

Job Title:

Fluidised Bed

Company:

Arigna Fuels

Location:

Roscommon, Ireland

Duration:

3 months

Objectives:

- **Optimisation of Fluidised Bed**
- **Energy Reduction**

Arigna Fuels produce a range of smokeless fuels at their plant in Arigna, Co. Roscommon.

As part of the drying process, Arigna use a Fluidised Bed Dryer system. Arigna initiated a project involving modifications to the Fluidised Bed process, to optimise its use and achieve energy reductions. **Prochem** were commissioned to perform a detailed study on the drying process and plant. In addition, given the potentially hazardous environment in the production facility, **Prochem** were asked to perform a site wide ATEX Risk Assessment.

Prochem's approach was to gather sufficient data about the site and the process to enable the generation of an energy balance model for the existing Fluidised Bed plant (Dryer & Associated Crusher & Fans). This model allowed an empirical evaluation of the indirect drying processes, and the modelling of alternative crushing drying scenarios to ensure likely project benefits were quantifiable prior to embarking on any modifications.

Initial findings from the study indicated that:

- Primary efficiency losses are caused by the loss of fines as a result of the scrubbing process.

The study then refocused on the impact of the dryer internals on the loss of fines and involved an assessment of such variables as:

- Velocities, Recycle Gas Flow Rate, Cross Sectional Area, Temperature & Composition and Perforated Hole Size.

On receipt of the report, Arigna and **Prochem** assessed the options and proposed modifications to the Fluid Bed Dryer to achieve efficiencies. The primary proposal was a reduction in the underbed temperature. **Prochem** were further commissioned then, to review the model and assess the impact of the change in the underbed temperature.

It was evident that energy saving advantages would accrue as a result of the changes and give significant benefits to Arigna Fuel. The proposed changes were implemented and the project had a return on investment of less than 6 months.

Reference from Brendan Layden, Director, Arigna Fuels:

*"The study of our drying plant process by **Prochem** has enabled us to make informed capital investment decisions that have yielded 12% to 14% energy savings. The study also allows us to continue to optimise the day to day operation of a process that consumes 52% of our entire energy consumption".*

Get In Touch

Tel: [+353 56 77 90100](tel:+353567790100)

Fax: [+353 56 77 90101](tel:+353567790101)

Email: info@prochem.ie

Mobile: [087 2648000](tel:0872648000)

Web: www.prochem.ie