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John Regazzi, Chair

John Regazzi's career in the digital information industry is distinguished by a series of industry breakthroughs. This tech pioneer was the driving force behind the first commercially available CDROM text database and first professional web community for engineers and was the first Microsoft CDROM conference keynote address speaker.

An expert in information sciences and service, John is the former CEO of Ei Inc. After its purchase by Reed Elsevier, Regazzi was named CEO of Elsevier Inc., responsible for designing and marketing ground-breaking net-based services for the professional scientific, technical, and medical communities, including ScienceDirect, Scirus, Scopus, Engineering Village, and Medical Consult.

The Dean of the College of Information and Computer Science of Long Island University (LIU) from 2006 to 2008, John currently serves as Professor and Director of the Scholarly Communications and Information Innovation Lab at LIU. He was also recently appointed by the US Department of Commerce Secretary as Chairman of the Board of Advisors, National Technical Information Service (NTIS), a division of the Commerce Department. John also serves as Chairman of the boards of Research Solutions (OTC: RSSS), as well as Inflection and LawLogix, two of Akoya Capital Partners portfolio companies.



John S. Haynes, Chief Executive Officer, AIP Publishing

John Haynes received a Ph.D. in Chemistry from the University of British Columbia, followed by postdoctoral research at the University of Oxford. After two decades in the STM publishing industry, including senior positions with the Institute of Physics Publishing and Royal Society of Chemistry, John joined the American Institute of Physics in 2009 as Vice President, Publishing. In 2013, he was appointed Chief Executive Officer of the newly established AIP Publishing.



Alan Singleton, Secretary

Alan Singleton originally qualified in Physics from the University of Oxford. After several years in the electronics industry, he earned a Masters in Information Science and went on to the Institute of Physics (IoP) on a grant studying communication in physics, then worked as a Commissioning Editor at Elsevier and a Research Fellow in research communications at Leicester University. From 1985-98, Alan held increasingly responsible positions at IoP Publishing, beginning as a Research Officer and culminating his tenure there as Journals Director. He was science, medicine (books) and electronic Publishing Director at Oxford University Press for three years and, in 2001, became Managing Director of the publishing arm of the Institution of Mechanical Engineers in the UK. Since 2009, he has been active as a consultant to the scholarly publishing industry, primarily managing and assisting bid processes for learned societies seeking a journal publisher. He was Editor-in-Chief of the journal Learned Publishing until the end of 2014.



David K. Campbell

David K. Campbell received his B.A. in Chemistry and Physics from Harvard University in 1966, and after a period as a Marshall Scholar, his Ph.D. from Cambridge University in Theoretical Physics and Applied Mathematics in 1970. He held postdoctoral positions at the University of Illinois Urbana-Champaign (UIUC) (1970-72) and the Institute for Advanced Study in Princeton (1972-74) before joining Los Alamos National Laboratory in 1974 as the first J. Robert Oppenheimer Fellow. At Los Alamos, David co-founded and later directed the Center for Nonlinear Studies.

In 1992, David became Professor and Head of the Department of Physics at UIUC. In 2000, he moved to Boston University (BU), where he served as Dean of the College of Engineering from 2000-2005 and as University Provost from 2005-2011. He is currently Professor of Physics and Electrical and Computer Engineering and Materials Science and Engineering at BU. An international leader in the field of “nonlinear science,” David received the American Physical Society’s 2010 Julius Edgar Lilienfeld Prize for his research and scholarly contributions. He is the founding Editor-in-Chief of the AIP journal *Chaos: An Interdisciplinary Journal of Nonlinear Science*, a Fellow of the APS and AAAS, and is Past-Co-Chair of the Science Board of the Santa Fe Institute.



Wolfgang Christian

Wolfgang Christian is the emeritus Brown Professor of Physics at Davidson College where he taught for 33 years. He is currently serving as the elected national Secretary of the American Association of Physics Teachers. Wolfgang is a fellow of the American Physical Society and the American Association of Physics Teachers. He is the author or co-author of nine books including: *Open Source Physics: A User’s Guide with Examples* (Addison Wesley 2006), *An Introduction to Computer Simulation Methods: Applications to Physical System* (Addison Wesley 2006), *Physlet Quantum Physics* (Prentice Hall 2005), *Physlet Physics* (Prentice Hall 2004), *Physlets: Teaching Physics with Interactive Curricular Material* (Prentice Hall, 2001), *Just-in-Time Teaching* (Prentice Hall, 1999). He has been the books editor of the American Physical Society (APS) journal *Computers in Physics*. Wolfgang served as the co-chair of the 2008 Gordon Research Conference on Physics Research and Education. His current research is in computational physics and in internet-based interactive curriculum development.



