNDIP

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HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW
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- e. Alamat Repository/Web : <http://www.aspbs.com/science.htm>
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	Internasional ☒	Nasional ☐	
a. Kelengkapan unsur isi prosiding (10%)	3		3
b. Ruang lingkup dan kedalaman pembahasan (30%)	9		9
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	9		8
d. Kelengkapan unsur dan kualitas terbitan /prosiding (30%)	9		8
Total = (100%)	30,00		28
Penulis Utama: 0,6 x 28 = 16,8			

Catatan Penilaian Paper oleh Reviewer :

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Unsur isi prosiding lengkap dan sesuai dengan standar ASL. Nilai 3
- Ruang lingkup dan kedalaman pembahasan:**
Ruang lingkup artikel ini adalah sintesis dan karakterisasi komposit zeolit/magnetit dari pasir besi pantai Marina dengan kebaruan yang tinggi. Pembahasan cukup dalam diulas disertai literatur pendukung. Nilai 9
- Kecukupan dan kemutakhiran data/informasi dan metodologi:**
Informasi cukup memadai, informasi literatur ada yang kurang mutakhir. Metodologi disajikan dengan detail sehingga mudah untuk peneliti lain mengulang. Nilai 8
- Kelengkapan unsur dan kualitas terbitan/ prosiding:**
Unsur terbitan lengkap dan kualitas terbitan ada gambar yang keterbacaannya kurang. Nilai 8

Semarang, 23 Maret 2020
 Reviewer 2

Drs. Gunawan, M.Si, Ph.D
 NIP.196408251991031001
 Unit Kerja : Departemen Kimia FSM UNDIP

LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW
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Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Reviewer		Nilai Rata-rata
	Reviewer I	Reviewer II	
a. Kelengkapan unsur isi prosiding (10%)	3	3	3
b. Ruang lingkup dan kedalaman pembahasan (30%)	9	9	9
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	8,5	8	8,25
d. Kelengkapan unsur dan kualitas terbitan/prosiding(30%)	8,5	8	8,25
Total = (100%)	29	28	28,5
Penulis Utama (rata-rata): 0,6 x 28,5 = 17,1			

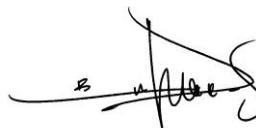
Semarang, 2 April 2020

Reviewer 2



Drs. Gunawan, M.Si, Ph.D
NIP. 196408251991031001
Unit Kerja : Departemen Kimia FSM UNDIP

Reviewer 1



Dr. Bambang Cahyono, MS
NIP. 196303161988101001
Unit Kerja : Departemen Kimia FSM UNDIP

ADVANCED SCIENCE LETTERS

Volume 23, Number 12 (December 2017) pp.11635-13233

A SPECIAL SECTION

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Danang Tandyonomanu, Tsuroyya, and Awang Dharmawan

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Volume 23, Number 7 (July 2017) **pp.6029-7032**

A SPECIAL SECTION

Selected Peer-Reviewed Articles from the International Conference on Architecture and Built Environment 2016 (ICABE 2016), Kuala Lumpur, Malaysia, 5–6 October, 2016

Guest Editors: *Mariana Mohamed Osman, Muhammad Faris Abdullah, and Alias Abdullah*
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Illegal Occupation of State Land in Perak: A Review of the State's Legalisation Program (PATUH)

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Sustainability Assessment of Community-Based Poverty Reduction Projects (CPRP) in Nigeria

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Inhalable and Respirable Dust Metal Concentration in Existing and Construction Stage of Airport Infrastructure

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The Potential of Energy Refurbishment Through the Integration of Daylight Harvesting for Office Buildings in Universiti Sains Islam Malaysia

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An Assessment of Public Transport Features in Urban and Rural Settlements in Malaysia

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Sustainable Heritage: Analytical Study on the Viability of Adaptive Reuse with Social Approach, Case Study of Asia Heritage Row, Kuala Lumpur

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Rejeki Siti Ferniah and Sri Pujiyanto

