SUCCESS STORY

Milton Roy Mixing Reinforces Leading Role as Supplier of Efficient and Reliable Process Equipment

India has abundant reserves of high-quality bauxite, which is the ore used to produce aluminum. Lightweight and recyclable, it is critical for all key sectors of the Indian economy. With the demand for this versatile metal growing dynamically both in the local and the global markets, the Indian government has been stepping up efforts to capitalize on its natural resources by expanding its aluminum production capacity.

One of the projects designed to help India leverage its bauxite deposits is the expansion of the alumina refinery in Damanjodi Odisha, India. This plant processes bauxite into alumina, which is a necessary stage in the production of aluminum. The alumina refinery is run by National Aluminum Company Limited (NALCO), a public-sector company with integrated and diversified operations across mining, metal and power sectors and one of the top players in alumina production in India, with its annual output running at around 2M tons.

Quantity or Quality?

Past efforts to boost the refinery's production capacity have left the plant with limited floor space, forcing NALCO to install taller tanks to achieve a higher footprint/volume ratio. While the refinery was now equipped to increase its output, ensuring the right quality of alumina produced remained a challenge: the taller the tank, the trickier it is to preserve homogenous agitation of the slurry inside.

In addition, the occasional disruptions in the power supply at the Odisha refinery is adding to the problem. When agitators stop working due to a power failure, the solids contained in the slurry settle to the bottom of the tank, changing the reaction kinetics inside. In a worst-case scenario, the settled solids clog the tank, potentially putting it out of service for months on end for cleaning. NALCO needed a partner who would be able to provide agitators with the strength and process performance to handle a large volume of semi-liquid mixtures without compromising the quality of the alumina produced. Milton Roy Mixing was the obvious choice.

"Extra Mile" Kind of Partner

Thanks to its deep understanding of the hydrometallurgy industry, MRM was able to deliver an optimized solution that not only satisfies all of NALCO's basic mixing needs, but also addresses the pain points specific to this particular application. The hydraulic efficiency of MRM's agitators combined with their ability to restart in settled mode make them a perfect fit for the plant that struggles with heavy-duty process plants and the occasional disruptions in the power supply. By choosing a supplier who is willing to go the extra mile, NALCO gets homogenous mixing performance, high process reliability, cost efficiency and low environmental impact, all in one solution. With improved alumina production capacities, the public-sector company will be better equipped to support the Indian economy in satisfying domestic demand and securing a major role in the global aluminum market.

Game-Changing Solution

Milton Roy Mixing (MRM) is the global leader in the production of mixing solutions that set the industry standard for efficiency and durability. With a 25-year-long history between MRM and NALCO and almost 30 years between MRM agitator design and the process licensor Rio Tinto, NALCO was happy to have another opportunity to work with MRM. The customer ordered 24 critical agitators for the alumina refinery in a multi-million-dollar deal. Most critical top-mounted agitators use between five and six impellers installed along a rotating shaft that connects the agitator motor to the bottom of a tank that can reach a height of around 38 m (125 feet) and the diameter of 14 m (46 feet). As the agitator shaft rotates, its impeller blades mix the tank's contents, ensuring product uniformity. Thanks to their multistage design, the agitators create the right intimacy between caustic soda and bauxite bits, keep the solids in suspension and ensure that slurry remains homogenous. The agitator blades use hydrofoil HPM technology that delivers excellent hydraulic performance for mixing and solid suspension, while consuming significantly less power. When compared to the competition, the proprietary agitator design reduces the associated energy bills by more than 5% a year leading to annual energy savings in the megawatts.
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MILTON ROY® Mixing

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Game-Changing Solution

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Lower power consumption translates into a reduced environmental footprint, in addition to significant savings. What makes MRM's agitators even more unique is that they can easily resume working shortly after a power failure, recreating the right process conditions to prevent the solids in the slurry form settling. Unsurpassed reliability and durability of the agitators with low wet-end wearing allows the customer to push the process performance to the limits without risking damage to the equipment. Low spare and maintenance requirements also help maintain a cost-effective process.

With the lead time of 12 months, MRM plans to deliver the agitators as lose parts and assemble them at the customer's site where a team of experts will supervise the installation and carry out performance testing after the devices are commissioned. MRM's engineers will inspect every aspect of the assembly and commissioning process to ensure that the agitators are ready to achieve the customer's performance, reliability and efficiency targets. In the interest of providing local content, MRM will be working with a local entity to support the localization initiatives taken by the customer and the Indian government.