POM-BIOGAS

IV Baltic Biogas Forum

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Gdańsk

# EVALUATION OF THE ORGANIC WASTE BIOGAS POTENTIAL IN THE POMERANIAN REGION

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Narodowe Centrum Badań i Rozwoju | Polish-Norwegian Research Programme | norway grants | InnoBaltica | Politechnika Gdańska | IMP PAN | aquateam COWI

Main project objectives include:

- optimization of the substrate composition to achieve highest quality of the biogas,
- optimization of the biogas production process at a pilot installation
- determination of the best possible uses for the biogas and digestate

Tasks are grouped into 5 Work Packages and assigned to proper Work Package Leaders

Implementation period: 1st July 2013 – 30th June 2016
Total budget: 987 024 EUR

Consortium consists of 4 project Partners: Gdańsk University of Technology (GUT), The Fluid-Flow Machinery Institute of Polish Academy of Sciences (PAN), Aquateam COWI AS and InnoBaltica Sp. z o.o. (Project Promotor).

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| | WP1 SUBSTRATES | WP2 PROCESS | WP3 BIOGAS USE | WP4 DIGESTATE USE | WP5 DISSEMINATION & MANAGEMENT |
|---|---|---|---|---|---|
| Analytical phase 12 months | Task 1.1 Mapping of the organic waste available at the selected locations | Task 2.1 Design and construction of the pilot installation | Task 3.1 Literature based feasibility analysis of the biogas use | Task 4.1 Inventory of experiences with digestate application | Task 5.1 Organization of the efficient project management structure |
| | Task 1.2 Methods to collect, store and process the organic waste | Task 2.2 Testing hydrolysis of the substrates | | | Task 5.2 Coordination & communication |
| | Task 1.3 Characterisation of the organic waste | | | | Task 5.3 Technical and Financial Reporting |
| Implementation phase 24 months | | Task 2.3 Testing biogas production from mixture no. 1 | Task 3.2 Analysis of the biogas uppgrading after Testing no. 1 | Task 4.2 Analysis of digestate use from Testing no. 1 | Task 5.4 Promotion, Website, Brochures & Publications |
| | | Task 2.4 Testing biogas production from mixture no. 2 | Task 3.3 Analysis of the biogas uppgrading after Testing no. 2 | Task 4.3 Analysis of digestate use from Testing no. 2 | Task 5.5 Kick-off meeting |
| | | Task 2.5 Testing biogas production from mixture no. 3 | Task 3.4 Analysis of the biogas uppgrading after Testing no. 3 | Task 4.4 Analysis of digestate use from Testing no. 3 | Task 5.6 Mid-term workshop |
| | | | Task 3.5 Socioeconomic analysis of the biogas use from different alternatives | Task 4.5 Socioeconomic analysis of the digestate use from different alternatives | Task 5.7 Final conference |

