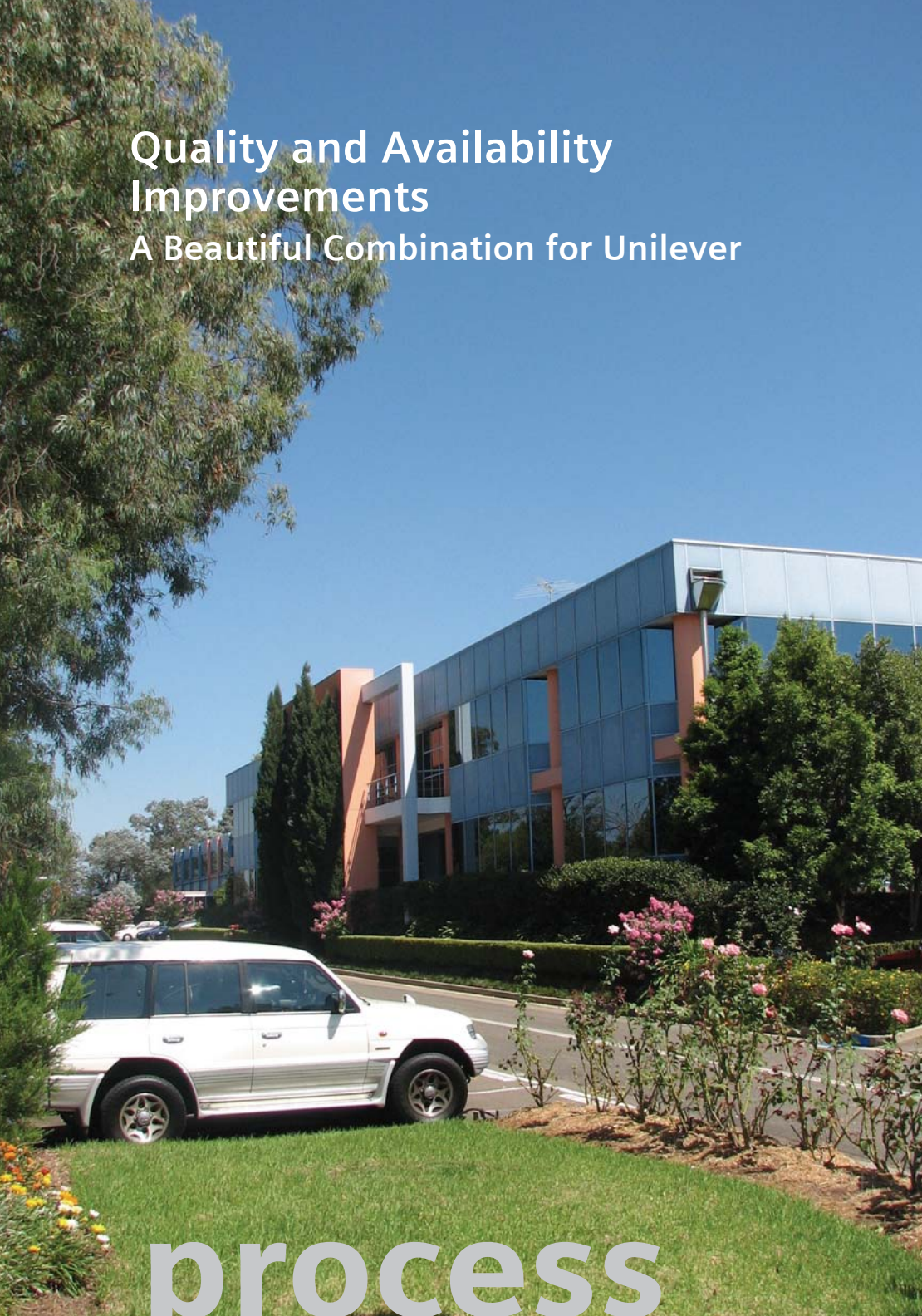


# Quality and Availability Improvements A Beautiful Combination for Unilever



process  
AUTOMATION

Unilever Australia is a leading supplier of fast moving consumer goods providing Foods and Home and Personal Care Brands in Australia and New Zealand. Examples of leading brands include Continental, Dove, Lipton, Lynx, Omo/Persil, Rexona, Streets, and Sunsilk. Their long term success requires a total commitment to exceptional standards of performance by combining economic growth with sound environmental management. With this in mind, the North Rocks site, Sydney, decided to improve the performance of their health and beauty mixing plant and aerosols plant through updating their process control systems.

The North Rocks site is responsible for the manufacture of personal health and beauty products, aerosols, liquid detergents, and cleaning products. With the market for fast moving consumer goods being more competitive and cost-sensitive than ever, maintaining optimal productivity and availability is critical to the future of every site. "Manufacturing pressures on sourcing continue to increase" according to Matthew Leys, Project Engineer at North Rocks. "There is a significant need to improve the efficiency of the plant, while at the same time reducing costs. This is critical when looking to secure the long term viability of the plant."

