

ONLINE-TOOL FOR OPTIMIZED  
BUNKER WASTE MIXING AND  
OPERATIONAL MANAGEMENT  
OF WASTE-TO-ENERGY PLANTS

OBOM<sub>a</sub>



Vienna Institute for  
Resources and Waste

## **BACKGROUND**

Waste-to-Energy (WtE) plants are typically receiving a large variety of wastes with diverse combustion characteristics. At present the differences in the composition of the waste received are partly reduced by mixing of the waste in the receiving bunker.

Until recently no method was available to assess the degree of variability of the waste combusted and hence also no controlled mixing of the waste feed was possible.

OBOMa presents the first tool to online monitor the mixing of the waste feed and to subsequently control and optimize it.

## **METHODOLOGY**

OBOMa applies a smart analysis of the flue gas composition and can thereon based assess the waste feed with regard to the content of biomass, plastics and water at high temporal resolution. Variations in the so determined waste feed composition are subsequently used to instruct the crane operator of how to improve the mixing of the waste.

## RESULTS AND BENEFITS

- ✓ Information about the variability of the waste feed composition
- ✓ Current level of operational impairment due to insufficient waste mixing
- ✓ Increased steam production
- ✓ Higher waste throughput and energy efficiency
- ✓ Decreased auxiliary fuel and electricity consumption
- ✓ Reduced air pollution peaks
- ✓ Overall economic benefit up to 400,000 €/year

## REQUIREMENTS

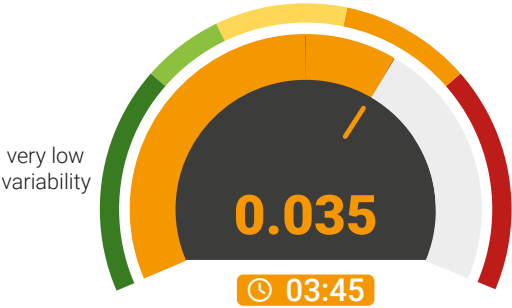
OBOMa requires only operating data routinely recorded at WtE plants to apply the smart analysis of waste composition.

**NO ADDITIONAL EQUIPMENT REQUIRED**

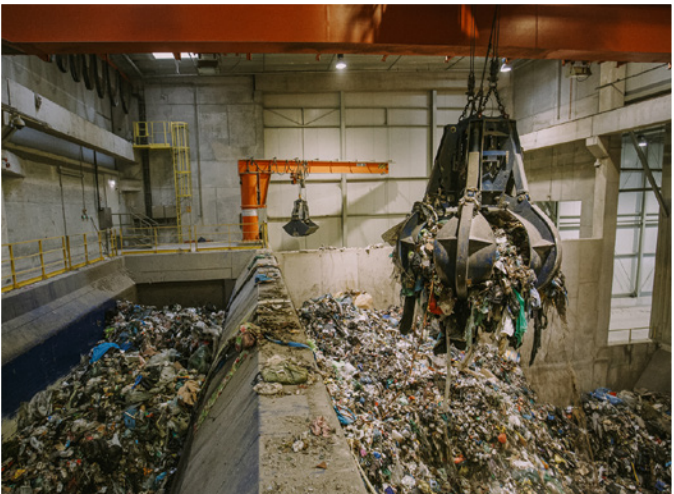
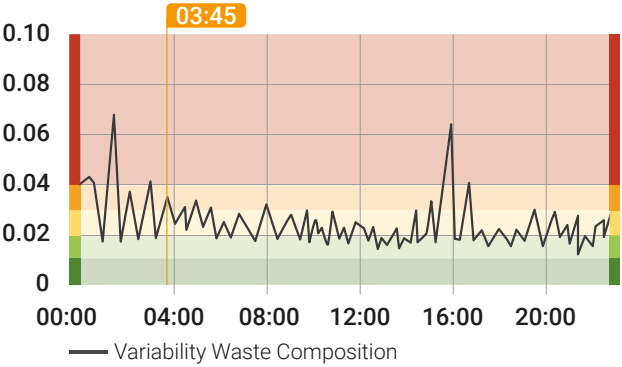
### Required operating data of WtE-Plant

- O<sub>2</sub> and CO<sub>2</sub> content in the flue gas
- Amount of auxilliary fuels (natural gas, fuel oil)
- Steam production
- Steam pressure and temperature
- Temperature of the feed water
- Boiler efficiency

VARIABILITY Waste Composition



VARIABILITY Waste Composition



## ABOUT VIRWa

The team of VIRWa is formed by scientists who have been working in the field of Waste-to-Energy for more than 20 years. Based on our own developments we strive to put innovative solutions for CO<sub>2</sub>-monitoring and operational management of Waste-to-Energy plants into practice.

## SELECTED PUBLICATIONS:

**Fellner, Schwarzböck**, 2021. Performance impairment of Waste to Energy plants during waste delivery times – An analysis of relevant operating parameter. *Waste Management* 124, 303-313.

**Fellner, Schwarzböck** 2021. Performance impairment of waste to energy plants due to insufficient mixing of the waste feed. in: "Sardinia 2021, 18th International symposium on waste management and sustainable landfilling", ISBN: 9788862650267.

**Schwarzböck, Rechberger, Cencic, & Fellner**, 2016. Determining national greenhouse gas emissions from WtE using the Balance Method. *Waste Management* 49, 263-271.



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