Judith Flippen-Anderson

Judith Flippen-Anderson spent 35 years as a small molecule crystallographer at the Naval Research Laboratory (NRL) in Washington, DC. After retiring from NRL, she took a quantum leap in molecular weight and accepted a position with the Protein Data Bank (2003 – 2015).

For a number of years, Judith served as the American Crystallographic Association (ACA) representative to the AIP Executive Committee and Governing Board. In November of 2013, she was elected as the AIP Corporate Secretary by the AIP Governing Board. In cooperation with AIP Publishing, she is helping to ensure that the ACA journal *Structural Dynamics*, launched in 2013, will be a success.

Judith is Co-Editor of *ACA Reflexions* and a former Editor of the *International Union of Crystallography* newsletter. She is also a member of the ACA meetings planning and finance committees, Past-Chair of the US National Committee for Crystallography, Past-President of the ACA, and was among the first class of ACA Fellows.



Susan E. Fox

Susan E. Fox is Executive Director of the Acoustical Society of America. A Fellow of the



American Society of Association Executives, Susan earned her M.S. in Public Affairs from the McCormack Graduate School of Policy and Global Studies, University of Massachusetts, Boston. She specializes in institutional change, governance, strategic positioning, and organizational development. Previously she served as Executive Director of the Arctic Research Consortium of the U.S., the American Association of Law Libraries, the Society of American Archivists, and as Director of Programs at the Harvard Kennedy School Belfer Center for Science and International Affairs.



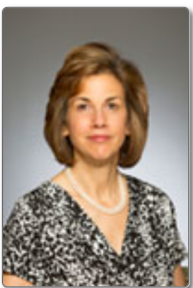
Gerald Fuller

Gerald Fuller is the Fletcher Jones Professor of Chemical Engineering at Stanford University. He joined Stanford in 1980 following his graduate work at Caltech where he acquired his MS and PhD degrees. His undergraduate education was obtained at the University of Calgary, Canada. Professor Fuller's interests lie in studies of rheology and interfacial fluid mechanics. His work has been recognized by receipt of the Bingham Medal of The Society of Rheology, membership in the National Academy of Engineering, election to the American Academy of Arts and Science, and honorary doctorates from the Universities of Crete, Greece, and Leuven, Belgium.



Alan Jeffrey Giacomini

Editor-in-Chief of the AIPP journal *Physics of Fluids*, Jeffrey Giacomini holds the NSERC Tier 1 Canada Research Chair in Rheology and is Professor of Chemical Engineering and of Mechanical & Materials Engineering at Queens University at Kingston. Jeffrey is President of the Canadian Society of Rheology, former President of The Society of Rheology and former Associate Editor for Business of the *Journal of Rheology*, the archival journal of The Society of Rheology. For nearly 20 years, Jeffrey directed the Rheology Research Center of the University of Wisconsin-Madison. He has been named Professor of the French Academy of Sciences and he holds the title of Honorary Associate Member of the Institute of Non-Newtonian Fluid Mechanics in Wales.



Marsha I. Lester

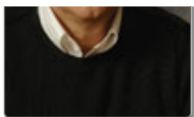
Marsha I. Lester received her Ph.D. from Columbia University in 1981. She has risen through the academic ranks at the University of Pennsylvania, where she is currently the Edmund J. Kahn Distinguished Professor in the Department of Chemistry of the School of Arts & Sciences. She completed a four-year term as Chair of the Department of Chemistry in 2009.

Marsha has published extensively in a broad range of scholarly journals in the physical sciences. She has received many honors and awards, including her election to fellowship in the American Academy of Arts & Sciences, the Garvan-Olin Medal of the American Chemical Society, the Bourke Lectureship of the Faraday Division of the Royal Society of Chemistry, a John Simon Guggenheim Memorial Foundation Fellowship, Fellow of the American Association for the Advancement of Science, the American Chemical Society, and the American Physical Society, an Alfred P. Sloan Research Fellowship, and the Dreyfus Teacher-Scholar Award. In late 2008, Marsha was appointed Editor-in-Chief of *The Journal of Chemical Physics*, the preeminent journal in her field.



Ivan Petrov

Ivan Petrov is Principal Research Scientist at the Frederick Seitz Materials Research Laboratory, Adjunct Professor of Materials Science, and 1998-2010 Director of the Center for Microanalysis of Materials at the University of Illinois at Urbana-Champaign. He has



been Professor of Physics at Linköping University, Sweden since 2010 and was Visiting Professor of Surface Engineering at Sheffield Hallam University, UK from 2000-2012.

