RECP Best Practices Catalogue

Minor Modification to the setup of slurry reactor

Developed within the framework of MED TEST II

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

switchmed

The SwitchMed Programme is funded by the European Union

Best Practice – Minor Modification to the setup of slurry reactor

SECTOR:	Chemical and Pharmaceutical
SUBSECTOR:	Manufacture of soap and detergents
PRODUCTS	Detergents in powder, liquid, paste, bleach
CATEGORIES	Process control or modification
APPLICABILITY	Process

COMPANY SIZE	Average (254 employees)

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Description of the Problem (Base Scenario):	The tank is cleaned once a week. It is noted that after 2 days of production there is already significant fouling, so root cause analysis revealed: • The product remains in the bottom of the mixer because the cone angle of the bottom is not sufficient. • By introducing water, the wall is cleaned perfectly at the point of impact. Soda and acid is added to the blades of the mixer. • It is important to note that the cleaning operation generates solid and liquid waste which are recycled in a rework tank and reused up to a certain percentage in the preparation of the new slurry.
Description of the Solution	• It is therefore necessary to spray the water in 2 or 3 directions to impact and clean the entire periphery. • The tubing must move tangentially along the wall so as to ensure a homogeneous mixture of reagents. This will allow there to be a homogeneous slurry, uniform pulverisation and a stable final product density with uniform granularity at a sustained production rate.

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Economic Gain	An increase in production of 1%, or 144 tons/year, using the same amount of energy; thus a gain of: Electricity: 124,315 x 1% = € 1,243/year LPG: 473,073 x 1% = € 4,730 Or a total of € 5,973
Environmental Gain	Electricity: 12,817 KWh LPG: 8.35 tons A reduction of GHG of 34.76 tons of CO_2
Health and Safety Impact	Positive impact on operator safety

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Investment & Financial Indicators	Pipe Suppliers € 450 Workforce: € 360 Work is planned on being carried out during a production stoppage in the workshop. Consider protecting the scales if there are welds (Time for Return on Investment: 1.5 months)
Suppliers	Pipes are supplied on site and assembled by the factory staff.
Other Aspects	No technical obstacle is to prevent putting into place a good practice. This action will also make it possible to keep control of the powder density and consequently of the finished product
Implementation and New Indicator	The action was already carried out at the end of 2017. New indicators not yet communicated by the company