Ensure proper cleaning and sterilization procedures and accurate data

SIMATIC Ident

**Definition**
In the case of a typical food and beverage manufacturing facility, containers need to be sterilized on a cyclic basis, and have that data reported to both internal and external users.

**Problem / Pain Point**
Validation schemes require reliable updating and acquisition of real-time data pertaining to the when and how often the containers need to return to the sterilization process.
- Regulations require cleaning validation
- Manual validation schemes are costly
- Improperly sterilized containers in process are unacceptable and are especially costly

How can we apply an enabling technology to assist us in driving the sterilization process and guaranteeing the integrity of the associated data for reporting purposes?

**Product List:**
1. PLC Controller
2. Operator Light Stack
3. UHF Stationary Reader
4. UHF Antennas
5. UHF Transponder (high-temperature to withstand sterilization process temperatures)
6. Host Computer with Relational Database (optional)
Container sterilization and reporting

Solution

By reading the unique EPC ID on an RFID tag affixed to each container, it is possible for a data lookup to occur which informs the control system at each process when the container requires sterilization. For instance, before a handling procedure at a mixer station, sterilization status could be verified. After the mixer process, the control system could check handling count then inform the database if the container needs to be routed to sterilization. In simple cases where a relational database is not required for reporting, the process cycle counts may even be stored directly on the RFID tag.

At any given time, notification via an operator light stack can be made to plant personnel regarding the container’s sterilization status.

Benefits

- 100% reliable identification and verification of containers
- Unobtrusive technology
- Transponders can be covered in food grade dust and still be read (non-line of sight)
- Straightforward, feature-rich integration to control systems

Figure 1 – Process flow diagram involving RFID in sterilization

Figure 2 – RFID system at a mixer process

Published by Siemens Industry, Inc. 2016.
Siemens Industry, Inc.
5300 Triangle Parkway
Norcross, GA 30092

For more information, please contact our Customer Support Center.
Phone: 1-800-241-4453
E-mail: info.us@siemens.com
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Order No.: FSFL-FBSTR-0816
Printed in U.S.A.
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