Ivan earned his Ph.D. in Physics from the Institute of Electronics, Bulgarian Academy of Sciences and received the Doctor Honoris Causa degree from Linköping University. He has published 270+ refereed papers cited over 10,500 times. Ivan is an Associate Editor of Surface Science Spectra and Surface and Coatings Technology.

A Fellow of the AVS, Ivan currently serves as the 2015 AVS President. He received the 2009 Bunshah Award and Honorary Lecture from the Advanced Surface Engineering Division of AVS and the 2013 AVS John A. Thornton Memorial Award/Lecture. He served as AVS Publication Chair from 2010-2014 and has been elected as the Chair of the Surface Engineering Division of the International Union of Vacuum Science Technology and Application from 2009-2017.



Greg Tananbaum

Greg Tananbaum serves as a consultant to publishers, libraries, universities, and information providers as owner of ScholarNext. Clients include Microsoft, SPARC, PLOS, AIP, the University of California, and Annual Reviews. He has been President of The Berkeley Electronic Press, as well as Director of Product Marketing for EndNote.

Greg writes a regular column in Against the Grain covering emerging developments in the field of scholarly communication. He has been an invited speaker at dozens of conferences, including the American Library Association, the Society for Scholarly Publishing, the Association of Professional and Learned Society Publishers, and Online Information UK. Greg holds a Master's degree from the London School of Economics and a B.A. from Yale University.

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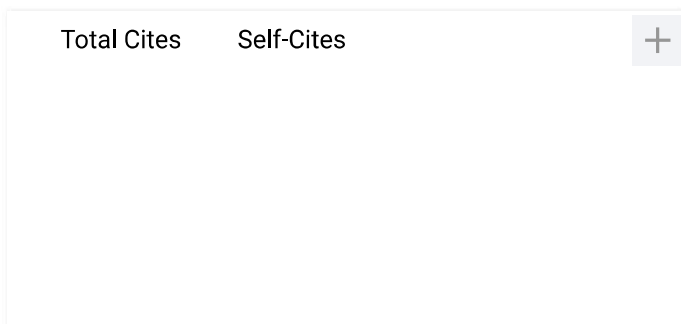
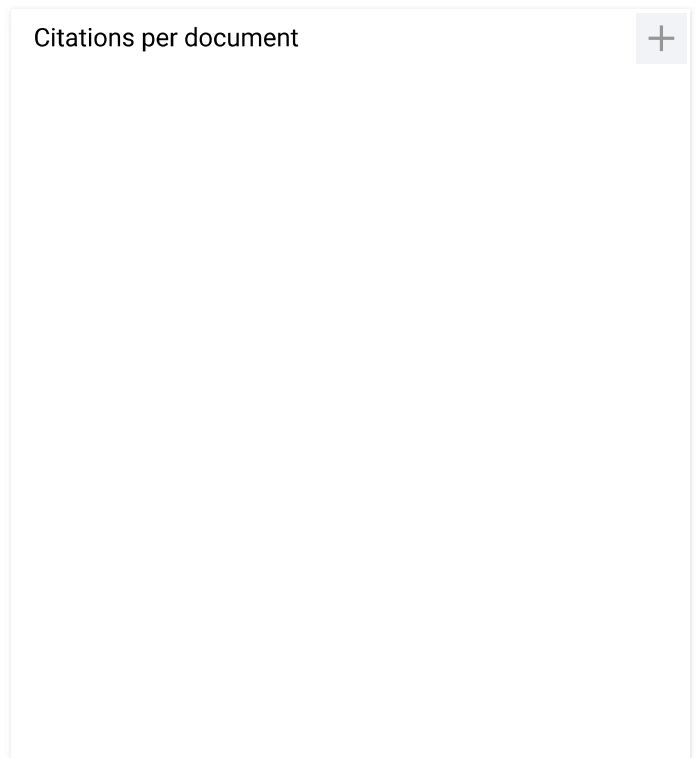
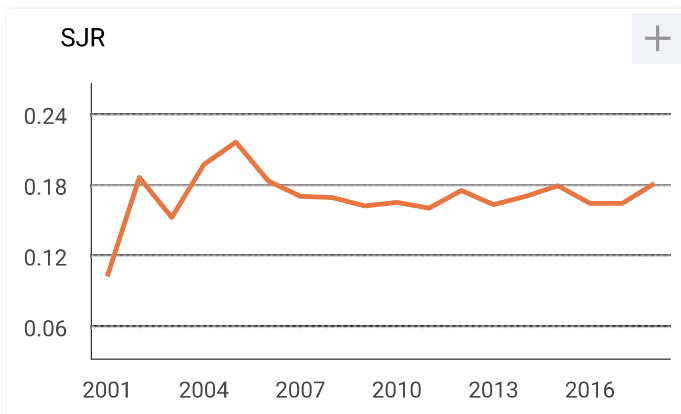


