LEMBAR

HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*

KARYA ILMIAH : PROSIDING

Judul Jurnal Ilmiah (Artikel)	: Consistency of batch anaerobic digestion process of high and low activated sludge concentrations to the interference of sodium benzoate as preservative material	
Nama Penulis	: **Indro Sumantri** and Murdiyono	
Jumlah Penulis	: 2 orang	
Status Pengusul	: **Penulis pertama dan Penulis Korespondensi**	
Identitas Jurnal Ilmiah	: a. Nama Prosiding	: **IOP Conference Proceedings 2020.**
	b. Nomor ISSN	: 1757-899X
	c. Volume, Nomor, Bulan, Tahun	: 1053, October 2020
	d. Penerbit	: IOP Publishing
	e. DOI artikel (jika ada)	: https://iopscience.iop.org/article/10.1088/1757-899X/1053/1/012048
	f. Alamat URL Prosiding	: https://iopscience.iop.org/journal/1757-899X
	Alamat URL Artikel	https://iopscience.iop.org/article/10.1088/1757-899X/1053/1/012048
	g. Terindek	: -

Kategori Publikasi Jurnal Ilmiah : (beri ✓pada kategori yang tepat)

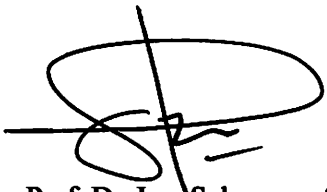
- ☐ Prosiding Seminar Internasional terindek (Scopus)
- ☑ Prosiding Seminar Internasional tidak terindek
- ☐ Prosiding Seminar Nasional

Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Reviewer		Nilai Rata-rata
	Reviewer 1	Reviewer 2	
a. Kelengkapan unsur isi artikel (10%)	1,0	1,50	1,25
b. Ruang lingkup dan kedalaman pembahasan (30%)	4,0	4,00	4,0
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	4,0	4,50	4,25
d. Kelengkapan unsur dan terbitan/jurnal (30%)	4,0	4,00	4,0
Total = (100%)	**13**	**14,00**	**13,5**
Nilai Pengusul = (0,6 x 13,5) = 8,1			

Semarang, 1 Pebruari 2022

Reviewer 1



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Reviewer 2

Prof. Dr. Ir. Hargono, MT
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(beri ✓pada kategori yang tepat) [√] Prosiding Seminar Internasional tidak terindek

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	Internasional Terindeks [ ]	Internasional Tak Terindeks [15]	
a. Kelengkapan unsur isi artikel (10%)		1,5	1,0
b. Ruang lingkup dan kedalaman pembahasan (30%)		4,5	4,0
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)		4,5	4,0
d. Kelengkapan unsur dan terbitan/jurnal (30%)		4,5	4,0
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Nilai Pengusul	**0,6 x 13 = 7,8**		

Catatan Penilaian Artikel oleh Reviewer:

1. Kesesuaian dan kelengkapan unsur isi jurnal:
Karya ilmiah memiliki unsur isi yang lengkap, terdiri dari Title, Abstract, Introduction, Materials and Method, Results and Discussion, Conclusion, References. Karya ilmiah telah memenuhi petunjuk penulisan dari prosiding. → (nilai = 6,7 %).

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Artikel ini membahas konsistensi proses pencernaan anaerobik batch konsentrasi lumpur aktif tinggi dan rendah terhadap gangguan natrium benzoat sebagai bahan pengawet. Penelitian dilakukan menggunakan reaktor batch berisikan lumpur aktif. Pembahasan dilakukan dengan sangat baik dan mendalam serta komprehensif. Penggunaan literatur dalam pembahasan cukup banyak yakni 8 dari total 18 (45 %) literatur. Topik ini sesuai dengan bidang ilmu Teknik Kimia. → (nilai = 26,67 %).

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Semarang,
Reviewer 1

Prof. Dr. Suherman, ST, MT
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Unit Kerja : Fak. Teknik Universitas Diponegoro
Bidang Ilmu : Teknik Kimia

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b. Ruang lingkup dan kedalaman pembahasan (30%)		4,5	4,00
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)		4,5	4,50
d. Kelengkapan unsur dan terbitan/jurnal (30%)		4,5	4,0
Total = (100%)		**15**	**14**
Nilai Pengusul	**0,6 x 14 = 8,4**		

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Reviewer 2

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Bidang Ilmu : Teknik Kimia

Consistency of batch anaerobic digestion process of high and low activated sludge concentrations to the interference of sodium benzoate as preservative material

I Sumantri - IOP Conference Series: Materials Science and …, 2021 - iopscience.iop.org

Anaerobic digestion resulted best performance in degradation of organic materials. Degradation of the organic materials was stated as complete by the formation of methane, carbon dioxide etc.(or biogas) as the final product of degradation. Food or beverages products utilized preservative agents in order to prolong the expired date. Sodium benzoate is the most common of preservative agent which can be used for both food and beverages. This experiments were pointed out to observe the effect of high and low activated sludge to …