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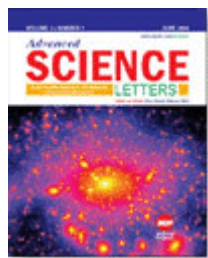
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Effect of Mangosteen (*Garcinia mangostana*) Peel Extract Towards CD4+ Lymphocytes and IL-2 Level in HIV Patients with Antiretroviral Therapy

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Demand for Low-Cost Housing Among Local People in Perak

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Abstract



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Suggestions

Housing serves one of basic human needs. Hence housing quality positively relates to human well-being. This paper explores factors influencing housing demand in Perak. *Issue:* In Perak, the housing supply has yet to respond to the increasing housing demand with regards to the rising population. *Aim:* The aims of this research is to assess the current demand and supply of low-cost housing stock in Perak. *Method:* Content analysis was conducted based on secondary data gathered from government agencies such as National Property Information Centre (NAPIC), Department of Statistics Malaysia and Perak Land and Mineral Office. *Findings:* According to previous studies, nine factors were influencing the demand for low-cost housing. The factors include (i) population growth, (ii) birth rate, (iii) child mortality rate, (iv) income rate, (v) poverty rate, (vi) unemployment rate, (vii) housing stock (viii) inflation rate, and (ix) Gross Domestic Product (GDP). Recent studies discovered that out of the nine factors, only three of the factors significantly influence the housing demand in Perak. These factors were (i) demographic factors, (ii) monthly household income, and (iv) housing supply. The rate of population growth had drastically increased from the year 2000 to 2010. Additionally, more than 50% of the household in Perak had an average monthly income of less than RM 2,999. Despite these issues, the low-cost housing stock from the year 2010 to 2015 had significantly decreased even though the demand for these types of houses was high. The lack of low cost housing units leads to poor well-being as population face (i) burden of high rental, (ii) overcrowding and (iii) substandard housing. Therefore, constant monitoring by the related authorities on the construction of low cost houses is imperatively in need to ensure the continued supply of the low-cost housing targeted to the low-income population.

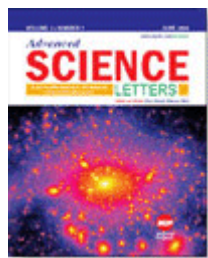
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Keywords: Housing Demand; Housing Supply; Perak

Document Type: Research Article

Affiliations: Department of Urban and Regional Planning, International Islamic University Malaysia (IIUM), 53100 Kuala Lumpur, Malaysia

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Multivariate Linear Regression Model for Estimating Average Daylight Illuminance

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Abstract



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Suggestions

Window design and the selection of glazing system have significant effect on daylight illuminance. Occupants' productivity is highly dependent on daylight, as it associates with numerous health advantages. Hence conducting a systematic investigation considering the performance of various window designs and glazing systems is highly important at the early stage of design process. For this purpose, this study attempts to develop a multivariate linear regression model for estimating the average daylight illuminance. To perform the simulations, an office room prototype was modelled by COMFEN 5Beta software. The prototype is a hypothetical office room, as its size, HVAC system and envelopes construction are based on the common practice in construction in Sweden. Because average daylight illuminance is sensitive to window size, orientation, glazing system, design model and position, 544 simulations were performed based on these variable to create an extensive dataset. A multivariate linear regression model was developed based on 90% dataset, which was chosen randomly. The obtained R^2 value was exceeded 96%, which shows an excellent fit for the developed model. The interaction between variables was also studied. The remaining 10% of dataset was utilized for validating the developed model. The validity of the model was further compared with another multivariate linear regression model, developed based on 50% of the dataset. The results show the effectiveness of multivariate linear regression models in supporting architects and predicting average daylight illuminance in early stage of design analysis.

