

MIXING, BLENDED & SIZE REDUCTION

## Case study: Lightnin mixers provide process solutions for American Zinc Products

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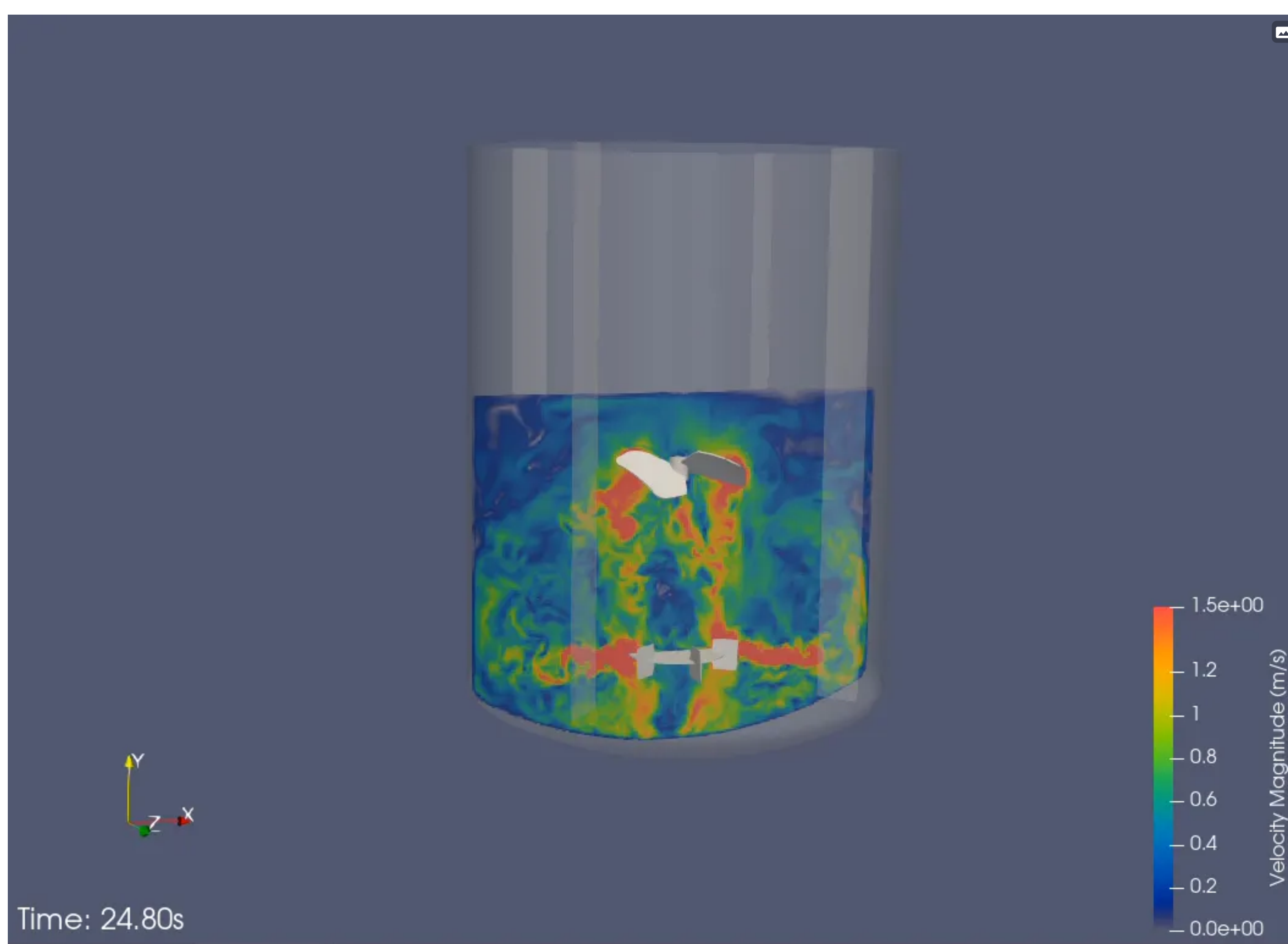
Mixing has a huge impact on many processes, but getting the best mixing performance is about more than just supplying the mixer. It requires an understanding of fluid dynamics, applications and technology to provide a sound, reliable design and an ability to service the equipment after it is installed with knowledgeable local support.

American Zinc Products of North Carolina contracted with Lightnin, a premiere brand of SPX FLOW, to address its fluid mixing needs, including CFD (Computational Fluid Dynamics) and experimental modeling for specific applications where it wanted to make an improvement in mixing results.

American Zinc Products LLC (AZP), a subsidiary of American Zinc Recycling Corp. (AZR), turns industrial waste into high value zinc. It uses waelz oxide (WOX) produced by AZR to extract metals and refine it to produce special high-grade zinc. AZP takes WOX in powder form from the AZR site and mixes it with a solvent to dissolve the zinc content. The solvent is then extracted to produce high-purity zinc. Mixers are an important part of the leaching and solvent extraction process.

Lightnin has expertise in designing mixing solutions. In 2016, AZP approached Lightnin for help with the other mixer brands it used for solids suspension in the leaching part of its plant. After working together for approximately a year, AZP in 2018 decided to carry out a complete rebuild of this part of the plant and ordered a range of different mixers/agitators from Lightnin. These included Lightnin Series 10, 70 Series and 780 Series agitators. Constructed mostly of 2507SS, these mixers continue to work successfully in the leaching process.

In 2019, AZP had further problems with submerged pumps on a sump agitator. It contracted Lightnin to carry out CFD of the process to understand the flow patterns in the sump and where the issue lay. The team at Lightnin identified where the pump should be located and have since helped with further CFD work on site to optimize additional sump installations.



In-house CFD modelling and experimental modeling can optimize process design.

Richard Kehn, principal engineer for mixing technology at SPX FLOW, said: “Being able to supply a mixer for an application is important, but to ensure an efficient and reliable installation it is also critical to understand what the process needs from the mixer, the effect of the flow pattern on the product you are mixing, tank internals and on downstream processes. With the support of our Lightnin channel partner in the Carolinas, R.E. Mason, we have been delighted to serve AZP over the past years, providing new mixers, parts, service and technical consultancy.”

Lightnin carries out research and development at its state-of-the-art mixing laboratory. In the lab, Lightnin experts can analyze and find solutions for a whole range of mixing challenges. Along with features which provide long life and high efficiency, Lightnin mixers are equipped with Lightnin gearboxes, which are designed specifically for the loads and stresses associated with mixing duties. Mid-power Series 10 mixers provide a cost-effective solution and are equipped with rigid, high-strength housing and shafts that minimize deflection and associated wear. The 70 Series mixers have helical change gears and are ideal for larger loads and more arduous duties. Lightnin impellers are amongst the most efficient available and can be matched with any of the gearboxes within the range to ensure optimum performance for a given application.

Joey Cashwell, Technical Manager at AZP, said: “Our relationship with Lightnin has served us well and we have benefitted from their technology, expertise, and local service. We are happy with the work that has been done thus far and look forward to continuing this relationship.”

### About SPX FLOW, Inc.

Based in Charlotte, North Carolina, SPX FLOW, Inc. innovates with customers to help feed and enhance the world by designing, delivering and servicing high value process solutions at the heart of growing and sustaining our diverse communities. The company's product offering is concentrated in process technologies that perform mixing, blending, fluid handling, separation, thermal heat transfer and other activities that are integral to processes performed across a wide variety of sanitary and industrial markets. To learn more about SPX FLOW, please visit [www.spxflow.com](http://www.spxflow.com)