**SIEMENS**

### **Downtime, Quality Issues & Bottlenecks**

Such pressures led Unilever to review the control strategy for North Rocks in 2002. Led at the time by Fiona Fong, Unilever identified a number of areas for improvement. Of particular concern was the health and beauty mixing plant that suffered from downtime and variation in some product quality. The plant had also been identified as a bottleneck which was restricting the overall throughput of the plant.

The review also revealed a need for standardization across the site to ensure existing and future operations personnel were fully conversant with the automation and operations environment. However, despite such compelling needs for change, there was a limited budget available.

### **Protecting Investment & Standardization**

In the early 1990s, Unilever installed Texas Instruments 505 controllers with Fix HMI and batching system. Towards the end of the decade, the reliability of this mix, combined with changes in the product range, led to production problems caused in part by its non-integrated nature and the need for manual intervention in the process. Such factors led to the decision to change their control strategy. Having evaluated several control solutions, Unilever decided to proceed with the Siemens SIMATIC® PCS 7 process control system while utilizing the existing TI-505 I/O. "System I/O counts for a large proportion of the capital outlay on a control system, with its life expectancy often exceeding that of the controller and HMI components," according to Daraius Battiwalla of Siemens. "With TI being part of Siemens, it was relatively straight-forward to integrate this I/O with PCS 7, thus ensuring Unilever benefited from maximum return on their original investment".

Faced with a limited budget, Unilever decided to develop the application code in-house, with support from Siemens. This made sense for Unilever which was looking not only to control the costs of the project, but also wished to develop their own in-house expertise. It also ensured that they could confidently look beyond the health and beauty mixing project, and take a site wide view for upgrades and standardization centred on PCS 7.

Unilever also made the decision to use the ISA S88 compliant PCS 7 batch engine, SIMATIC BATCH, in order to improve product consistency and reduce cycle times. As a relatively new product, SIMATIC BATCH and the need for S88 compliance presented another set of challenges for the Unilever engineers. However, with the aid of Siemens engineers, the intuitive design of the product and its tight integration with PCS 7, initial concerns proved unfounded.

The batching system proved central to obtaining process improvements and ensuring compliance with TGA (Therapeutic Goods Administration) requirements. Unilever was, however, looking well beyond current requirements and ensuring that they implemented a solution that could handle future legislative change. For this they found the flexibility, traceability, and reporting power that PCS 7 and SIMATIC BATCH provided, ideally suited to handle change.

### **Confidence**

Successfully delivered within a twelve-month time-frame, Unilever moved on to the next phase of their plan; upgrading the aerosols plant. Although the system was smaller than that of the health and beauty plant, it was, however, presented with the challenge of only having a third of the timeframe for completion.





Again the decision was made by Unilever to deliver the project through their in-house engineering team. With significant expertise having been developed while undertaking the health and beauty project, confidence was high despite the challenging timescales. With standards that had been developed during the first project, the team set to working on the aerosols project, buoyed by the knowledge that "the process of design is fairly intuitive with PCS 7," according to Matthew.

#### **Significant Returns**

Again, delivered on time and within budget, Unilever is satisfied that they are now reaping the rewards of integrated process control and batch architectures. Not only does Unilever now have a common operator environment across the two plants, with the benefit of reduced training costs, they have also seen a significant reduction in the time it takes to identify and resolve process problems. Reporting and the provision of live plant data to ERP systems has also been simplified, thus providing a higher degree of accurate process data for planning purposes.

More tellingly, however, is the hard evidence uncovered on examining the significant returns on investment in the short time since implementation. Quality of the product has improved with the RFT (Right First Time) figures

showing an increase in excess of 15%, plus a rise in OME (Overall Mixing Efficiency). Batch cycle times for shampoo have also been reduced showing an improvement of 13% over the previous system, not only demonstrating greater efficiency, but also providing Unilever with the opportunity to increase overall productivity.

Probably the most telling result from the move to PCS 7 has been the dramatic improvement in plant availability. Unilever monitors all aspects of the processes rigorously to identify potential problems. Monitoring computer and control system downtime has provided an accurate assessment of the improvements since PCS 7 was installed which show a reduction in downtime approaching 90%.

Such returns have not only justified Unilever's original decision to use PCS 7 and SIMATIC BATCH, but have also given the confidence to expand the system into other areas for the future. "Due to the reliability and flexibility of PCS 7 and SIMATIC BATCH, we have decided that the most sensible way forward is to incorporate additional process equipment into the system," says Matthew – an approach which goes a long way to meeting the 'commitment to exceptional standards of performance' expected by this forward thinking organization.