

Faculty of Geotechnical
Engineering
Varazdin
Croatia



DURATION OF THE BIODRYING PROCESS AS A FUNCTION OF THE INITIAL MOISTURE CONTENT OF MUNICIPAL SOLID WASTE

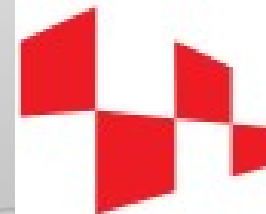
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UIP-2017-05-5157

http://wte.gfv.hr/index_en.html



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Croatian Science
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QUICK OVERVIEW

1. INTRODUCTION
2. MATERIALS AND METHODS
3. RESULTS
4. CONCLUSIONS

Waste Management Center Marišćina, Croatia

1. INTRODUCTION

- What is biodrying?
- There are **two active** waste management centers in Croatia which utilizes biodying process.
- Biodrying process ends when the moisture content drops below 20%. The moisture content is expressed on the wet matter (WM) basis.

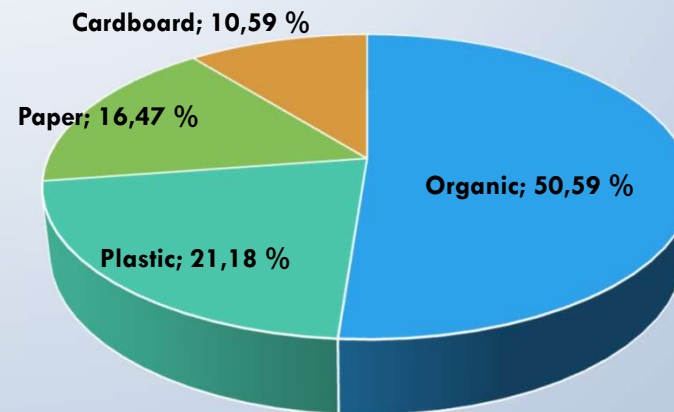


Taken from: <https://www.ekoplus.hr/mariscina.php>

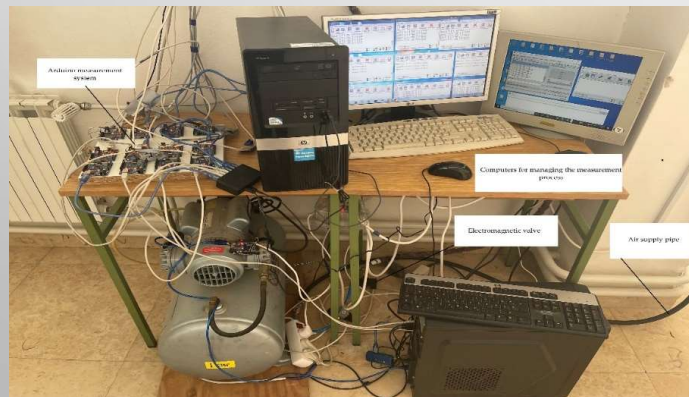
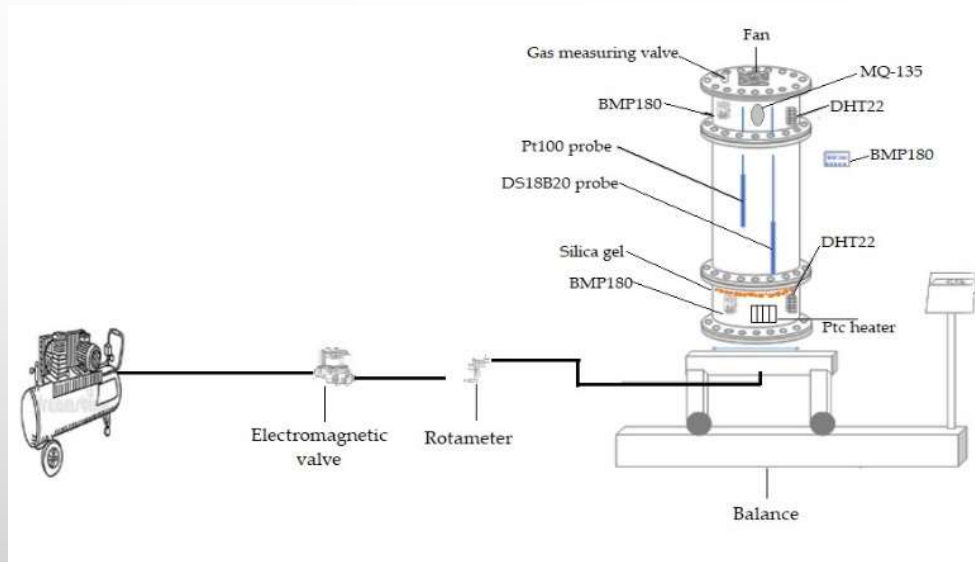
2. MATERIALS AND METHODS - SAMPLES