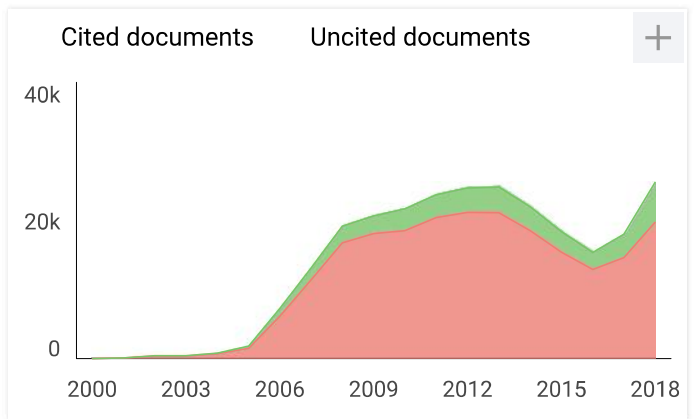
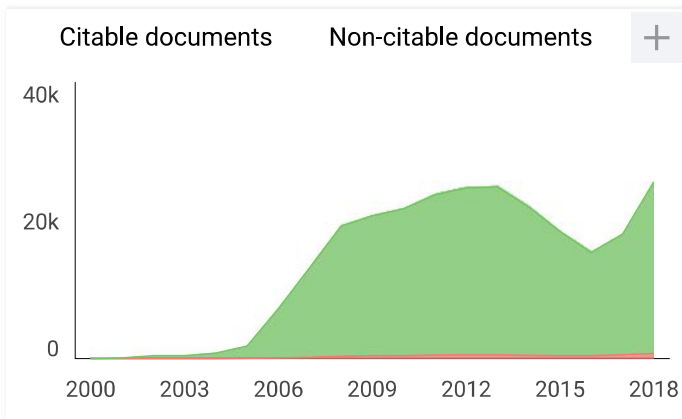
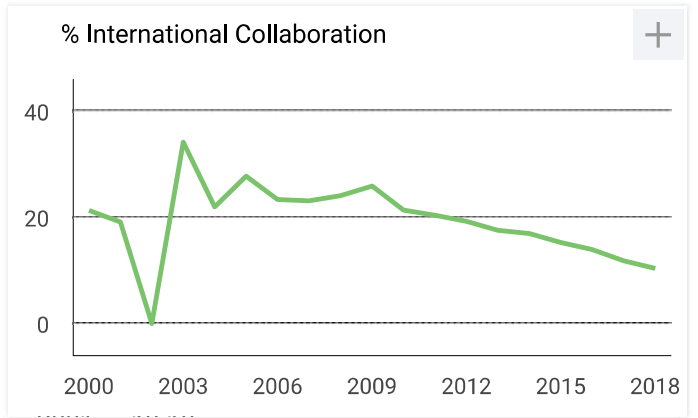
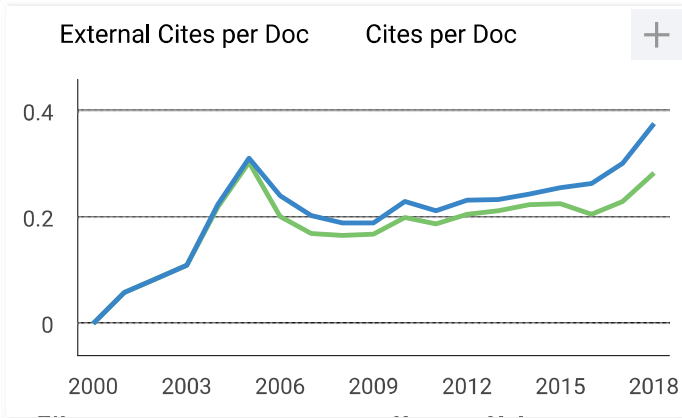
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Organic Template Free Synthesis of ZSM-5 from Calcinated Indonesian Kaolin

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Abstract. A pure ZSM-5 has been synthesized from calcinated kaolin without organic template. The synthesized samples were characterized using X-ray diffraction (XRD), Fourier Transform Infrared (FTIR) spectroscopy, nitrogen adsorption/desorption technique, and Transmission Electron Microscopy (TEM). The results showed that microporous ZSM-5 obtained by silica adding through three-step crystallization at 100-120-150 °C for 24 h respectively.