4th ICCME 2020
INTERNATIONAL CONFERENCE ON CHEMICAL & MATERIAL ENGINEERING
"Role of Chemical and Material Engineering in Ensuring Food, Water and Energy for Sustainable Development Goals (SDGs)"
Important Date
Abstract Submission: July 13, 2020
Acceptance Abstract: July 27, 2020
Full Paper Submission: August 25 2020
Early Bird Regristration: September 8 2020
Final Regist. Fee: September 29 2020
Conference Date: October 6 – 7 2020
Please note that due the Covid-19 pandemic issue all over the world. ICCME 2020 will be held as an ONLINE CONFERENCER (REMOTE PRESENTATION THROUGH VIDEO MEETING VIA ZOOM) on October 6-7th, 2020
Registration Fee :
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Conference Online Via : zoom
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Dr. Ir. Harsawardana, M Eng
Palm Oil Expert – Yogyakarta , Indonesia
Prof. Dr. Ahmad Zuhairi Abdullah
Universiti Sains Malaysia, Malaysia
Prof. Masaru Watanabe
Tohoku University, Japan
Prof. Dr. I Nyoman Widiasa, ST, MT
Chemical Engineering, Universitas Diponegoro, Indonesia
Prof. Le Thi Kim Phung
Ho Chi Minh City University of Technology, Vietnam
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+62 813-2603-8319 (Dr. Indro)
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(+62 24)76480675
iccme2020@live.undip.ac.id

Preface

International Conference on Chemical and Material Engineering (ICCME) 2020

International Conference on Chemical and Material Engineering (ICCME) is an annual conference organized by Universitas Diponegoro, Indonesia. The theme of ICCME 2020 is ***"Role of Chemical and Material Engineering in Ensuring Food, Water and Energy for Sustainable Development Goals (SDGs)".*** The event is designed to emphasize advances and new findings in chemical and material science & technology and their impacts on Sustainable Development Goals (SDGs). The conference will bring together scholars, leading researchers, and experts from diverse backgrounds and applications areas in Science.

The Covid 19 pandemic has forced and taught us to hold international conferences online. Alhamdulillah, with the permission of Allah SWT, the ICCME 2020 conference can be held online.

We inform you that there are 8 keynote speakers from 7 countries (from Indonesia, Malaysia, Brunei, India, Iran, and Vietnam). However, Prof. Masaru Watanabe (Tohoku University, Japan) could not make a presentation due to other activities.

Meanwhile, there were 179 papers and presenters from 5 countries (from Austria, Japan, Saudi Arabia, Malaysia, and Indonesia). From these papers, 8 papers were selected to be published in International Journal of Renewable Energy Development (IJRED), 5 papers in ASEAN Journal of Chemical Engineering (AJChE), and 139 papers in IOP Conference journals. All journals are indexed by Scopus.

On this good occasion. We apologize if the preparation and implementation of ICCME 2020 is still lacking. This is because we all work from home, making it difficult to coordinate directly. Thank you to all the committees who work responsibly and complement each other.

ICCME 2020 event was published on youtube. The link is available form

https://www.youtube.com/watch?v=sjMfHbVU55g

https://www.youtube.com/watch?v=wKPLaPBxRwI

Finally, Welcome to join online ICCME 2020. Hopefully it will be useful and increase our collaboration in the fields of education and research, especially in Chemical and Material Engineering.

Prof. Dr. Ir. Didi Dwi Anggoro, M.Eng

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Accepted papers received: 11 January 2021

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Consistency of batch anaerobic digestion process of high and low activated sludge concentrations to the interference of sodium benzoate as preservative material

I Sumantri[1*] and Murdiyono [1]

[1] Department of Chemical Engineering, Faculty of Engineering, Universitas Diponegoro, Semarang, Indonesia-50275.
E-mail: indrotekim@yahoo.com

Abstract. Anaerobic digestion resulted best performance in degradation of organic materials. Degradation of the organic materials was stated as complete by the formation of methane, carbon dioxide etc. (or biogas) as the final product of degradation. Food or beverages products utilized preservative agents in order to prolong the expired date. Sodium benzoate is the most common of preservative agent which can be used for both food and beverages. This experiments were pointed out to observe the effect of high and low activated sludge to the formation of biogas. Research was conducted in some batch mode reactor systems employing high and low of activated sludge (80% and 20% of volume) and solution concentration of sodium benzoate volume. The activated sludge used was 12 g MLSS/L. Concentrations of sodium benzoate used were 400, 600, and 800 mg/L. Product of biogas samples was measured every two days for 60 days of experiment. The results showed that the volume ratio of activated sludge and sodium benzoate of 80% able to reduce the interference of sodium benzoate and for 20% was not able to produce biogas where the load of sodium benzoate influenced the production of biogas.

1. Introduction.

Anaerobic digestion (AD) is a biological process through activated sludge by utilized the anaerobic microorganisms to degrade organic substances [1]. Degradation of the organic substances in AD through four steps distinction: 1. Dissolution of organic substances (hydrolysis), 2. Formation of acids (acidogenesis), 3. Formation of acetic acid (acetogenesis) and, 4. Formation of biogas (methanogenesis) [2]. Recently, the AD process is most popular in treated wastewater both of its high removal efficiency of the pollutants and produce renewable energy (biogas) [3]. Other advantages of AD process is suitable for wastewater with high content of Chemical Oxygen Demands (COD) which is greater than 1500 mg COD/L, less produce of sludge, convenient for tropical countries, etc [4].