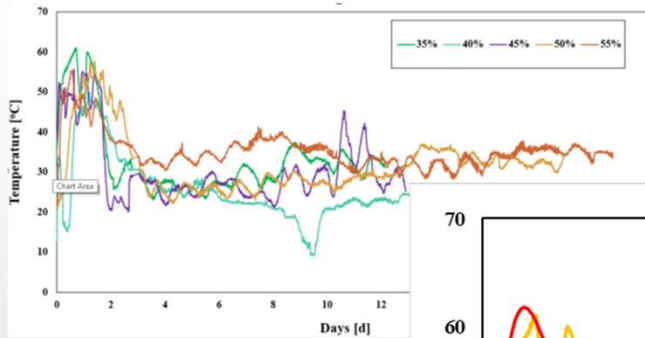
Five **Six** samples with same composition and different moisture contents (WM): 35%, 40%, 45%, 50% and 55%



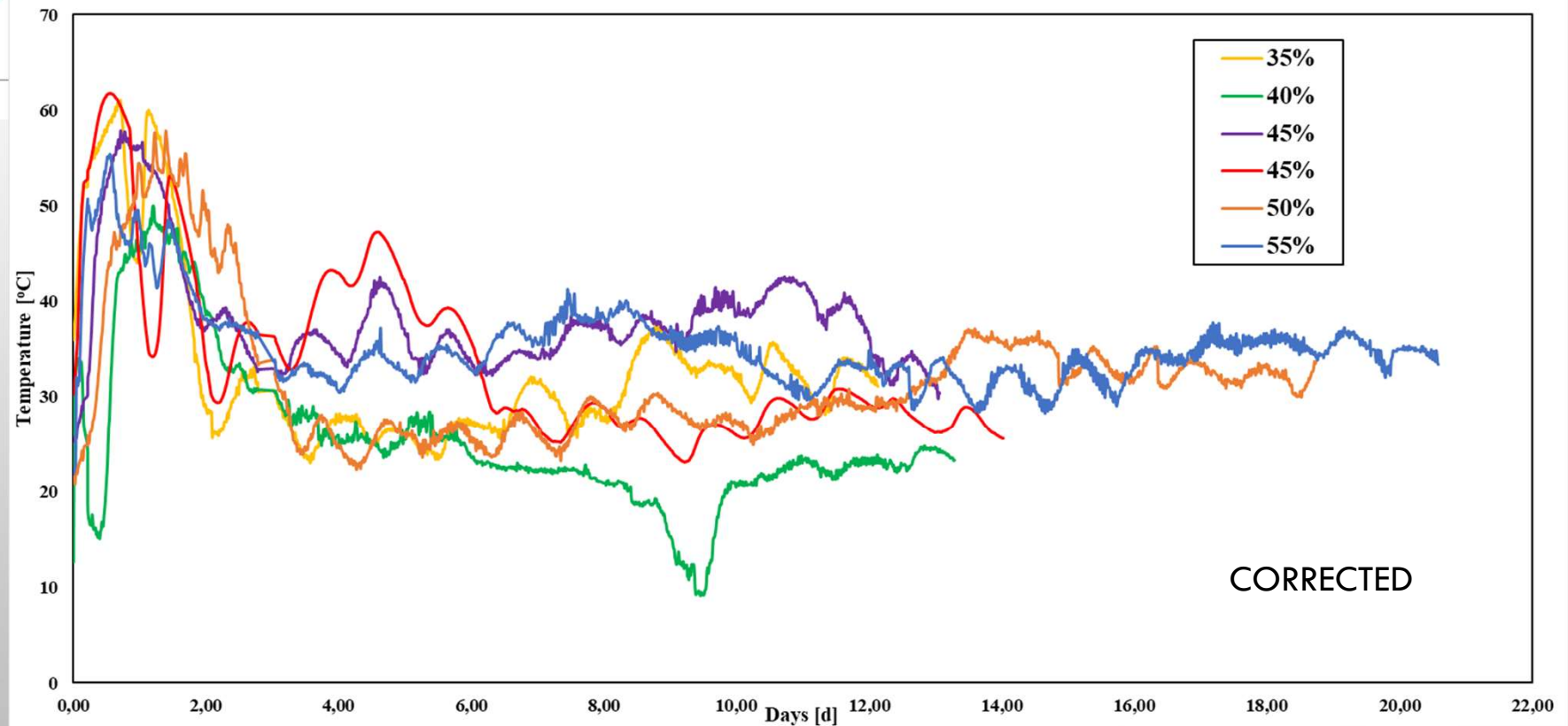
2. MATERIALS AND METHODS – BIODRYING CELL