INTRODUCTION

ZSM-5 zeolite generally synthesized using commercial chemicals as silica and alumina sources. Tetraethylorthosilicates (TEOS) was the most chemical used as silica source [1, 2]. Other materials also used as silica sources like ludox [2], water glass [3], and SiO₂ hydrogel [4]. As alumina source, some researchers used of aluminum isopropoxide (AIP) [5] aluminum sulphate (Al₂(SO₄).18H₂O) [3] sodium aluminates (NaAlO₂) [5], and other chemicals contained aluminum.

On the other hand, ZSM-5 could be synthesized using natural materials as starting materials, such as rectorite [6], rice husk ash [7], and kaolin [8,9]. The utilization of natural materials as a precursor in zeolite synthesis is more advantageous than chemicals because it is more economical.

ZSM-5 was typically synthesized using organic template as MFI structure directing agents, like tetrapropylammonium bromide, TPABr [6] or tetrapropylammonium hydroxide, TPAOH [5]. The synthesis method without MFI structure directing agents have been successfully developed and conducted [9], however it still required surfactant cethyltrimethylammonium bromide (CTAB) as mesophase agent. In the previous research, we have been successfully prepared the high crystallinity of ZSM-5 from Indonesian kaolin through treatment with the addition of sodium fluoride [10].

Herein, we demonstrated the other technique to synthesis of ZSM-5 from metakaolin by calcination of Indonesian kaolin using step crystallization and without organic template (as a structure directing agent or as mesophase agent). The addition of tetraethylorthosilicates (TEOS) aims to complete the requirements of the mole ratio Si/Al in the composition of ZSM-5 [9]. The hydrothermal proses was conducted by controlled the temperature and time to widen the pores.

EXPERIMENTAL

Materials

The starting material of synthesis of ZSM-5 were metakaolin. The metakaolin obtained from the calcination of Indonesian (Bangka-Belitung) kaolin [9]. Synthesis was also used sodium hydroxide (NaOH) as a mineralizing agent and tetraethylorthosilicates (TEOS) as an additional silicon sources. All chemicals were purchased from Merck, analytical grade and used as received without further purification. Water used in this synthesis was distilled water.

Synthesis of ZSM-5

ZSM-5 synthesized by mixing metakaolin with solution of 2 g NaOH in 166 mL water. The mixture mixed with 54 mL TEOS and stirred for 5 h to obtaine the chemical composition of $0.25\text{SiO}_2:0.00625\text{Al}_2\text{O}_3:0.05\text{NaOH}:9.5\text{H}_2\text{O}$. The mixture divided by two parts, the first part aged for 24 h and other part inserted to the stainless steel autoclave. The mixture in autoclave was aged for 19 h and heated in the oven at 190°C for 4 h. After aging, the first part poured in to autoclave and then stirred until homogeneous and heated at 100°C for 24 h at the first step, and followed the second step at 120°C for 24 h, and the last step at 150°C for 24 h. The results washed by centrifugation process until neutral and dried at 100°C for 24 h in order to obtained Z-100; Z-120, and Z-150. ZSM-5 synthesized through similar procedure with the synthesis of Z-150 but it used the addition of CTAB (Z-C) as a comparison. Sampling method conducted in each step to characterization.

Characterization

The characterization of the results with X-ray diffraction (XRD) were performed with JEOL JDX-3530 instruments using Cu K α radiation with a step size of 0.02° and counting time of 10 s. The samples were grinded in agate mortar before analysis. Data recorded in the 2θ range of $5-50^\circ$. Fourier Transform Infrared (FTIR) spectra of the samples measured on a Shimadzu spectrophotometer using the KBr pellet technique, in the range of $400 - 4000\text{ cm}^{-1}$ with a spectral resolution of 4 cm^{-1} , 45 scans, at room temperature. Nitrogen physisorption isotherms collected on a Quantachrome Nova version 10:01. The materials degassed for 5 h at 300°C prior to analysis. Brunauer, Emmett, and Teller (BET) calculations used to determine the material surface area. Mesopores size distributions calculated using the Barrett, Joyner, and Halenda (BJH) method. Transmission Electron Microscopy (TEM) measured by JEOL, version 1.0.

