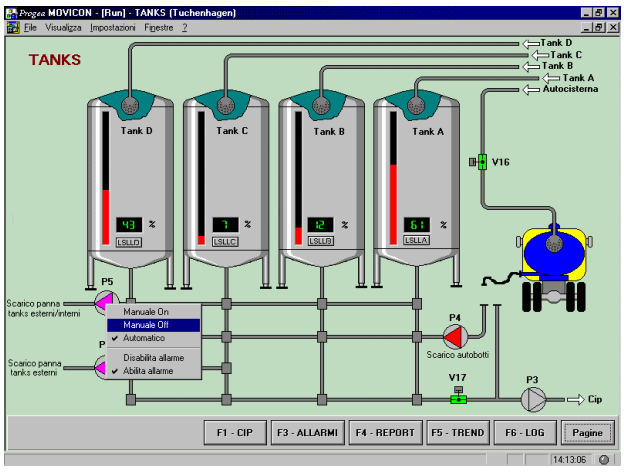
Sanitization becomes a state-of-art

A sophisticated sanitization system applied to Unigrana, a dairy leader-company in Italy.

All the food and beverage production processes must have a part of the plant dedicated to sanitization and hygiene in order to ensure the quality of semi-finished or finished products: the system used for this wash process is called CIP (Clean In Place). This part of the plant requires a specific and sophisticated technology capable of ensuring perfect sanitation of tubes, vessels, valves, tanks and any other components involved in the plant machinery for producing not only liquids for human consumption but also chemicals or pharmaceuticals.



The commands are listed and activated from drop-down menus. Movicon is fully compatible to the Windows standards.

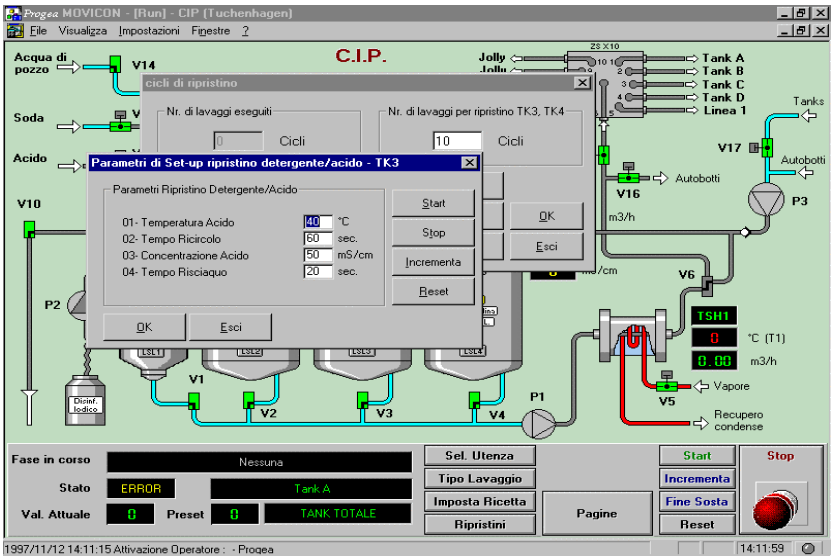
No company can allow the risk of contamination of products destined for human consumption. The consequences of this happening would be devastating for the company as well as a criminal act. Certain public offices, such as the NAS and USL, carry out regular controls to ensure that companies meet the hygiene and sanitation standards required for protecting the public against food poisoning.
This is where Tuchenhagen Italy from Parma, a branch of the a leading German GEA company, steps in by providing those companies which

manufacture food and beverage products with their high technology and experience.
An example of a modern and technical state-of-the-art CIP system can be found at Granterre Scrl., a company based in Italy and belonging to the Unigrana group who operate in the dairy products sector, leader in Parmesan cheese (Parmigiano Reggiano).
The CIP system was recently applied to their already existing creamery production plant system.

