

Analysis of Dry Mass Content of Waste Water Sludge PMV 50 PLUS Microwave Moisture Analyzer Method



The PMV 50 PLUS microwave moisture analyzer is a modern solution used not only in laboratories, but also during the technological process for fast determination of dry residue in waste water sludge. PMV 50 PLUS ensures speed and accuracy when it comes to tests of various samples obtained either by centrifugation, or acquired from press or other technological instruments used in sewage treatment plants. Short analysis duration (barely few minutes) stand for economy and means possibility of control over technological instruments (feedback).



Main Features

- Quick analysis of any sample, free of costly and time-consuming calibration.
 - Reliability – easy-going, accurate analysis lacking any discrepancy due to differences in either consistency or composition of the sample.
 - Touch screen – intuitive, clear user interface, regardless of the experience level of the operator.
 - Volumetric drying - ultra short drying duration.
 - Defined drying programs.
 - Process visualisation and documenting - advanced reports, graphs, statistics.
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Determination of dry residue in waste water sludge was carried out in the Municipal Waste Water Treatment Plant in Radom using a reference method and a microwave radiation method (PMV 50 PLUS). When it comes to the reference method, the sample is heated convectionally in temperature of 105°C, whereas in the case of PMV 50 PLUS moisture analyzer method there is an interaction of the microwave radiation with dipole particles (water) existing in the sample structure. In consequence there might be noted slight differences between the obtained water content results of the same sample.

Sample type	Reference method	PMV 50 PLUS Radwag	Difference	Analysis duration (min)
Digested sludge ⁽¹⁾	6.14 % ± 0.04 %	6.40 % ± 0.06 %	0.24 %	3 ÷ 4
Digested sludge ⁽²⁾	2.86 % ± 0.07 %	3.02 % ± 0.22 %	0.16 %	4.5
Excess sludge ⁽³⁾	4.02 % ± 0.08 %	4.34 % ± 0.07 %	0.32 %	~ 4
Excess sludge ⁽⁴⁾	1.31 % ± 0.05 %	1.50 % ± 0.10 %	0.19 %	~ 4

Sample source

- (1) Flottweg centrifuge
- (3) Buffer storage

- (2) Closed digester chamber
- (4) Open digester tank

Analysis parameters, PMV 50 PLUS	Sludge sample	Sludge between filters
Microwave power: 100 % Sample temperature: 90°C Finish mode: Auto 2 Sample preparation: mixing Method: Sample dried between two filters.		

Summary

PMV 50 PLUS microwave moisture analyzer can be used for determination of dry residue of wastewater sludge in sewage treatment plants.