Total: 36 months

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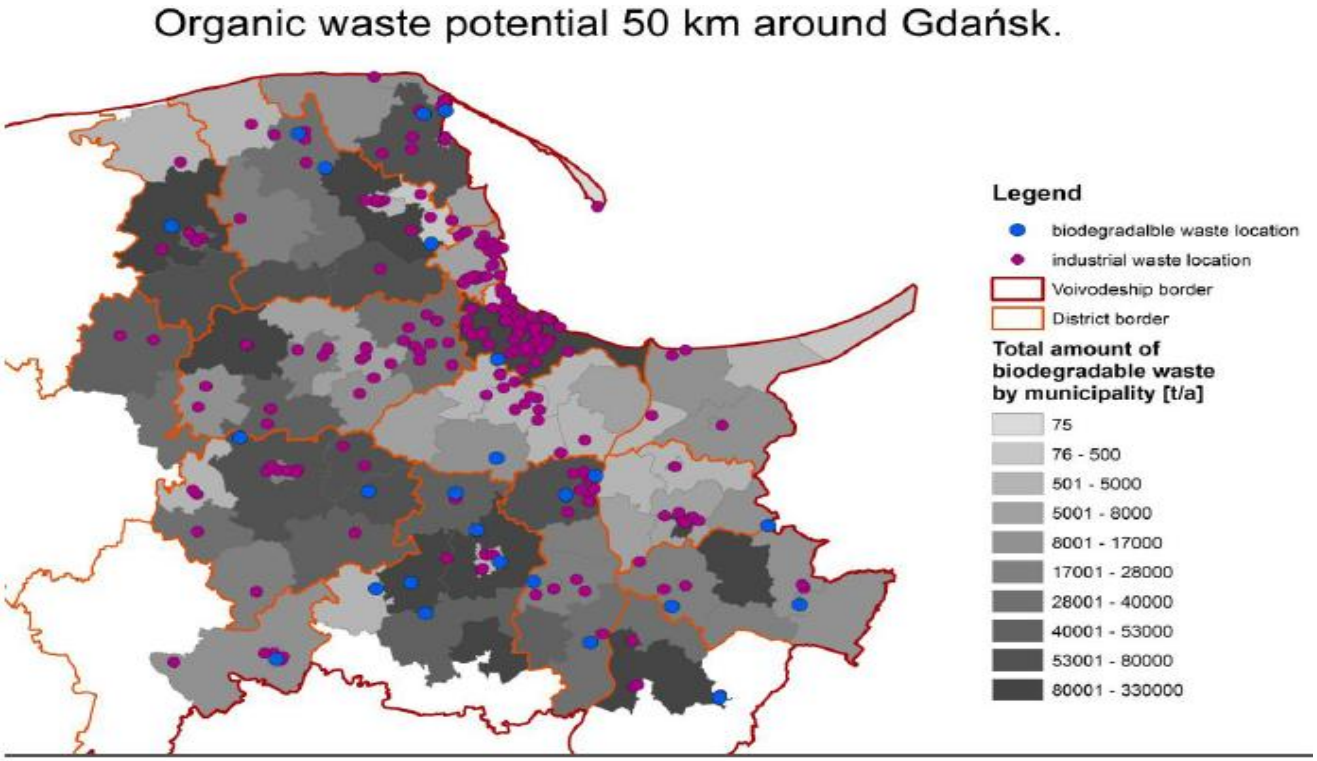
Task 1.1 Mapping of the organic waste available at the selected location




Potentially available organic waste within a distance of 50 km from Gdańsk

| Waste type | Sludge (industrial and municipal) | Agriculture waste (livestock manure) | Biodegradable industrial waste | Biodegradable municipal waste |
|---|---|---|---|---|
| Amount [t/a] | 28 192 | 2 270 722 | 446 676 | 535 333 |

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# Task 1.3 Characterization of the organic waste


Use of AMPTS (II) apparatus

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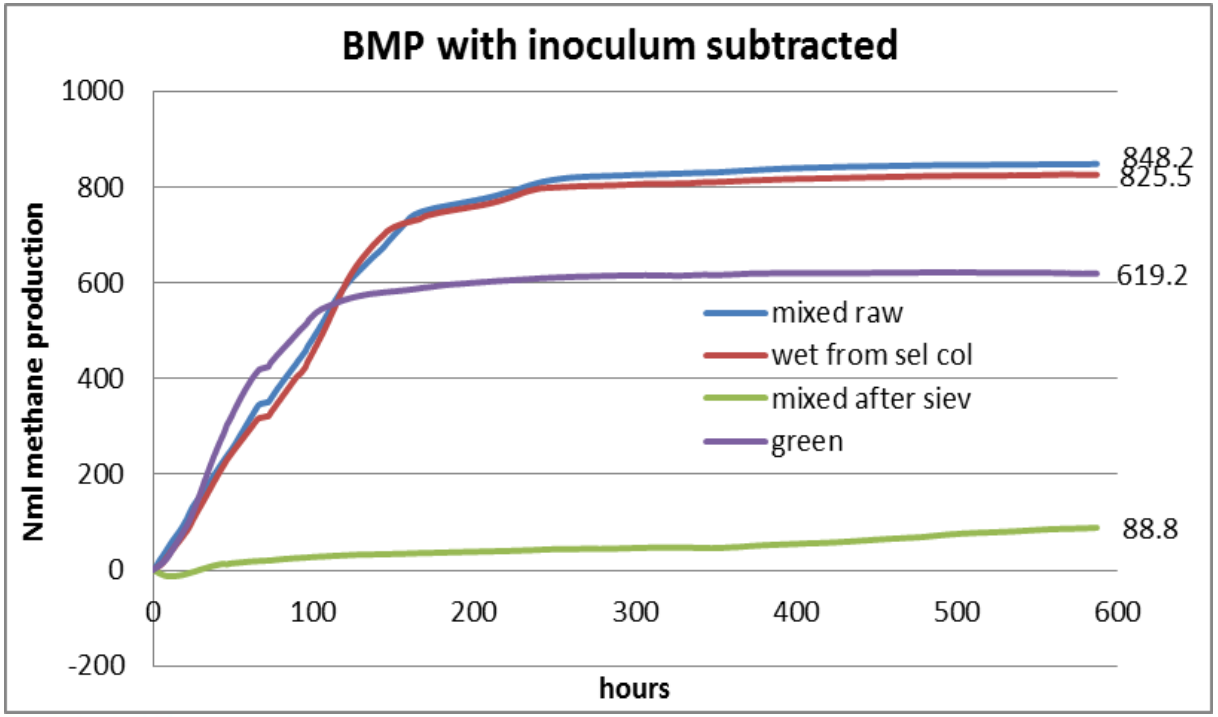
Test no 1:

