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## **Tenova Goodfellow's EFSOP<sup>®</sup> delivers added value to EAF operations**

**Mississauga (August 2008):** Tenova Goodfellow installed the EFSOP<sup>®</sup> process control system in June 2007 on TenarisDalmine's 100 ton Electric Arc Furnace in Italy. Process analysis of the furnace operation commenced immediately after installation and commissioning of the EFSOP<sup>®</sup> system.

The EFSOP<sup>®</sup> system is based on the real-time measurement of furnace off-gas at the fourth hole (before dilution with combustion air). At Dalmine, the system dynamically controlled the injection of methane, oxygen and carbon powder through the 6 KT lances and the 3 conventional burners. In addition, it also modulated the draft of the fume system in response to furnace off-gas analysis. The dynamic control assures that the energy efficiency is maximized throughout the entire melting and refining process.

The expectations of the plant personnel at TenarisDalmine have been met through demonstrated savings in electrical energy consumption (9.58 kWh/tls) and a reduction in methane usage (1.63 Nm<sup>3</sup>/tls). Oxygen injection was increased only slightly (0.21 Nm<sup>3</sup>a/tls). Tenova Goodfellow's holistic approach to furnace optimization has once again demonstrated that greater overall furnace efficiency and process understanding is possible through dynamic off-gas analysis.

The project success has been achieved thanks to the combined efforts of the staff at TenarisDalmine and Tenova Goodfellow engineers, who worked closely to understand and harmonize the process and the plant equipment.

### **About Tenova Goodfellow Inc.**

Tenova Goodfellow Inc. (TGI) is a Canadian company based in Mississauga ON, Canada and is an integrated member of Tenova. As the Centre of Excellence for process control technology within the Tenova Group of Companies, TGI has one singular focus: to deliver the highest quality, most technologically advanced industrial process control technology for the markets that it serves. Goodfellow EFSOP<sup>®</sup> technology is the world's leading off-gas-based process control system for EAF's. It measures and analyzes EAF off-gases (CO, CO<sub>2</sub>, H<sub>2</sub>, O<sub>2</sub>) continuously at the fourth-hole for real-time closed-loop process control of EAF steelmaking, resulting in improved operations, energy savings, lower conversion costs and safety benefits.

### **About Tenova**

Tenova designs and supplies advanced technologies, products and services for the metal and mining industries. Tenova operates close to its customers through a network of 30 companies based on the 5 continents. For more information visit our website at [www.tenovagroup.com](http://www.tenovagroup.com).