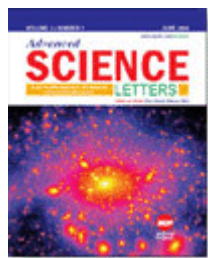
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Source: Advanced Science Letters, Volume 23, Number 7, July 2017, pp. 6613-6617(5)

Publisher: American Scientific Publishers

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Abstract

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 Metrics

 Suggestions

Laser treated polystyrene (PS) thin films were explored for simple, robust, and low-cost polymer based electronic applications. Polystyrene nanospheres of 500 nm were drop coated on silicon wafer before laser treatment was introduced to systematical investigated the structural transformation of treated PS. The relationship between the parameters used and the structural changes of PS, especially for its surface chemistry and the morphological, structural properties were characterized with Attenuated total-reflection Fourier transform infrared spectroscopy (ATR-FTIR), X-ray diffraction (XRD) and Field emission electron microscopy (FESEM). It was revealed that the morphological changes observed in the laser treated PS films were the dominant factor for the improvement of modified PS that can be used to tailor functional polymer such as organic light-emitting diodes (OLED), carbonaceous nanostructure, graphene, graphene oxide. Zwitter characteristic of the PS can be clearly observed during laser irradiation; over exposure of laser could be used to tailor different materials on the surface of the PS.

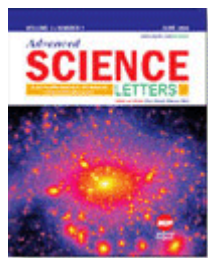
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The Sustainable Well-Being in the Medina of Tunis and Its Environmental Values

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 Suggestions

The Medina of Tunis, or the vernacular heart of the Arabic-Islamic city, has been known for centuries as an important center of Muslim civilization and a crossroad of Muslim and non-Muslim cultures in North Africa. Its urban fabric, its built environment, and its architectural patterns are a manifestation of a creative and a sustainable process whereby the environment has had an important effect on the planning of the Medina. By analyzing the structure of this vernacular settlement, this paper aims to explore the concept of sustainability in this settlement while referring to the studies of 14th-century master builder Ibn Al-Rami. Its environmental qualities are explored through the gradual exploration of its urban components from the level of the street to the level of the courtyard to explain their participatory role in enhancing cultural and social values of Islam.