RESULTS AND DISCUSSION

Metakaolin obtained form calcination of kaolin as reference [9] reported. The crystal structure of kaolin turned into an amorphous structure with calcination at 550°C indicating that metakaolin had formed (Fig. 1.a and 1.b). Amorphous structure on metakaolin allows it to be used as the preparation of zeolites [11]. However, because of the XRF results on metakaolin showed SiO_2 content of 54.3% and 38.6% Al_2O_3 , this research added silica of TEOS to the zeolites synthesis in order to fulfill the total mole ratio Si/Al. Metakaolin that produced from calcined kaolin showed peaks of quartz at an angle around 26.61° as reported at reference [9] (Fig. 1.b).

Synthesis of ZSM-5 conducted through step crystallization by hydrothermal process. Diffraction patterns of the results were shown in Fig. 1.c - 1.e. Figure 1.c showed diffraction pattern of the results of synthesis by hydrothermal

process at 100°C for 24 h (Z-100), by hydrothermal process at 120°C for 24 h (Z-120) was shown in Fig. 1.d, and at 150°C for 24 h (Z-150) was shown in Fig.1.e. Z-100 and Z-120 did not show the formation of ZSM-5, because the diffraction pattern showed a flat curve (typical for amorphous solids). The Z-150 has demonstrated ZSM-5 because there sharp peak at 2θ about 7 - 8° and about 23° [1]. No evident of other peak as shown in Fig. 1.e indicates that the pure ZSM-5 has been formed. This is in accordance with the results reported by Yang et.al. [12].

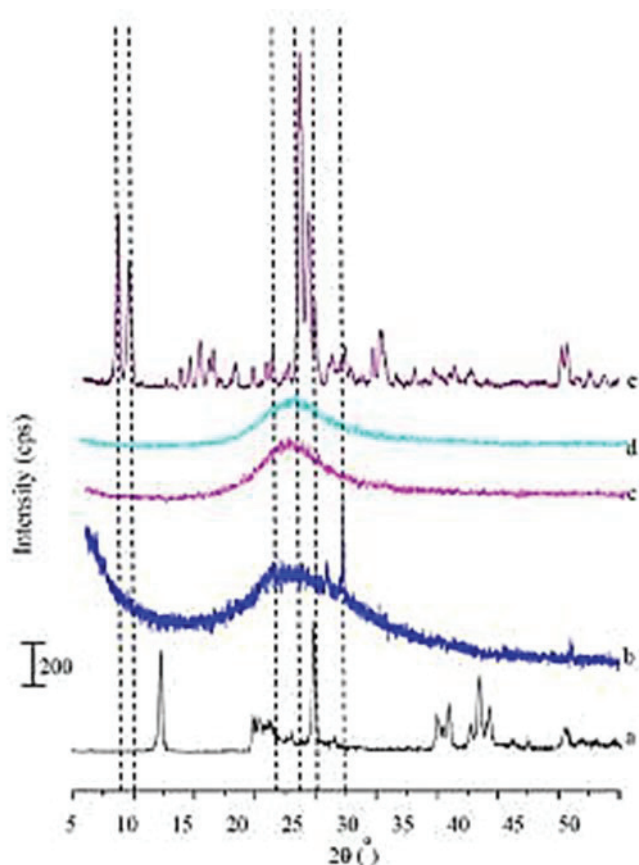


FIGURE 1. XRD pattern of samples: kaolin (a), metakaolin (b), Z-100 (c), Z-120 (d), Z-150 (e)

Figure 2 showed FTIR spectra of samples of the results. FTIR spectra of sample (Fig. 2.c) supported the XRD pattern which exposed that sample was performed ZSM-5. That was displayed by the band at around 455 $^{\circ}\text{C}$ (T – T band), 550 cm^{-1} (double five ring of MFI type zeolites), 795 cm^{-1} (external symmetric stretch), $1150 - 1050\text{ cm}^{-1}$ (internal asymmetric stretch), and 1224 cm^{-1} (external asymmetric stretch) [12]. While the other samples (Fig. 2.a and 2.b) did not performed ZSM-5, shown by the FTIR spectra did not appear the band at around 550 cm^{-1} [12].