Most of food and beverage products have longer expired date, it can be done by addition of preservative materials [5, 6]. This materials able to control the microorganism activity which can destroy the food and beverage products. The most common preservative material applied in the food and beverage staffs is sodium benzoate (SB) [7]. Treatment of wastewater contains preservative materials is predicted to reduce the performance of AD process. It is because the function of preservative materials is to eliminate or reduce the microorganism growth [8].

Enhancement of strength and flexibility of high-density polyethylene using rubber leaves

Norin Zamiah Kassim Shaari[1], Nurfatheen Abd Rahman, Ahmad Redha Taha, Sakinah Mohd Alauddin, Suffiyana Akhbar

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E-mail: norinzamiah@uitm.edu.my[1]

Abstract. High density polyethylene (HDPE) polymer suffers with lack of strength and flexibility that result in fracture of vessels and leakage of piping system. One way to overcome the brittleness problem of the polymer is by reinforcement of fillers such as fibers into the polymer matrix to form a polymer composite. In this study, the effect of incorporating rubber leaves as the filler into high density polyethylene (HDPE) polymer matrix on the tensile properties and morphology of the polymer composite was investigated. The composites were prepared with or without addition of glycerol as plasticizer and citric acid as cross linker. Despite using a common size of the filler, the sieve sizes of the rubber leaves were varied at 200µm, 300µm and 500µm respectively. Results show that the presence of 200 µm rubber leaves with glycerol and citric acid increased the strength of the polymer composites, where the tensile strength achieves 22.1 MPa without jeopardizing the elongation of the composite. The image from SEM reveals that rubber leaves fibers and plasticizers are dispersed homogeneously in the polymer matrix HDPE. This potential used of rubber leaves in the manufacturing of HDPE polymer composites will help to utilize the abundant amount of rubber leaves.

1. Introduction

There are two type of polymers derived from polyethylene which are low-density polyethylene (LDPE) and high-density polyethylene (HDPE). Both of these have different properties and being used in different applications LDPE is produced by free radical polymerization at high pressure about 1000 atm and high temperature of 200ºC. HDPE is obtained using Ziegler-Natta catalysis at pressure less than 100 atm and temperature below 100ºC. As compared to LDPE, which is more flexible, softer and can melt at a lower temperature, HDPE is harder, has high chemical resistance and can withstand high temperatures [1]. Therefore, HDPE is the most commonly used material for the pipe system, toys, shampoo bottles as an insulator in electrical appliances and chemical containers due to its high quality, highly versatile and affordability [2]. The HDPE density is higher than LDPE with longer chain branching. This chain branching provides HDPE for its stronger tensile strength and intermolecular forces compared to LDPE [3]. However, HDPE still suffers with lack in toughness, strength and flexibility, which has resulted in the fracture and leakage of the storage tank and piping used in the chemical industries. This phenomenon is due to crack can grow rapidly in a brittle manner for large-scale HDPE products like polyethylene pipe, where this type of fracture is known to be in the plane-strain condition, which has much lower toughness than that in the plane-stress condition [4].

The toughness can be described as a property of a material that has an ability to absorb and distribute relatively huge amount of energy of repeated impacts before it cracks or fractures by deformation. A polymer that has low toughness is called brittle materials. For instance, ceramic has

Disposal of Waste Communal in Region of Flow River on Settlement Solid Population

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Abstract. Changes that occur in housing development will change the zone that should be green open space its function to become a dense residential area. The purpose of this research is to find out how the physical condition of the toilet facilities sanitation development program for the community by the Bandung City government, such as what is the domestic waste disposal system residents, as well as to conclude how much community involvement in protecting the watersheds around the facility is also a communal toilet facility. The parameters used are the physical condition of the toilet, the existence of a septic tank, the use of a watershed, and the level of concern of the community using communal toilet facilities. This research is expected to be an evaluation material for the construction of community sanitation facilities in densely populated areas. In densely populated cities need public toilets. However, due to the lack of community participation, the condition of the facilities became damaged, dirty, and not maintained. The facility has become unsuitable for sanitation; squad latrine models are more widely used. The septic tank, which is supposed to be a waste collection facility, turns out that most domestic waste is discharged into the river through pipes. This is very unhealthy, causing pollution in watersheds. To make a government policy made that disposing of household waste from public toilets with pipes is prohibited because it causes the effects of river basin pollution, posing public health risks.

Keyword: Toilet; Sanitation; Bandung

1. Introduction

Urban residents have various characters in society. Daily activities also have various patterns and habits. The sanitation sector synergies in policy implementation [1]. Health as the basis for improving the quality of life [2], Indonesia with a high population growth rate of 1.2% per year is a high population country [3][4][5] the importance of planning as well as implementing solutions for domestic waste management [6]. The increase in population in the use of latrines occurs inequality so that adequate coverage of facilities is needed [7] and sanitation interventions have an impact not only