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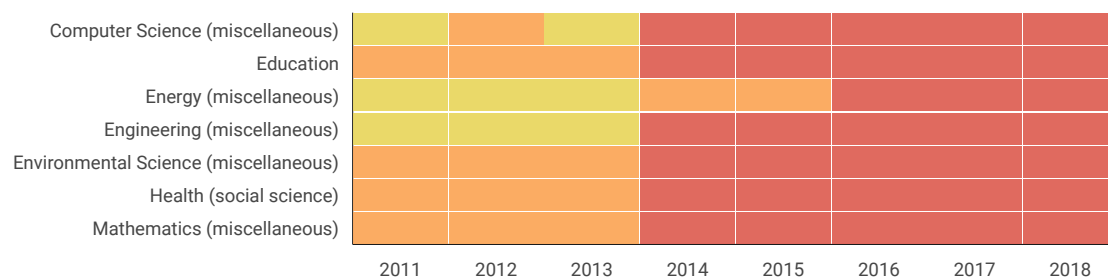
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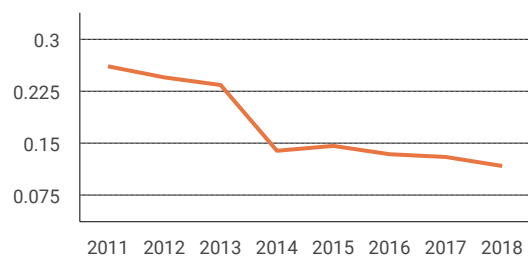
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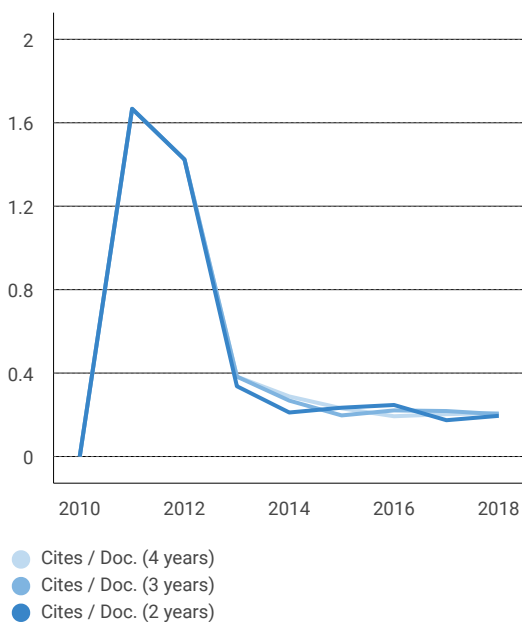
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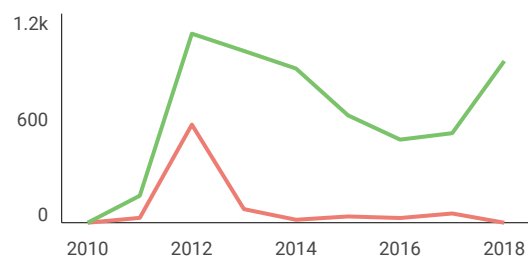
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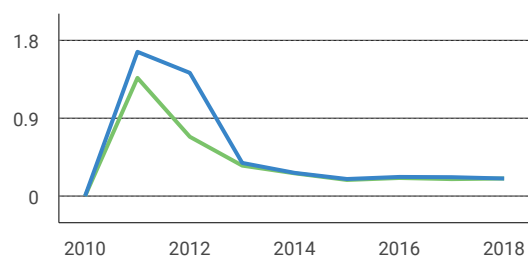
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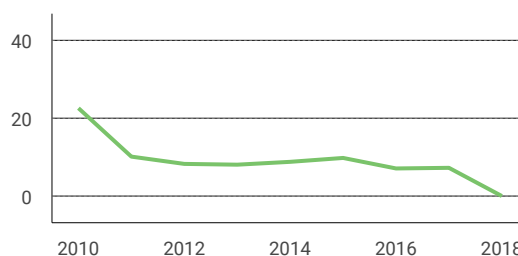
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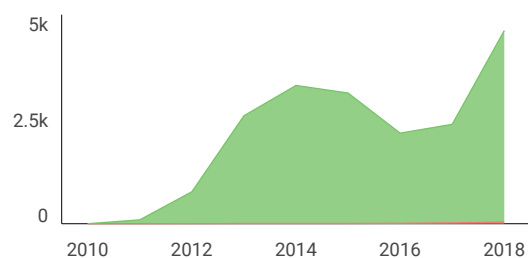
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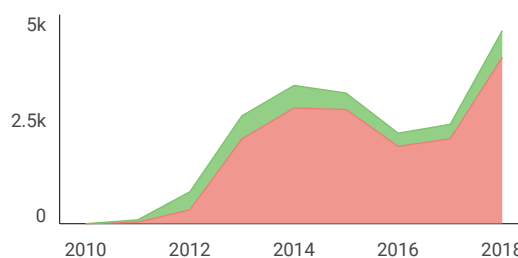
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CERTIFICATE

No : 603/UN7.3.8/HK/2016

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SRIATUN
as
Presenter

In the 6th International Seminar on New Paradigm and Innovation of Natural Sciences and its Application (ISNPINSA-6) held on 5 - 6 October 2016 at Grand Candi Hotel Semarang Indonesia with paper entitled as follows :

"Synthesis and Characterization Zeolite/Magnetite Composite From Sand of Marina Beach Semarang"



Dean of FSM UNDIP

Prof. Dr. Widowati, M.Si
NIP: 196902141994032002



**6th ISNPINSA Committee,
Chairman**

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Sriatun*, Adi Darmawan, and Sriyanti

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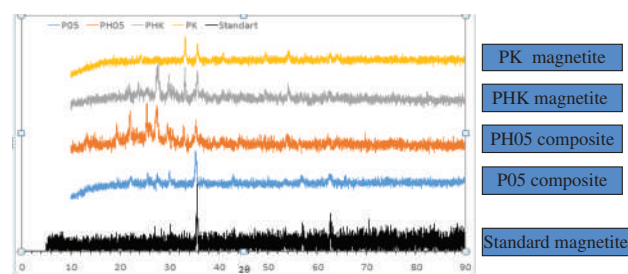
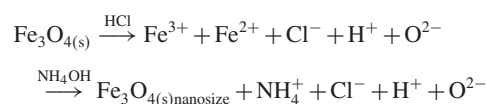