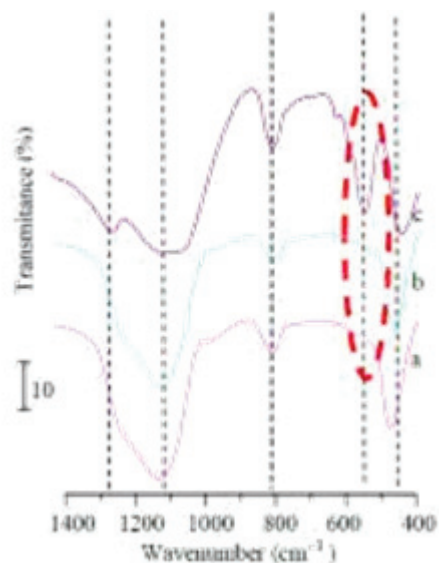


FIGURE 2. FTIR spectra of samples: Z -100 (a), Z-120 (b), Z-150 (c)

Physisorption analysis with nitrogen adsorption/desorption was carried out only on samples of Z-150 for the pure sample was formed ZSM-5 by X-ray diffraction pattern. Figure 3.a showed the nitrogen adsorption/desorption curve of Z-150. The nitrogen adsorption and desorption curve were horizontal and overlaps, which indicated that the curve as in type I, specific curve of micropores solid. This suggests that the hydrothermal gradually 100, 120 and 150°C respectively for 24 hours without the addition of organic template has not been able to build up the pores of ZSM-5. The results was different from the curve of nitrogen adsorption/ desorption as shown in Fig. 3b. The data was used as a comparison, which was the result of the synthesis of ZSM-5 from metakaolin without organic template TPAOH but used template to create a mesoporous, cethyltributhylamine bromide (CTABr) (Z-C). The nitrogen adsorption/desorption curve of the Z-C contains a hysteresis loop from $P/P_0 = 0.6$ to $P/P_0 = 1.0$, indicating that the curve as in the type IV corresponding to the nitrogen filling in mesopores [1].

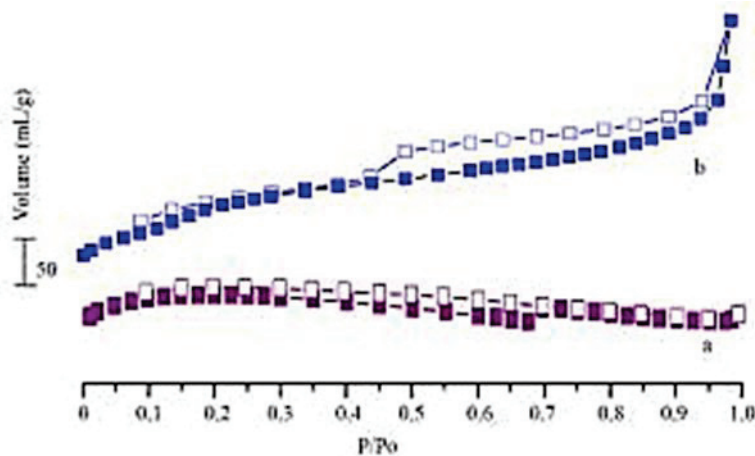


FIGURE 3. Nitrogen isotherm adsorption/desorption curve of sample: Z-150 (a) and Z-C (b)

Figure 4.a was the curve of pore size distribution of sample Z-150 which showed the curve peaks contained in diameter < 2 nm. As a comparison, the pore size of ZSM-5 which produced through metakaolin without TPAOH substance but with the addition of mesophase agent, CTABr showed the pore distribution over 2 nm (mesoporous) (Fig. 4.b). Further details listed in Table 1, which displayed the results of the analysis of the adsorption/ desorption of nitrogen for the two samples. Z-150 and Z-C showed the consecutive pore diameter of 1.691 nm and 3.836 nm. This suggests that the synthesis of ZSM-5 of metakaolin without templates organically through gradual. Hydrothermal

unable to form mesoporous and the amount of surface area mesoporous only 5.67% of the total surface area, whereas the surface area mesoporous of Z-C is 18.69% of the total area pore.

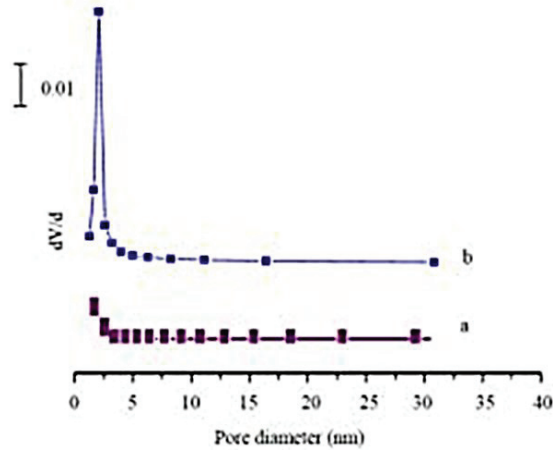


FIGURE 4. Pore size distribution of Z-150 (a) and Z-C (b)

