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**Giuseppe Fracchia**  
BP Castrol's Plant  
Operations Manager



## Wonderware Production and Performance Management Solution Speeds Up Production and Competitive Racing Machines Fuelled by BP Castrol Oil

**Cornaredo, ITALY** — Whether you are whipping around a hairpin curve in a Formula One racer, or hitting 200 mph on a multimillion-dollar, handmade MotoGP prototype, there is something very special about racing cars and motorcycles as competitive machines. The engines of extreme-speed racers are not the same as those of a passenger car or touring chopper. This is why BP Castrol, one of the world's leading engine oil companies, manufactures a series of products specifically engineered to meet the unique needs of these high-performance engines.

The BP Castrol plant in Cornaredo, Italy, produces a variety of lubricants and two- and four-stroke oils for different kinds of racing cars and motorcycles. Using the latest production and performance management software tools from Wonderware, a business unit of Invensys, the plant produces oil to supply the entire European market and also exports to North America, South America and Japan.

With global demand for specialty oils and lubricants skyrocketing, BP Castrol needed to increase plant capacity and turned to production and performance management solutions from Wonderware. The solution was delivered through Beta 80 Group, Wonderware's distribution and integration partner in Italy.

"Prior to deploying Wonderware, we were producing about 10 million liters of racing oil per year, which wasn't enough to satisfy increasing customer demand," said Giuseppe Fracchia, BP Castrol's plant operations manager.

"With rising market demand, we needed to increase productivity and increase the volumes we produce. Otherwise we run the risk of losing market share. It was pretty clear to us that the best way to achieve this was to deploy a new performance management system that would help make sure we were getting the best possible efficiency rates from our facility.

"This project has been a tremendous success. Today we are producing almost 40 million liters each year - four times our previous output - and we're are doing so with the same staff as before."

All racing oil products start with the same basic ingredient: raw crude. Oil arrives at the plant by truck and is then pumped into a series of tanks where it is mixed with a blend of chemical additives. These additives control all aspects that make the oil unique and enable it to meet the particular needs of racing engines. Additives control viscosity and help prevent the oil from breaking down when exposed to the incredibly hostile environment inside an engine at high RPMs.



**Castrol Racing**

The Cornaredo plant, located at the base of the Italian Alps just outside Milan, produces 20 different base racing oils for different types of engines and with different requirements. Wonderware's production and performance management software manages this complex manufacturing process. Each oil has its own recipe, some of which may demand up to seven different additives. These different oils also might need to be maintained at different temperatures and added at different points in the blending process. The blend is then heated until it reaches the mixture-quality called for by the particular recipe.

Colorants are then added and a sample is drawn and tested to ensure batch quality. This is done primarily to make sure the pipes and tanks are all properly cleaned between batches and there is no cross-contamination from different oil blends. Finally, the batch is transferred to the filling lines where it is packaged and readied for shipping.

Wonderware's production and performance management software includes a portfolio of fully integrated applications that enable BP Castrol to run highly efficient manufacturing operations and information management processes. These applications cover a wide range of critical functionalities including batching, tracking, system monitoring, downtime analysis, quality assurance, and integration to business systems.

Of particular importance to BP Castrol is Wonderware's InBatch flexible batch management software, which provides numerous tangible performance and efficiency benefits including increased production and improved product quality.

InBatch software automates all elements of batch management - from comprehensive batch execution and equipment history to material genealogy, security and Web-based reporting. InBatch software can also help the company create applications that meet stringent international regulatory standards for the ISA-S88 flexible batch standard and FDA 21 CFR Part 11.

At BP Castrol, InBatch software automates production processes and enforces strict adherence to recipes. The recipes critical to the blending process, and the management of additives, are maintained within the InBatch software, which makes sure that the right steps are taken in the right order to maintain consistent product quality. In addition, InBatch software simplifies the change from one recipe to the next, reducing the amount of time it takes to get back to full production after a change.

BP Castrol relies on InBatch software to manage all aspects of mixing and blending, from the time the base oil is poured into the blending tanks, to the process of flushing and cleaning the tanks and pipes between batches.



**BP Castrol worker in control room**

"The new Wonderware InBatch system has been instrumental in helping us improve production," said Teresio Peri, a technical operator at BP Castrol. "While in the past it was necessary to bring production to a complete stop between batches, it is now possible to produce one mix while we are transferring another. In the past we had to completely finish a mix first, including the transfer, before we could start the next one."

"Now, while we are transferring a 19-ton mix we can start a seven-ton mix or we can start to pump the additives to produce another 19-ton mix. The new system enables us to keep the equipment operating when it used to be idle. In this way InBatch software reduces production and transfer times and increases the productivity we get out of the same equipment."

In addition to the InBatch software, BP Castrol deployed Wonderware's InTouch human-machine interface (HMI) and InControl real-time control software. The InTouch HMI enables users to visualize critical plant-floor operational data and then use that information to control industrial processes. The InControl software ties it all together, providing an integrated control and scripting solution that replaces proprietary control systems with an open system based on Microsoft's Windows NT operating system. This results in cost-effective integrated connectivity, powerful processing capabilities and easy expandability.



Hi-Performance Race Cars

## Future Plans

So far, Wonderware's production and performance management software has been rolled out in BP Castrol's mixing area -- and the company is already working to bring the filling and packaging areas under the umbrella of the new system as well.

According to Fracchia, the long-term goal is to have all areas of the plant controlled by the same system. He credits the Wonderware software solution with increasing production from 10 million liters of racing oil per year to almost 40 million liters per year and sees great potential for the other areas of the plant.

"This technology is going to be a big part of the future of this plant," Fracchia said. "The incredible success we have seen in terms of our primary goal of increased production is only one aspect of the benefits we've received from the system. We have also achieved many other secondary advantages like quality improvement, safety management of the plant and reliability of the process."

"The system also is so easy-to-use that we are self-managing the process. Our operators can focus on fine-tuning operations to achieve the best recipe process in the plant, resulting in a double benefit: simplicity and effectiveness of the process."

Peri, who uses the system every day to generate these benefits, agrees.

"I would recommend the Wonderware InBatch system to all companies," he said. "It is a secure, safe, reliable system. It runs smoothly, and you never have to worry that if you step away from the screen for a moment things will fall apart. Everything will run smoothly until you return. This means that I can accomplish a lot more with my day."

Making a special product, such as the unique oil and lubricants required by race car and sports motorcycle engines, requires high-powered production capabilities. BP Castrol Oil Cornaredo has found those capabilities with Wonderware and is reaping remarkable benefits from deploying equally special production and performance management solutions.



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