

Outotec Roaster Optimizer in Pyrite Processing

Steffen Haus¹, Marcus Runke²

Note: Presenting author's name should be underlined. Presenter to be determined

1.

Senior R&D Engineer, Outotec GmbH & Co. KG, City State Postcode. Email:
steffen.haus@outotec.com

2.

Senior Process Engineer, Outotec (USA) Inc., 8280 Stayton Dr., Ste. M Jessup, MD USA 20794.
Email: marcus.runkel@outotec.com

Note: If appropriate, authors may list their AusIMM membership status (eg: MAusIMM, GAusIMM, FAusIMM(CP), etc). Affiliations for other organisations will not be included.

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Declining ore grades as well as the market-driven necessity to operate existing roaster plants at maximum possible throughput has led to increased efforts in the field of digitalization of fluid bed roasters. Where earlier plants were operated partly manual by operators, Outotec has introduced the Roaster Optimizer, a digital system allowing 24/7 operational support. The system comprises process optimization schemes, process modelling, advisory information and includes process operational influences of feed compositions in one digital solution. The Roaster Optimizer helps to stabilize the plant and optimize the production process of the fluid bed furnace and is based on Outotec's extensive process understanding and modelling know-how.

Extensive process know-how was the key for a fast track development period of the Roaster Optimizer System. Outotec was able to build up reference applications in the Zinc industry with an impressive usage factor close to 100% within the first year of operation. Success of the system is measurable in terms of controllability of emissions, plant throughput as well as temperature control. Overall improved process stability results in better product quality and plant availability. In addition, the Perficiency factor, Outotec's rating for plant performance efficiency, demonstrates the measurable improvement in the roasting plant operation.

During Outotec's latest commissioning of a pyrite based sulfuric acid plant, the recently developed Roaster Optimizer was successfully transferred to this new application with a different concentrate type. In addition, the start-up phase of the roaster was supported using digital solutions. In combination with a dynamic training simulator, the commissioning phase was supported widely with up to date digital tools.

In this article, a summary of the Roaster Optimizer is presented, emphasising the process of the technology transfer from zinc concentrate to pyrite roasting plants. Additional fields of application in the roasting technology have been identified to support end users with optimization solutions to improve plant operational productivity, safety and efficiency.