IIOT IN ACTION:
A LIME INDUSTRY CASE STUDY

TURIN - 19TH JUNE 2017
IIOT WORLD TOUR EVENT SERIES

#QUALICAL
INTERNATIONAL LIME INDUSTRY
DIGITAL TRANSFORMATION

Intelligent Machines  Advanced Analytics  People at work

= Availability  Quality  Config  Fuel  Power
DIGITAL PRODUCTION EXPERIENCE

DIGITAL LIME PLANT
the lime industrial company.
that’s also a digital company.

MOSAICO
right information. right hands. right time

QualiTEAM
from reactive to proactive
DIGITAL PLANT

178.5 mg/Nm³
86.5°C
52.7°C
318 mbar
259 mbar
DATA SCIENCE
MOSAICO ... EN MARCHE!
CUSTOMER STORY MATTER

calcis
ROHSTOFF FÜR IDEEN
“HOW MUCH DOWNTIME IS IDEAL? ZERO SOUNDS GOOD.”

**MOSAICO ZERO_app**

- Reduce unplanned downtime
- Optimize maintenance costs
- Smart pro-active maintenance plan
ZERO APP
UNPLANNED DOWNTIME

Unplanned Downtime

Tasks

Reports

Plans

Capture

Notifications

MAINTENANCE PLANS

Active

1. P1_ALM_0579
   K1ZV220.2 / SHAFT 2 LIMESTONE
   LOADING VALVE / WRONG POSITION
   5 h

2. P1_ALM_0578
   K1ZV220.1 / SHAFT 1 LIMESTONE
   LOADING VALVE / WRONG POSITION
   3 h

3. P1_ALM_0673
   QUICKLIME EXTRACTION / TOO FAST
   10 m

4. P1_ALM_0672
   QUICKLIME EXTRACTION SHAFT 2 / TOO SLOW
   4 m

Archived

- CAL_SYN40.COM.AIRXS.BL...
  Contact Aerzen for blower revision

- GENERIC.ITEM
  Check crash of the App on TOBIAS's task

- CAL_SYN40.WFS.WFSX.SIL...
  Verify filter bag

- CAL_SYN40.FIR.ABCXS....
  ABACO cooling system failure

- CAL_SYN40.BUR.KFUXS....
  Channel Thermocouple damaged?

- CAL_SYN40.COM.AIRXS.AF...

11,065.44 €
in production losses

based on quicklime price of 100 €/t
OPERATIONAL OUTCOME

- Minimized Unplanned Downtime
- Reduced time to restart the plant
“HOW MUCH FUEL SHOULD I USE? JUST THE BARE ESSENTIAL.”

MOSAICO ABACO_app

Increase the burning and combustion:

- Save fuel by reducing the unburned quantities
- Improve product quality
- Reduce thermal losses from the kiln
- Minimize environmental impact
ABACO APP
ADVANCED BURNING & COMBUSTION OPTIMIZATION

Combustion Efficiency
- 96.5% (Last 1 day)

CO [Vol%]

Waste gases air flow [Nm3/h]

Nominal Production [tpd]

5,888.57 € in fuel losses
based on a fuel price of 0.2 €/kcal
OPERATIONAL OUTCOME

• Combustion Efficiency: +2.5%
• Fuel Consumption: –6,000 €/month
"ENERGY SAVED TODAY IS ASSET FOR FUTURE."

MOSAICO

AERO_app

improvement in blower’s reliability and electrical consumption of by:

• Optimizing blowers operating conditions,

• increasing their lifespan

• Recognizing in advance sign of failures of the blowers

• Suggesting predictive fine – tuning to minimize electric consumption
AERO APP
ADVANCE PROCESS AIR MANAGEMENT

Air supply Efficiency
81.1% ± 1%
Last 1 day

EAN [#]
- 2.0
- 1.3
- 0.7

delta EAN [#]
- 2.0
- 1.3
- 0.7

Combustion air pressure [mbar]
22,067.18 €
in energy losses
based on a fuel price of 0.07 €/kWh
OPERATIONAL OUTCOME

• Air Supply Efficiency: +26%
• Electrical Consumption: −500 €/day
PERFORMANCE & RELIABILITY CENTER
CONCLUSION
#INNOVATION
“THINK ABOUT THE FUTURE. IT WILL BE HERE SOON ENOUGH”
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THANK YOU

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INTERNATIONAL LIME INDUSTRY