

# DESIGNING TAILORED BURNERS TO USE ALTERNATIVE FUELS



## Challenge

Engineers at FCT Combustion aimed to reduce emissions and increase production output whilst converting their burner designs to use alternative fuels (AF). They carefully considered numerous design changes with the goals of **avoiding build-up formation**, **improving fuel particle trajectories** and **optimising overall combustion efficiency**.

## Solution

Accurate simulations enabled FCT engineers to better visualise flow/temperature patterns and fuel particle trajectories. Simulation results also identified an unexpected mismatch between burner swirl & kiln rotation that was causing fuel particles to be shot towards the kiln refractory lining and material bed. Ansys Fluent simulation results provided detailed technical insights that helped **balance their overall system design, improve fuel combustion efficiency and reduce emissions**.

## Ansys Advantage

"FCT appreciates the high-quality of LEAP's technical support. We find that LEAP's engineers are always ready to help and often go **above and beyond our expectations**. In particular, Prof. David Fletcher's technical knowledge and experience in combustion and turbulence modelling is **unparalleled in Australia** and provides huge value to our advanced pyro-processing CFD modelling work."

"Real-world data from a 6-month operating period has confirmed the superior performance of our Turbu-Flex™ burner, as expected from our CFD results, with an impressive **customer ROI of just 1 year**. We were able to solve a costly issue of kiln build-up, avoiding the need for our client to shut down their plant for several hours every fortnight."

Renata Favalli, CFD Specialist, FCT Combustion

