



Fibre & pulp processing plant

Scion's fibre processing plant is an industrial scale research facility that has underpinned the development of New Zealand's pulp and paper industry. This capability provides a foundation for research into new biorefinery processing.



Fibre processing plant

The fibre processing plant is a semi-commercial scale version of a modern high-yield pulp mill. It allows Scion to offer a unique service in mechanical pulp processing. The plant is capable of simulating all process options through pre-, inter- and post-stage chemical treatments; multi-stage refining; multi-stage screening; hydrocyclone fractionation; centri-cleaning and reject refining.

This research complex provides an independent, professional and confidential facility for investigating alternative wood resources, new process configurations and new products which cannot be examined practically in a production environment.

The fibre processing plant provides the opportunity to:

- Improve pulp and paper, and MDF fibre quality
- Mitigate investment risk
- Reduce processing costs
- Evaluate alternative wood resources
- Develop pre-treatment processes for biorefineries.

The Scion team has experience with a wide range of products: papers and cartonboard, MDF, biofuel and biorefinery co-products. Our experience includes both hardwood and softwood species.

All trials are performed by process engineers who are familiar with, and contributing to, leading-edge research and technology developments.

MDF processing

The fibre processing plant allows a wide range of MDF process conditions to be evaluated. Chips entering the plant may be atmospherically presteamed before being plug screw fed into the main pressure vessels. Within these pressure vessels the chips may be steamed, as for conventional MDF processes, or impregnated with liquor and cooked to produce chemically modified pulps.

Scion has the capability to manufacture and test panel products based on wood fibre, plastics and composites. Scion also has the equipment to manufacture 'laboratory-sized' panels to customer specifications. This capability enables a full range of testing for product performance.

Our research and development capabilities include:

- Refining
- Drying

- Hot pressing
- Fibre characterisation
- Fibre-adhesive interface
- Panel performance
- Resin/wax visualisation.

Biorefinery processing

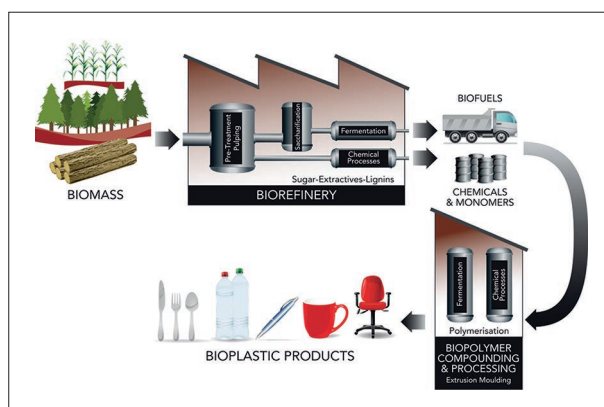
Scion has the expertise to support growing global interest in biorefinery processing. A biorefinery is an industrial facility that converts biomass into fuels, power and chemicals. The biorefinery concept is comparable to petroleum refineries, which produce multiple fuels and products from petroleum.

Using the fibre processing plant, Scion has developed pre-treatment processes for biofuel production from lignocellulosic (woody) biomass. This research has improved the enzymatic conversion of softwood into sugars. These sugars can be used as feedstocks for the production of various biofuels.

The lignin, which is extracted as a co-product of the process, can be converted to resins, adhesives and plastics as renewable alternatives to petroleum-based products.

The facility enables research and development to:

- Minimise energy and chemical inputs
- Maximise yields of fermentable sugar
- Produce lignin and other co-products.



The biorefinery process involves using biomass to: create biofuels; lignin and other extractives; useful biopolymers such as bioplastics as well as creating and testing biobased product prototypes.

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About Scion

Scion is the Crown research institute that specialises in research, science and technology development for forestry, wood and wood-derived materials, and other bio-material sectors.

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