How the system works

The system has a normal PC-PLC architecture aided with remote operator workstations. The PLC used is from the SIMATIC family and the PC has been installed with Movicon, the SCADA/HMI software platform from Progea.
The CIP system's task is to sanitize all the components used in the production process according to the different process sequences providing wash solutions with iodic disinfectant (DESI) and acid and alkaline (Acid and Soda) solutions.
During the sanitization stage, the wash solution is constantly controlled and monitored to verify conductivity, levels (output and return) and temperatures to ensure complete hygiene safety.
Particular care has been given to the tank truck wash, where driver's can receive and automatically execute the wash recipes most suited to their vehicle by entering their assigned id code (vehicle number plate) in the alphanumerical touch screen terminal at the reception station.
The PC station is the plant's heart. By using the supervisor pc the operator can monitor and control the plant using screen pages showing the CIP system in action and the areas where the production plant components are being washed.
The operator can clearly monitor each phase's realtime and setup parameters, actuator statuses of the automated processes while being run. Tubes have been purposely given different colours to make it easier and quicker to identify and monitor the different wash solutions along their different paths.

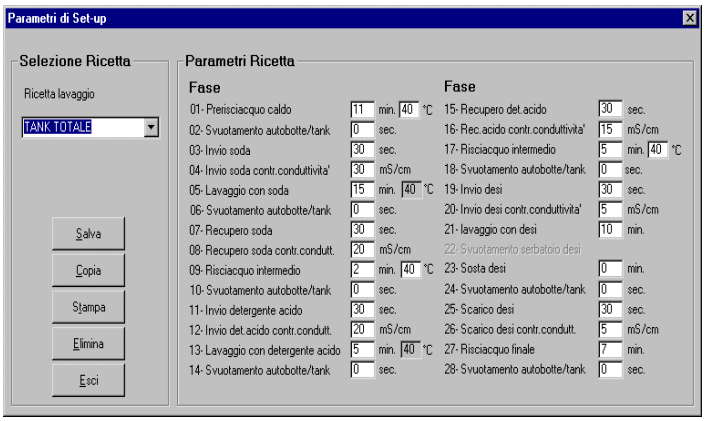
The very userfriendly commands are provided by the supervision platform using the Win32 environment and, as in this case, Windows 95.
Each component's manual commands can be activated or alarms masked by using the drop-down windows displayed with a click.
The wash parameters are set through dialog windows, which show the various parameters or setting options, phase by phase. The wash



One of the Movicon application screens for supervising and controlling the diary sanitization system

parameters can be grouped into recipes, allowing the operator to easily customize the sanitization processes with great flexibility and openness. This allows the client to quickly adapt the sanitization processes to the different existing and future production requirements.
This type of management also allows clients to activate the wash type according to the vehicle code entered in the touch screen reception terminal without requiring any assistance from the main PC room. This is very handy for late night arrivals allowing them to wash their vehicles safely at all hours of the night. All manual commands, parameters and command setups relating to resets are protected by a password management which, in merit to the powerful supervisor functions, allow to identify and record names of logged on operators as well as many other things.

The end clients must document each wash with all details as required by procedures stipulated in the UNI-EN ISO9002 requirements



An example of the CIP system's wash parameter settings. Solutions are provided in the form of recipes to allow maximum management flexibility.

for which the system is certified. The system therefore manages sanitization reports, by recording and supplying printouts on purposely designed forms containing the wash date, start/end time, type, components washed, id code if vehicle and any anomalous cycle terminations. In addition to these reports all the significant sanitization values to do with conductivity, levels, flows and temperatures, are recorded by the historical Trends (values are only recorded when cycle is in run mode). Alarm and Event logs work concurrently to guide the running of system, even though small in size, contains all those features found in big systems and, in a sense, anticipates the use of those functionalities often left astray in big systems.

Conclusion

Tuchenhagen's experience in food, beverage and sanitization process systems has permitted them to create simple and efficient state-of-the-art CIP applications. The capability to document the sanitization processes is a product quality and hygiene guarantee to allow clients to fulfill all the management tasks appointed to them. The Openness and flexibility of the parameter management allows sanitization to adapt easily to the production procedures with no hidden costs involved. The choice of using a system based on a PC with the Movicon platform for Microsoft Windows environments guarantees future system expandability and the possibility to integrate production data with company managerial data at no extra cost.

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