Biodegradable **municipal** wastes from municipal waste landfill:

- mixed raw – municipal wastes without selective collection
- wet from selective collection - municipal wastes with selective collection
- mixed after sieving - municipal wastes without selective collection after sieving (100 mm)
- green wastes

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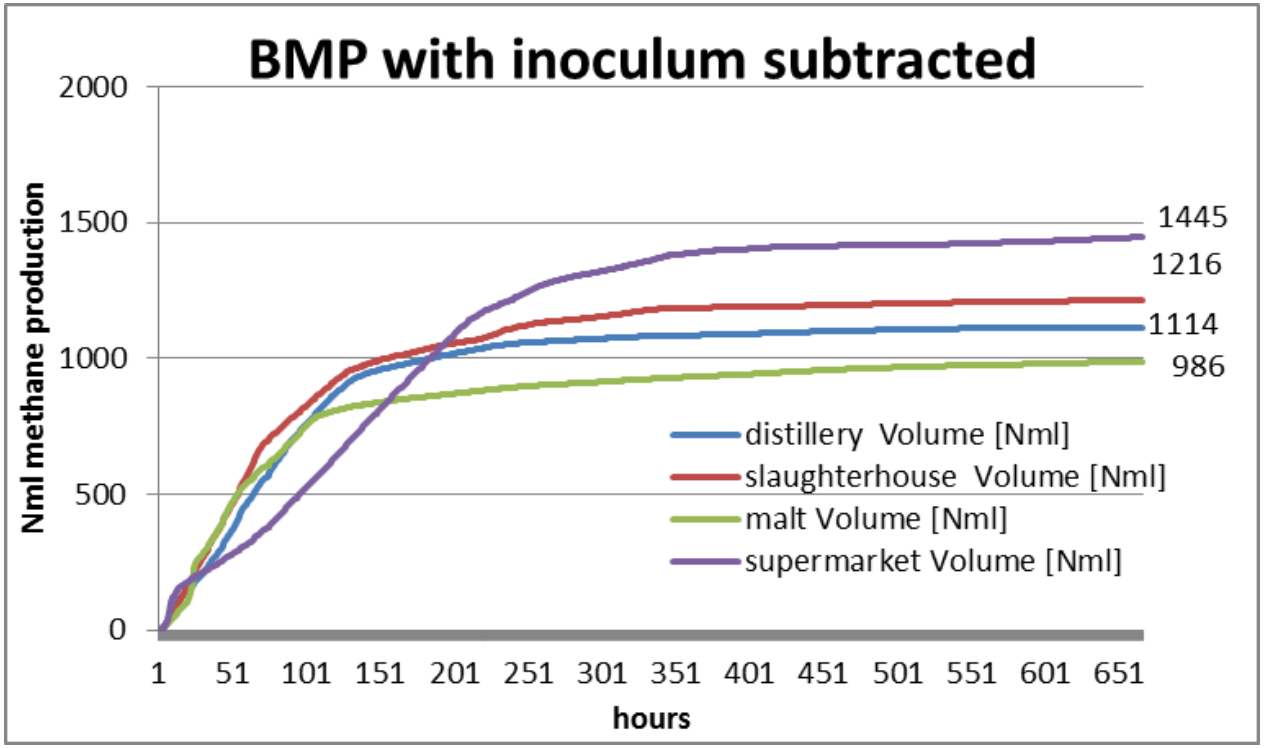
Test no 2:

Biodegradable **industrial** wastes from:

- distillery
- slaughterhouse
- malt production
- supermarket

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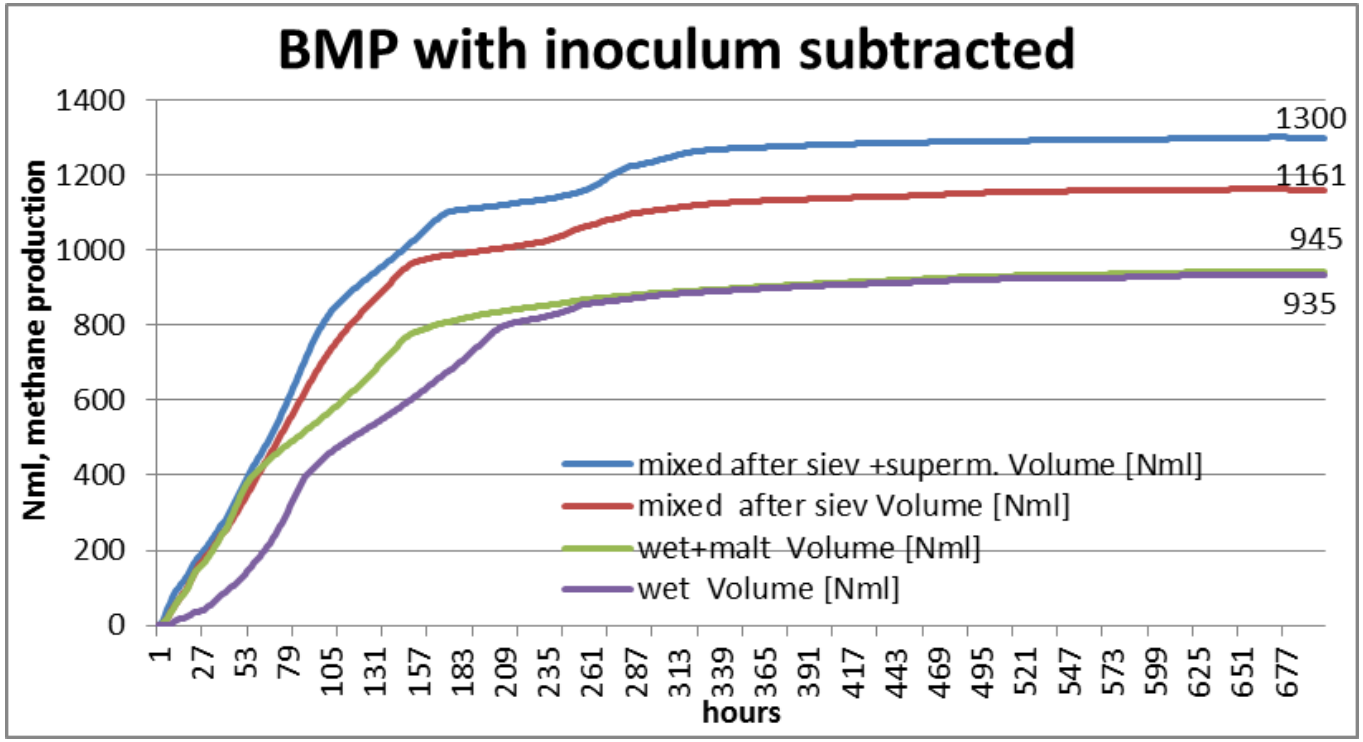
Test no 3 based on results from test 1 and 2, at least 2 **mixtures** of different substrates.