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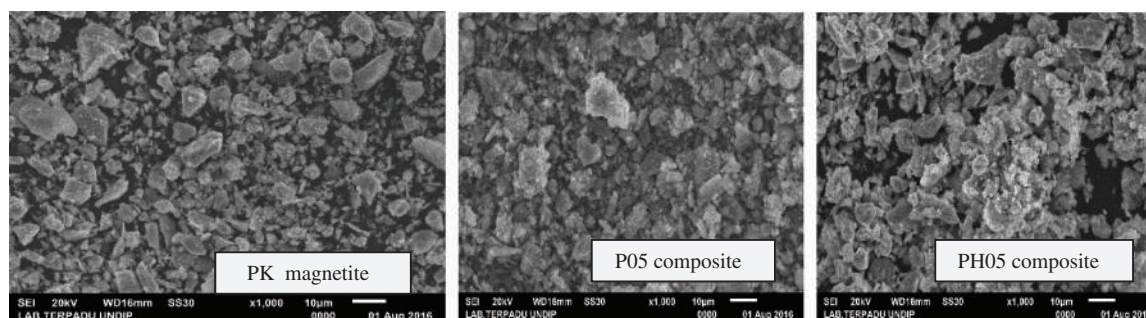


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K_2O	0,33	0,94	0,59
CaO	0,94	3,79	1,31
TiO_2	5,35	3,97	6,45
FeO	43,82	6,52	47,86
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ZnO	—	1,13	—

4. CONCLUSION

Magnetite was synthesized from iron sand of Marina Beach Semarang. Treatment magnetite as product VBM with coprecipitation method gave different Fe phase. Zeolite/magnetite composite was obtained both of magnetite. The component of zeolite/magnetite composite was dominated by SiO_2 and Al_2O_3 . Meanwhile the composite which was synthesized by coprecipitation contained higher Fe than Si, but the content of Si in this product was higher than magnetite only that indicated that magnetite may dominate on surface of composite.

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References and Notes

1. K. N. Barquist, Synthesis and environmental adsorption applications of functionalized zeolites and iron oxide/zeolite composites, Tesis, Universitas of Iowa, Iowa (2009).
2. D. A. Fungaro, M. Yamaura, T. E. M. Carvalho, and J. E. Graciano, Zeolite from fly ash-iron oxide magnetic nanocomposite: Synthesis and application as an adsorbent for removal of contaminants from aqueous solution, Zeolite: Synthesis, Chemistry and Application, Nova Science Publisher (2012), pp. 1–34.
3. P. Fitriani, S. Merissa, F. Iskandar, R. Mukti, and Adullah M. Khairurrijal, *Research and Devolepment on Nanotechnology in Indonesia* 1, 23 (2014).
4. Dewi L. Kartika and S. Pratapa, *Jurnal Sains dan Seni Pomits* 3, 2337 (2014); T. Mashuri and D. E. Yahya, *Journal of Materials Science and Engineering, A* 1, 182 (2011).
5. F. Fadhilah Mufit, H. Amir, and S. Bijaksana, *Jurnal Geofisika* (2006).
6. L. C. A. Oliveira, R. Rios, J. D. Fabris, V. Garg, and K. Sapag, *Carbon* 40, 2177 (2002).
7. P. Murphy, D. Munshi, P. A. Kurian, A. Lakhtakia, and R. V. Barlett, *Comprehensive Nanoscience and Technology*, Academic Press (2011), Vol. 5, pp. 443–476.
8. H. Putra, I. Satyarno, and A. B. Wijatna, *Forum Teknik Sipil* 909 (2008).
9. R. Toto, M. W. Wildan, and K. A. Kamsul, *Jurnal Teknologi* 5, 62 (2012).
10. S. L. Inocaru, E. Andronescu, C. S. Ciobanu, A. M. Prodan, P. Le Coustumer, and D. Predoi, *Digest Journal of Nanomaterials and Biostructures* 7, 399 (2012).
11. Taufiq Ahmad Sunaryono, Pratapa Suminar Mashuri, M. Zainuri, and D. Triwikantoro, *Material Science Forum* 827, 229 (2015).
12. A. Taher, Salah El Din1, Ahmed A. Elzatahry, M. A. Daifalla, M. A. Abdullah, and S. Salem, *Int. J. Electrochem. Sci.* 6, 6177 (2011).

