

RECP Best Practices Catalogue

*Automation of the sugar offloading at the mixer
Developed within the framework of MED TEST II*



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION



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Best Practice - Automation of the sugar offloading at the mixer

SECTOR:	Food & Beverage
SUBSECTOR:	Manufacture of other food products
PRODUCTS	Vinegar, jams, honey, condiments and sauces, gherkins and olives, canned fish, table salt.
CATEGORY	Technology upgrade/Eco-innovation
APPLICABILITY	Process
COMPANY SIZE	250

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Description of the Problem (Base Scenario):

The current transfer of sugar from the storage area is done manually via forklifts; the loading is done by operators then will be discharged into the mixer by operators.

Among the consequences of this situation:

- Loss of material (sugar) on the order of 2%
- Decrease in productivity
- Generation of sugar packaging waste

Description of the Solution



The solution is to set up a silo for the storage of bulk sugar using a pneumatic transfer system.

The proposed solution will allow:

- Eliminating material losses on the floor when loading and unloading in the forklift (about 2%)
- Reduction in human resources (productivity): 4 operators
- Respect moving forward (avoid crossing streams)
- Gains in floor space: 66 m² (current bag storage area)
- Better working conditions
- Gain in productivity: Nominal capacity of the mixer = 82 tons/day for an average current production of 50 tons/day, or a gain in capacity of 32 tons/day.

If we target 50% of this gain, that is 16 tons/day; the gain after automation of the sugar transfer becomes $16/50 \times 100 = 32\%$

In the photo, opposite, is an example of the solution to transfer the sugar by suction or through the use of Big Bag instead of 50 kg bags.

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Economic Gain	<p>Cost of loss of sugar on the floor = nearly 76 tons/year (Cost = 30,780 €) Gain in floor space: nearly 66 m² (66 x 45 €/m²/year = 2,970 €/year) Gain in productivity of 31% (15.6 tons per day); equivalent to 3,744 tons/year (to be determined by average monthly sales) Gain in the well-being of operators: elimination of manual handling Gain in human resources = 960 days/year (the cost = 14,256 €) Total potential gain of € 48,490/year</p>
Environmental Gain	<p>Eliminate losses of sugar on the floor during unloading which is estimated at 76 tons/year Reduction of packaging waste following the disposal of 50 kg bags (around 72,000 bags consumed per year)</p>
Health and Safety Impact	<p>Reduced risk of accidents due to the handling of 50 kg bags by the operators</p>

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Investment & Financial Indicators	Feasibility study by a food expert and implementation of the solution Estimated budget on the order of € 90,909. Time for Return on Investment: 1.8 year
Suppliers	Not Applicable
Other aspects	Automation will provide a good quality product, through: <ul style="list-style-type: none">• Dosage control and• Dispensing with manual sugar handling
Implementation and new indicator	Scheduled for 2018