

Accepted Manuscript

First evaluation of vitrification capability of palm tree biomass wastes and sewage sludge

M.M. Jordan, M.B. Almendro-Candel, J. Navarro-Pedreño, D. Guirao, A. Acosta, J.Ma. Rincón

PII: S0167-577X(18)31004-8
DOI: <https://doi.org/10.1016/j.matlet.2018.06.099>
Reference: MLBLUE 24539

To appear in: *Materials Letters*

Received Date: 31 January 2018
Revised Date: 24 May 2018
Accepted Date: 23 June 2018

Please cite this article as: M.M. Jordan, M.B. Almendro-Candel, J. Navarro-Pedreño, D. Guirao, A. Acosta, J.Ma. Rincón, First evaluation of vitrification capability of palm tree biomass wastes and sewage sludge, *Materials Letters* (2018), doi: <https://doi.org/10.1016/j.matlet.2018.06.099>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



First evaluation of vitrification capability of palm tree biomass wastes and sewage sludge

M. M. Jordan¹, M. B. Almenro-Candel¹, J. Navarro-Pedreño¹, D. Guirao², A. Acosta², J. Ma. Rincón³

¹ Department of Agrochemistry and Environment, Miguel Hernández University of Elche, Elche, Alicante, Spain

² Department of Applied Mineralogy, Facultad CC Químicas, Universidad de Castilla-La Mancha, Ciudad Real, Spain

³ Department of Geology, MNCN-CSIC, Madrid, Spain, and Department of Agrochemistry and Environment, Miguel Hernández University of Elche, Elche, Alicante, Spain

Corresponding author: rinconjma@mncn.csic.es

Abstract

For the first time, it has been investigated if the vitrification of palm biomass wastes that result from conservation works in a protected forest area would be possible. In order to reduce these types of wastes and to exploit their capability for obtaining materials with useful applications, previous chemical analysis and thermal behaviour at high temperatures have been investigated by XRF (X-ray fluorescence) and HSM (hot stage microscopy). Location of these biomass residues in phase diagrams and possible formation of crystalline phases are previously outlined from the XRF chemical analysis and the HSM.

Keywords: agricultural waste, biomass wastes, palm trees, vitrification, glass design

1. Introduction

For decades, it has been demonstrated that vitrification of a wide range of industrial wastes is possible by an adequate design of composition and processing parameters, and even post-devitrification by following a controlled crystallization process in two stages:

Download English Version:

<https://daneshyari.com/en/article/8012414>

Download Persian Version:

<https://daneshyari.com/article/8012414>

[Daneshyari.com](https://daneshyari.com)