

# Project overview



## Keith Airless Rendering Process

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## Brief summary

Airless rendering involves cooking and drying at atmospheric pressure, using super-heated steam instead of hot air. Keith Engineering validated to the potential advantages of the process and constructed and trialed a prototype unit based on the success of a gel-bone drier in commercial operation in New Zealand utilising the superheated steam concept.

## Objectives

The investment objective was to verify the technical potential of the airless rendering process and construct a prototype unit to establish initial performance criteria for the process.

## Project outcomes

A series of trials were conducted at rendering process in a red meat processing site. These trials allowed the pilot plant to be modified slightly to optimise performance and prove the capability of the pilot plant to render animal raw material to produce high quality crax (cooked meat) and tallow. The process appeared to be able to effectively cook boning room raw material to a consistency where fat was released and the solids were dried sufficiently to be able to be pressed. Free run tallow was easily released and contained minimal water. Steady state conditions were easy to establish and maintain during operation. High temperatures during operation should be avoided, as they will cause problems with tallow colour. Preliminary evidence of the energy efficiency of the system indicated it was not as efficient as conventional continuous dry rendering process.

## Benefits to industry

The closed system used in this process has the advantages of less odour and is safe to use in volatile environments.

## Future research and recommendations

The Keith Airless Rendering process is a technically feasible alternative to other rendering processes that produces high quality products from boning room materials. Further work is needed to validate energy efficiencies will require the construction of a full production scale unit. Further work on the pilot plant would only be useful in investigating performance on other materials including mixed hard bone and soft offal materials. During validation of the process, it was determined that the proposed process had much to commend it, but some critical issues had not yet been adequately addressed. In some cases, definitive answers on the issues raised could only be answered by pilot plant trials.