TABLE 1. Pore structure of ZSM-5 from metakaolin

Sample	Mol Ratio ^a Si/Al	Surface area of mesopore ^b (m ² /g)	Surface area of micropore ^c (m ² /g)	Pore Volume (mL/g)	Pore Diameter ^b (nm)
Z-150	20	14.305	237.672	0.009	1.691
Z-C	20	67.849	295.206	0.142	3.836

a) mole ratio of synthesized condition

c) calculated by BET method at P/P₀ = 0.3

b) calculated by BJH method

The surface morphology of crystals analyzed by TEM which shown in Fig. 5. Figure 5 showed that the pores of the crystals on Z-150 (a) looks different from Z-C (b). The pores of the crystals in the Z-C was more obvious than the Z-150. On the contrary, the TEM image of Z-150 does not appear bright spot relative to the Z-C. The bright spot in the TEM image can indicate of mesoporous of the solid surface [1].

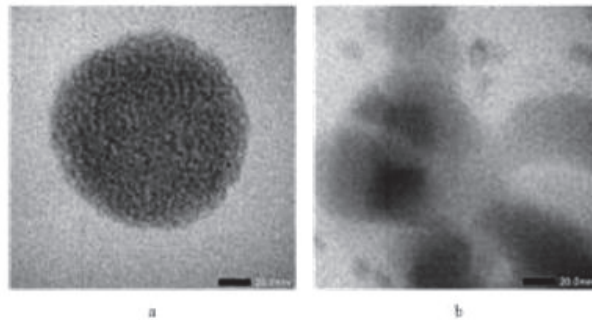


FIGURE 5. The surface morphology of Z-150 (a) and Z-C (b)

CONCLUSIONS

Pure ZSM-5 can be synthesized from Indonesia calcined kaolin with addition of silica via hydrothermal gradually without organic template at 100, 120 and 150°C respectively for 24 h to produce microporous structure. The results

demonstrated the synthesis of ZSM-5 microporous, as nearly 95% of the total pore microporous surface. ZSM-5 was not performed in the synthesis by hydrothermal at 100°C for 24 h (Z-100) and by hydrothermal gradually at 100 and 120°C for 24 h, respectively, (Z-120) which shown by a flat curve of diffraction pattern typical for amorphous solids.

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REFERENCES

1. H. Zhu, Z. Liu, D. Kong, Y. Wang, X. Yuan, and Z. Xie, *Journal of Colloid and Interface Science* **331**, 432 – 438 (2009)
2. M-H. Zhu, Z-H. Lu, I. Kumakiri, K. Tanaka, X-S. Chen, and H. Kita, *Journal of Membrane Science*, **414 – 416**, 57 – 65 (2012)
3. Q. Xiao, Y. Qionsi, J. Zhung, G. Liu, Y. Zhung, and W. Zhu, *Journal of Colloid and Interface Science*, **394**, 604 – 610 (2013)
4. F. Jin, X. Wang, T. Liu, Y. Wu, L. Xiao, M. Yuan, and Y. Fan, *Chinese Journal of Chemical Engineering* (in press)
5. Z. Xue, T. Zhang, J. Ma, H. Miao, W. Fan, Y. Zhang, and R. Li, **151**, 271 – 276 (2012)
6. J. Ding, H. Liu, P. Yuan, G. Shi, and X. Bao, *ChemCatChem*, **5**, 1–13 (2012)
7. A.Y. Atta, O.A. Ajayi, and S.S. Adefila, **3**, 1017-1021 (2007)
8. F. Pan, X. Lu, Y. Wang, S. Chen, T. Wang, and Y. Yan, **115**, 5–8 (2014)
9. H. Hartati, A. A. Widati, H. Setyawati, and S. Fitri, **10**, 1, 87- 90 (2016)
10. H. Hartati, A. A. Widati, T. K. Dewi, D. Prasetyoko, **12**, 2, 251-255 (2017)
11. H. Douiri, S. Louati, S. Baklouti, M. Arous, Z. Fakhfakh, *Applied Clay Science*, **139**, 40 – 44 (2017)
12. J. Yang, S. Yu, H. Hu, Y. Zhang, J. Lu, J. Wang, D. Yu., *Chemical Engineering Journal*, **166**, 1083 – 1089 (2011).