

# Moisture Content in Waste-To-Energy

## MoistTech Instant NIR Online Moisture Sensors

In waste-to-energy facilities, controlling the ash residue is a critical concern of plant operators. After combustion, the ash residue that is left, is sprayed with water to reduce dust and odors which is then transported to landfills/moonfills. However, too much or too little moisture can create several problems for waste-to-energy plants. By integrating MoistTech's IR3000 online NIR Moisture Sensor into the process, processors can monitor and control 100% of the ash.



Managing the ash residue is important step for many reasons at incineration facilities around the world. From minimizing the possibility of ash dust inhalation and ingestion of employees, to preventing ash being absorbed into the environment, as well as, to lowering transportation costs due to weight. With MoistTech's NIR Moisture sensor operators will be able to instantly and continuously measure ash moisture and control these problems.

Preventing airborne dust and controlling weight of the ash, MoistTech recommends installing a sensor after combustion and moisture spray. From past installations and depending on the matrix of the ash, the optimum moisture range is 15-18% with a target of 15% for control of dust and weight of the ash. The moisture content lowest point is 12-14% before the ash becomes airborne and above

25% moisture the ash turns into mud that contains surface moisture (liquid) making it very heavy and expensive to haul away.



With continuous online moisture measurement, waste-to-energy plants will find huge money savings. From savings in transportation due to weight of excess moisture, to savings in water usage for dust suppression and clean-up. Plants also reduce the amount of wear and tear on equipment due to the dust and ash build up and prevent blockages on the conveyor resulting in shutting down the boiler.

Typical accuracy is about  $\pm 0.2\%$  for ash moisture applications with a moisture range of 0-30% moisture. The sensor should be installed several inches above the conveyor belt. Once installed operators can continuously monitor the process and control the moisture content either manually or automatically. For monitoring and control, the sensor(s) can be directly connected to the users PLC or any laptop. Ethernet 4-20 ma are included as well as our high-tech Windows operating software. DPM-Digital Panel Meter and a Color Touch Screen Operator Interface are also available as read-out options.

Unlike other instrumentation of this type, some of the unique features of the IR3000 is that can monitor the product even with small gaps in product flow and is unaffected by the ambient light without impacting the accuracy. The IR3000 is also ideal for installations on chain conveyors and screw conveyors. Additionally, since waste-to energy plants can be an extremely dusty environment at times, a small amount of air may be necessary to prevent dust collection on the lens of the sensor.