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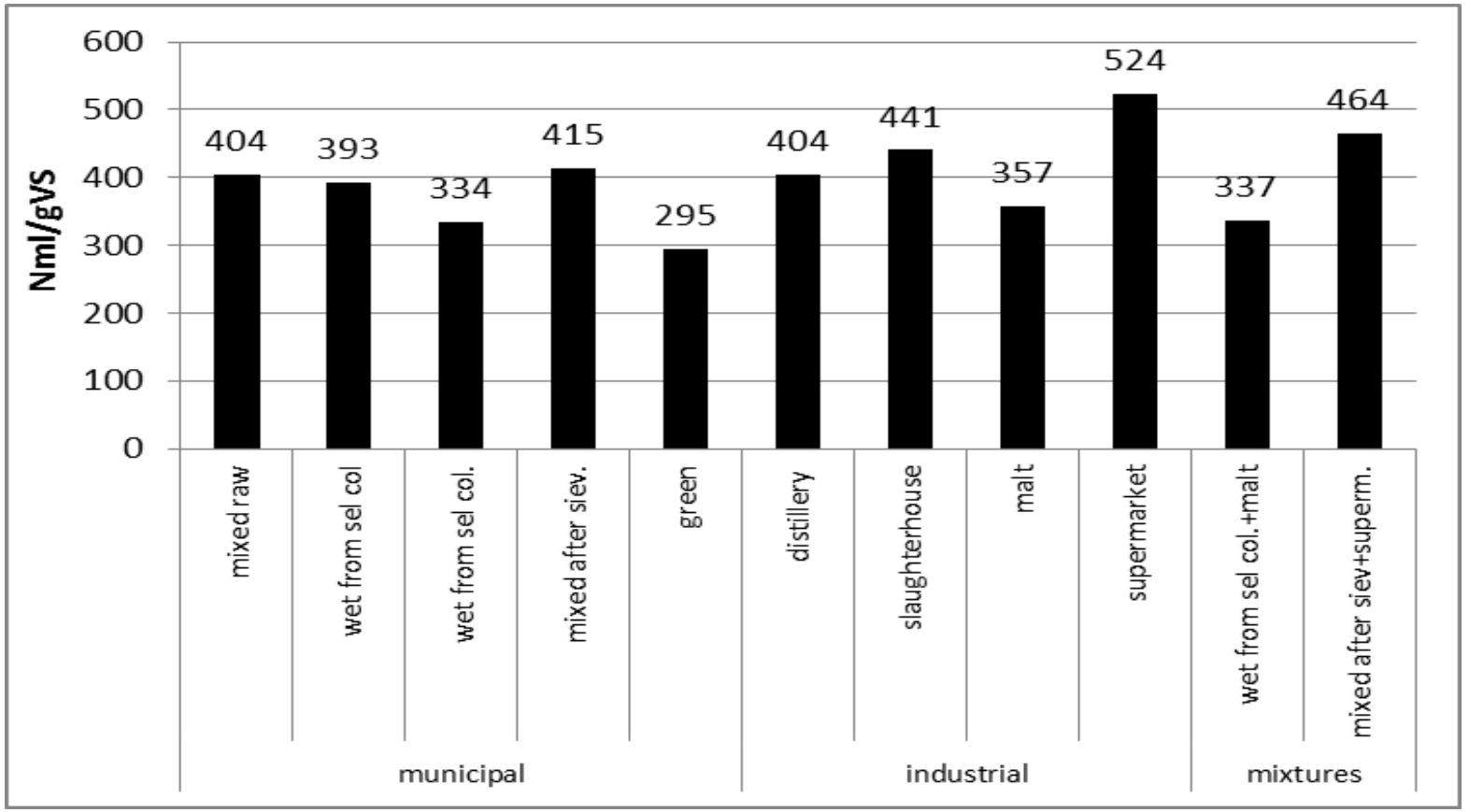


**1 kg of VS** (volatile solids) → **500 Nl of biomethane**

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# THANK YOU FOR YOUR ATTENTION

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