NEOS AWARE

Energy Dashboard

Evaluate the energy consumption of your composition

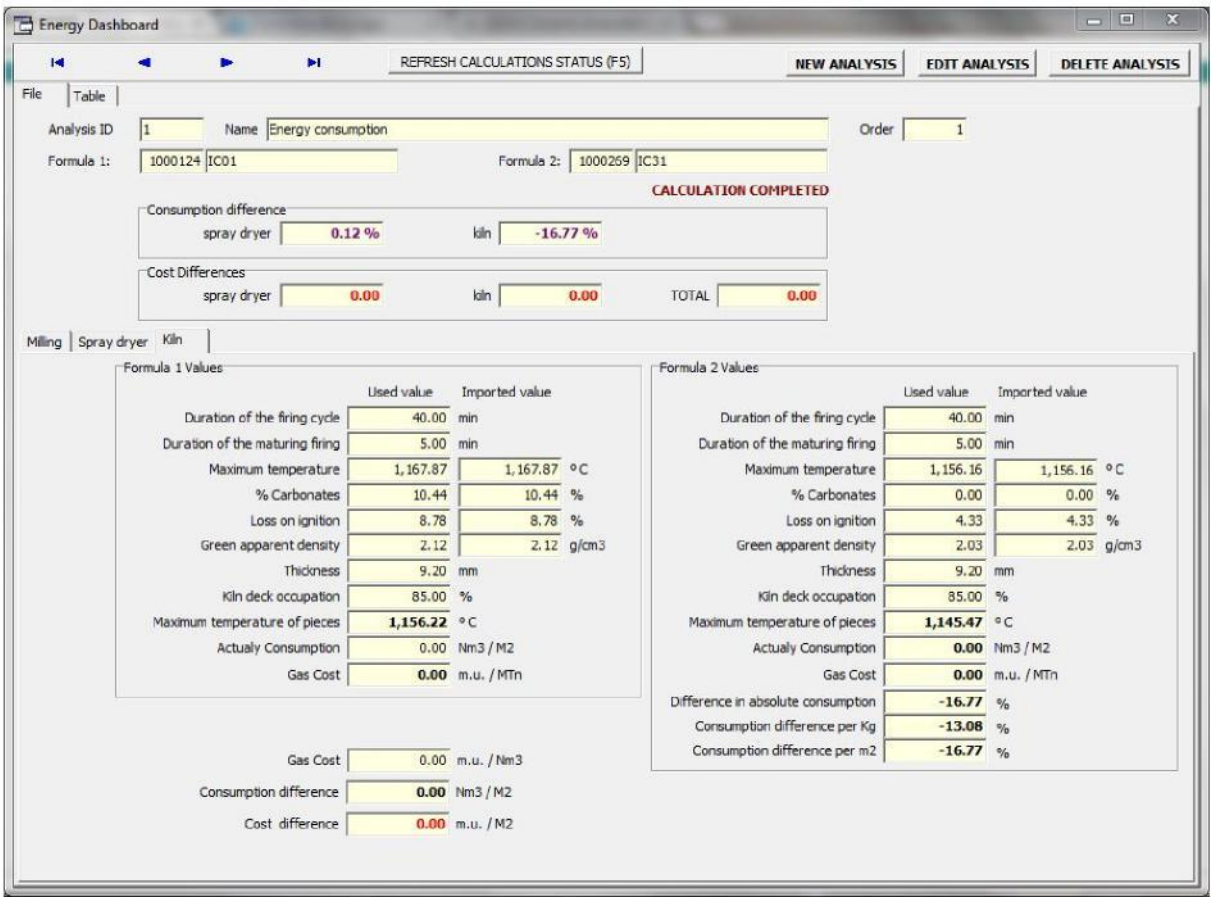
Neos Aware has a powerful module that allows evaluating the energy consumption of a composition against a proposed industry standard composition. This assessment is performed at different production process stages: mill, spray dryer and kiln.

MILL

Ratings milling times, in order to increase productivity with the same energy cost or reduce of milling time with consequent savings of electricity consumption.

SPRAY DRYER

From a real knowledge of the energy consumption in industrial spray dryers, estimated consumption for given composition has been modeled against a standard reference. Thus, you can know the impact of solid content increase, with the consumption of deflocculant and energy required for drying.



Kiln

The kiln thermal model is based on a realistic representation of the many heat exchange mechanisms involved in the tile firing operation. Particular attention has been paid to the radiation exchange between the different parts of the kiln: walls, rollers, tiles, and gas zones. The composition of the gas atmosphere along the kiln, as well as the chemical reactions inside the tile body, are also realistically accounted for. The performance of the model was validated against real kiln data.

A typical kiln was defined so that the user will be able to specify kiln operation conditions in a simple way: sintering temperature, hold time, bulk density, body type, percentage of occupied kiln deck, thickness of the pieces, etc.). The results of the simulation are expressed as percentage of variation in energy consumption for the new composition, in relation to the input reference composition.

With the global trend of insufficiency and rising energy costs, and environmental awareness, the use of this module, enables design compositions with greater reductions of energy consumption and emissions of greenhouse gases to avoid global warming.

In the example a reduction of 17% was observed in the firing energy consumption of the test composition compared with the reference one, which was due to a lower firing temperature, lower percentage of carbonates, and lower green apparent density.

For the development of this module Neos has collaborated with the ITC (Institute of Ceramic Technology).

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