

EVALUATING FUEL EFFICIENCY:

The Impact of Water Content on Emissions and Sustainability in Energy Production



Water content is a critical factor influencing the efficiency and effectiveness of fuels used for energy production, particularly in coal, wood pellets, torrefaction pellets, and innovative alternatives like Mirá Biotech's BioTerra pellets. Moisture percentage directly affects a fuel's combustion behavior and overall performance.

Coal usually contains around 12% moisture, which diminishes its efficiency and increases emissions. This substantial output indicates the environmental implications of using coal, as higher moisture levels can delay complete combustion and complicate storage logistics, potentially leading to spoilage and higher costs.

Conversely, wood pellets typically have a moisture content of under 10%, which allows for more efficient combustion and lower emissions. Similarly, torrefaction pellets, with moisture content under 3%, offer improved combustion characteristics compared to wood or coal.

Mirá Biotech's BioTerra pellets stand out as the most favorable fuel solution due to their impressively low water content of just 1%. This exceptional emission

profile positions BioTerra pellets as the top environmentally friendly option. Additionally, their production from byproducts promotes a circular economy by utilizing waste materials that would otherwise contribute to landfill issues.

Fuel Type	Moisture Content	Sustainability Rating	CO2 Emissions (kg CP2/MJ)	CO2 Emissions (kg CO2/kg)
Coal	~12%	Low	0.094	1.987
Wood Pellets	<10%	Moderate	0.013	0.2106
Torrefaction Pellets	<3%	Moderate	0.014	0.2716
Mirá Biotech's BioTerra Pellets	1%	High	0.005	0.09405

In summary, while coal and wood pellets face efficiency limitations, and torrefaction pellets show improvements, Mirá Biotech's BioTerra pellets present the lowest CO2 emissions, making them pivotal for meeting sustainability goals and regulations. By utilizing byproducts, BioTerra pellets maximize energy potential and sustainability, positioning them as the optimal choice for cleaner and more efficient energy generation.