RECP Best Practices Catalogue

Automate quality control of the Brix concentration

Developed within the framework of MED TEST II

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

switchmed

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SECTOR:	**Food & Beverage**
SUBSECTOR:	Manufacture of other food products
PRODUCTS	Jams, vinegar, honey, condiments and sauces, gherkins and olives, canned fish, table salt.
CATEGORY	Process control or modification
APPLICABILITY	Process

COMPANY SIZE	250

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Description of the Problem (Base Scenario):

The product quality control 'Brix' is manually measured on 8 cooking bowls by the same operator using an instrument (see opposite):
The operator spends time on the following activities:

- Moving between the bowls (COMING and GOING, and movements)
- Visual inspection by manual sampling + manual adjustment if needed
- Impossible to intervene on the other bowls at the same time
- Time lost for the other balls while waiting for the feeding or offloading of a bowl...

This generates a decrease in capacity for the 8 bowls and consequently their productivity (rated capacity = 91 tons, maximum current capacity = 50 tons, which is a utilisation rate of 55% of the total rated capacity)
Misuse of the rated capacities of cooking bowls can lead to overconsumption of energy (overcooking and expectations)

Description of the Solution

The proposed solution is to automate "Brix" monitoring on the cooking bowls, so that there is real time information to ensure their automatic offloading. The company already has this offloading option. This will allow:

- The optimisation of the production cycle of cooking bowls by efficient and fast on the line control, and possibly make faster product corrections
- Elimination of expectations to deal with balls at the same time
- Reduce human resources: 1 operator
- Gain in productivity: 45%

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Economic Gain	Gain in capacity estimated at + 45% compared to rated capacity = 91 tons/day, current capacity: 50 tons/day, or (91 - 50)/91 x 100 = 45% Which is an improvement in productivity of 45% (or 5,472 tons/year) of additional production with an added value of 45 €/ton →Gain = 246,240 €/year The capacity or loads of the bowls will not be changed! With regard to these capacity gains, there will be significant energy savings related to overcooking and the controlled delays of the 8 bowls that remain in continuous heating: this savings could not be estimated because of the lack of energy meters in this cooking zone. A recommendation has been made in this direction for a better evaluation of the actions.
Environmental Gain	Energy: Lower energy consumption per ton, by eliminating additional heating times for overcooking and controlled delays.
Health and Safety Impact	Less risk of accidents for operators

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Investment and Financial Indicators	A feasibility study must be completed Cost for 8 Brix testers is estimated at around 36,000 € Or at Time for Return on Investment of 2 months
Suppliers	automation equipment suppliers
Other aspects	Positive impact on quality
Implementation and New Indicator	Planned for the end of 2018