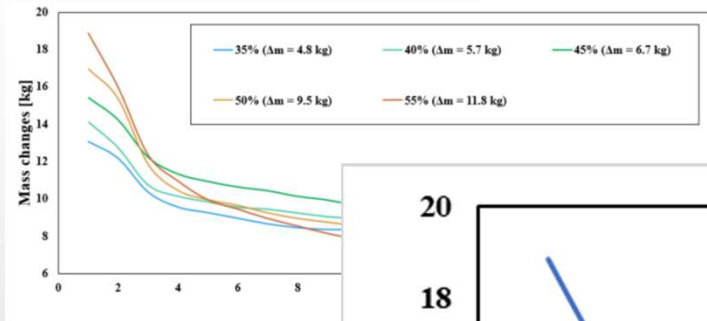
3. EXPERIMENTAL RESULTS – TEMPERATURES



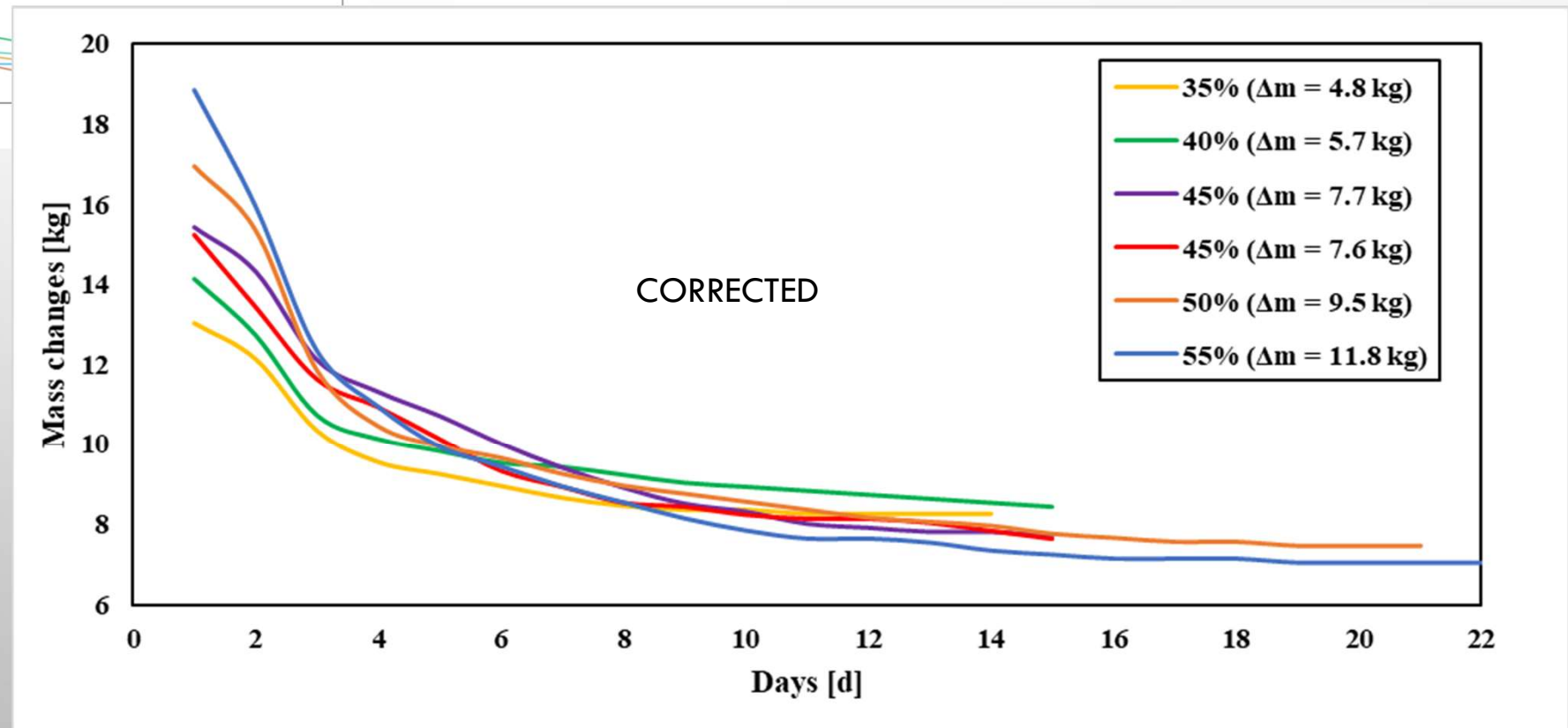
ERRORS – one sample is missing, and for one sample (45% WM) the incorrect temperature curve was shown.



