



VAIRON PELLETIZING OPTIMIZER

PROCESS OPTIMIZATION FOR PELLETIZING PLANTS

OPERATIONAL TARGETS

The ultimate aim in pelletizing is to produce consistently high pellet quality at high productivity rates and low conversion costs—while at the same time fulfilling the emission limits imposed on operation.

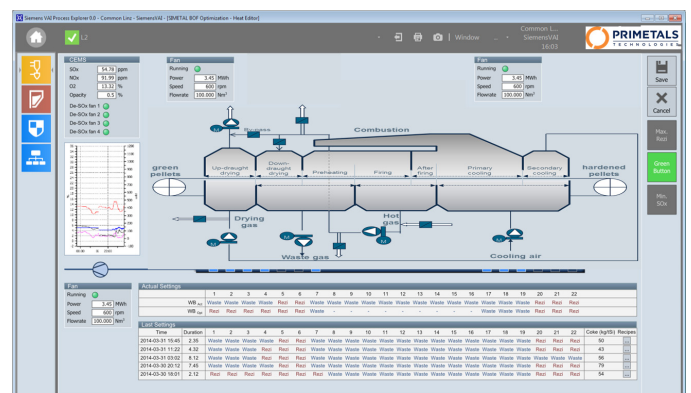
Different shift operators tend to operate the machine in different ways. Equalizing to optimized operational decisions over all shifts will lead to maximum production of quality pellets at minimal production costs.

COMPLEX PROCESS INTERACTIONS

Owing to the mutual interdependence of the different pelletizing process steps, precise simulation is essential to reliable process optimization.

PROCESS OPTIMIZATION

Primetals Technologies has developed the Expert System for pelletizing plants, which is supported by advanced process models that provide additional insight into the process and support operational decisions. The pellets on the surface, the bottom, the walls, and the center faces different process conditions, so the process models predict, evaluate, and track these conditions on a fine-meshed grid in all cross sections throughout the whole process chain. Extended simulation capabilities support the identification of optimal operational points—in order, for example, to optimize the trade-off between the energy supply to the different process steps in the drying and induration zones.





Plant overview HMI of VAiron Pelletizing Optimizer

EXPERT SYSTEM

The Expert System for pelletizing plants models the knowledge of experienced pelletizing process engineers and operators, the cause-and-effect relationships of process disturbances, metallurgical know-how, and the prevailing control philosophy. It thus monitors and foresees the process status, provides graphical displays, counteracts process disturbances, suggests control measures, and explains suggested measures in the form of verbal messages. The Expert System uses the information from the Process Information and Data Management System and the advanced process models to standardize the operation, achieve stabilized product quality, and lower fuel consumption. Thus process-control practice becomes more uniform and efficient across different shifts.

MAIN BENEFITS

- Quality improvement: typical reduction of standard deviation of product KPIs by 5 to 10%
- Increase in pelletizing production of up to 3%
- Energy consumption reduced by up to 4%
- Typical pay-back time of less than one year



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