Received: 5 September 2016. Accepted: 13 December 2016.

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by Sriatun Siatun

Submission date: 25-May-2019 08:34AM (UTC+0700)

Submission ID: 1135643147

File name: f_ZeoliteMagnetitte_Composite_from_Iron_Sand_of_Marina_Beach.pdf (1.38M)

Word count: 2323

Character count: 11993



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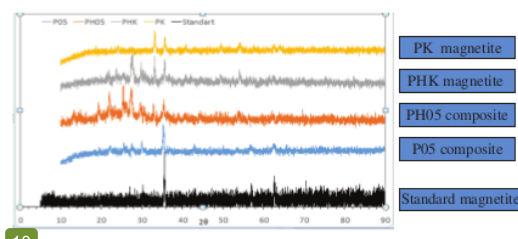
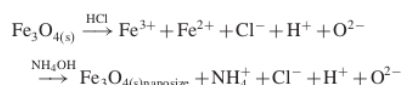


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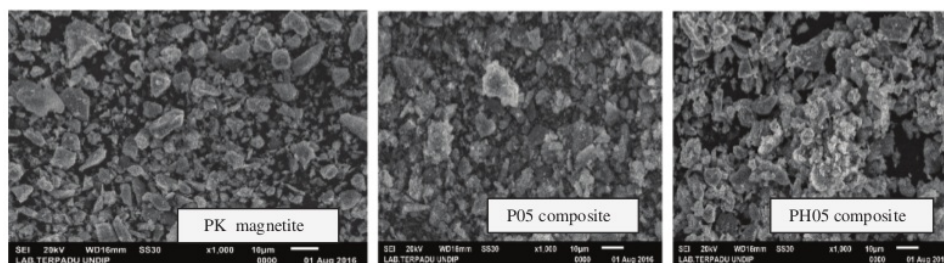


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References and Notes

1. K. N. Barquist, Synthesis and environmental adsorption applications of functionalized zeolites and iron oxide/zeolite composites, Tesis, Universitas of Iowa, Iowa (2009).
2. A. Fungaro, M. Yamaura, T. E. M. Carvalho, and J. E. Graciano, Zeolite in fly ash-iron oxide magnetic nanocomposite: Synthesis and application as an adsorbent for removal of contaminants from aqueous solution, Zeolite: Synthesis, Chemistry and Application, Nova Science Publisher (2012), pp. 1–34.
3. P. Fitriani, S. Merissa, F. Iskandar, R. Mukti, and Adullah M. Khairurrijal, Research and Development on Nanotechnology in Indonesia 1, 23 (2014).
4. Dewi L. Kartika and S. Pratapa, Jurnal Sains dan Seni Pomits 3, 2337 (2014); T. Mashuri and D. E. Yahya, Journal of Materials Science and Engineering, A 1, 182 (2011).
5. F. Fadhillah Mufit, H. Amir, and S. Bjaksana, Jurnal Geofisika (2006).
6. L. C. A. Oliveira, R. Rios, J. D. Fabris, V. Garg, and K. Sapag, Carbon 40, 2177 (2002).
7. P. Murphy, D. Munshi, P. A. Kurian, A. Lakhtakia, and R. V. Barlett, Comprehensive Nanoscience and Technology, Academic Press (2011), Vol. 5, pp. 443–476.
8. H. Putra, I. Satyarno, and A. B. Wijatna, Forum Teknik Sipil 909 (2008).
9. R. Toto, M. W. Ildan, and K. A. Kamsul, Jurnal Teknologi 5, 62 (2012).
10. S. L. Predoi, E. Andronescu, C. S. Ciobanu, A. M. Prodan, P. Le Coustumer, and D. Predoi, Digest Journal of Nanomaterials and Biostructures 7, 399 (2012).
11. Taufiq Ahmad Sunaryono, Pratapa Suminar Mashuri, M. Zainuri, and D. Triwikantoro, Material Science Forum 827, 229 (2015).
12. A. Taher, Salah El Din 1, Ahmed A. Elzatahry, M. A. Daifalla, M. A. Abdullah, and S. Salem, Int. J. Electrochem. Sci. 6, 6177 (2011).

Received: 5 September 2016. Accepted: 13 December 2016.

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