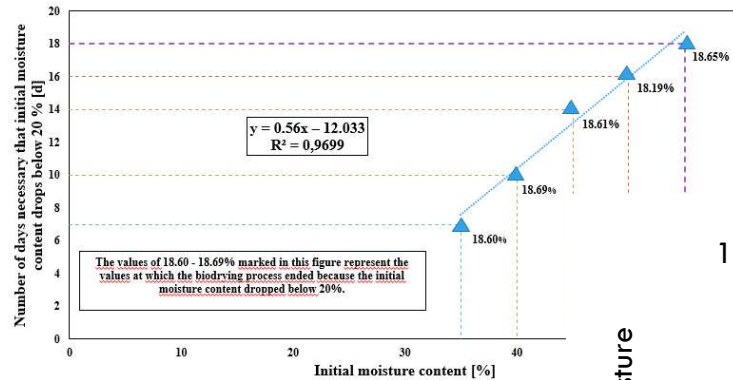
3. EXPERIMENTAL RESULTS – MASS CHANGE



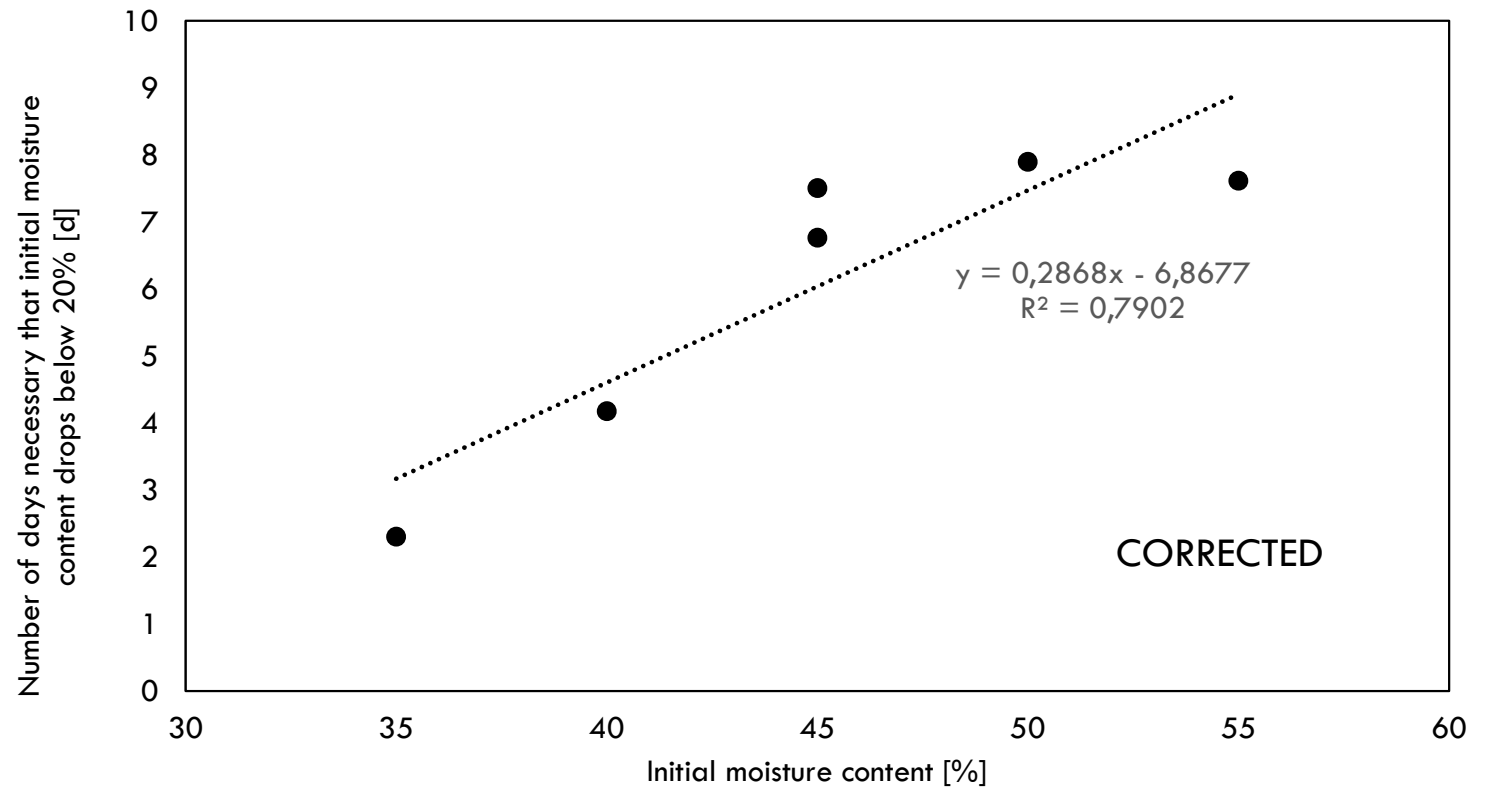
ERRORS – one sample is missing. For one sample (45% WM) incorrect decrease of mass was shown.



3. EXPERIMENTAL RESULTS – MOISTURE CONTENT VS. TIME



ERRORS – the number of days it took to drop the moisture content below 20% (WM) was incorrect. Consequently, the proposed linear relationship was also incorrect.



6. CONCLUSIONS

$$~~t = 0.56MC (WM) - 12.033~~ - \text{incorrect linear relationship}$$

$$t = 0.2868MC (WM) - 6.8677 - \text{CORRECTED}$$

t – duration of the biodrying process

MC – initial moisture content expressed on the
basis of wet matter

$$MC = \text{mass of water} / \text{mass of wet sample}$$

THANK YOU FOR YOUR ATTENTION

PROJECT NAME:

Testing and modelling of mechanical behavior of biodryed waste as a waste-to-energy prerequisite

FUNDING:

Croatian science foundation under the project UIP-2017-05-5157

DURATION OF THE PROJECT:

01.01.2018 - 30.06.2023

PROJECT WEB PAGE: http://wte.gfv.hr/index_en.html

