

CERTIFICATE OF CONFORMITY SPECIFICATION

ARBOUR TECH SUPER CLONE © AC1002 Tetraploid Paulownia Elongate Hybrid

- AC1002 Paulownia trees grow 30% + year faster (compounding).
- Absorbs + 30% more carbon than any other tree including other Paulownia.
- AC1002 Harvest Cycle every 5 years instead of 10 years as for other Paulownia.
- Produce over 1m³/tree in an irrigated managed plantation and in optimum conditions up to 1.3m³/tree.
- AC1002 Wood density 263kg/m³.
- Kwh/Ton 2,908.7
- AC1002 temperature range -15c to 50c
- Planation life 45 plus year as trees regrow from the stump after harvest.
- Excellent tree to use in intercropping systems as the tree will not compete for resources.
- Tolerates a wide range of soil types but avoid wet and boggy soil and clay soil.
- Paulownia like well-drained soils and large amounts of light.

Originates of AC1002 Paulownia Elongate Hybrid

CHINESE ACADEMY OF FORESTRY in the late 80's had just completed the world's largest Paulownia trail which spanned over 30 years

AC1002 clones developed producing the only commercial tetraploid tree in the world, these tetraploid clones exhibit increase growth and the ability 30% + carbon than a standard tree this has a compounding effect on their growth rates, for example, a 4-year-old tree will be 120% larger than the control tree (standard) while using no more resources like water and fertilizer.

INDEPENDENT TESTING

REPORTS PROVIDED BY



Department of
Employment, Economic
Development and Innovation

Note includes certain statements, estimates and projections that rely upon various assumptions. Those assumptions may or may not prove to be correct. Ref 2008 File No 3.2 Compiled V1.1 01.02.2023 Web : <https://arbour.technology/>

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FACTS SHEET 1 ARBOUR TECH © AC1002

FEED STOCK BIO-ENERGY FAST-ROTATION CYCLES AND ENHANCED BURN CHARACTERISTICS

Tetraploid Paulownia Elongate Hybrid

Normally, the dryer the fuel the higher the energy density and the better the quality of low Btu gas produced so, the biomass from the plantation will be dried using waste heat from the gasifier to 10%.

ALC 1002 chars quickly but has a high ignition temperature, in excess oxygen, of approx. 400C. the reaction Thus it smoulders within the reaction vessel.

With the heat released by the char a fixed quantity and while using a constant air flow, the more moisture in the fuel, the more heat consumed by evaporation. Less energy remains for volatilization and sensible heat, so the fuel rate must be decreased. Consequently, less volatiles are produced, and both the combustible gas quality and quantity are reduced. As such, only dried feed stock will be used.

The gasification process occurs as a result of three linked processes. Pyrolyses is the conversion of solid fuel to CO, CO₂, H₂, CH₄, H₂O, char, tars and hydrocarbons. Gasification, the conversion of the pyrolysis products to the syn gases H₂ and CO. Partial combustion of the pyrolysis products liberates the heat necessary to drive the gasification process. The gasification process occurs in a reduced oxygen atmosphere. Typically, 20-45% required for combustion of the syn gas.

Normally, when chips of timber are introduced to the gasifier, a series of consecutive degradation steps occur, under high temperature. First, the moisture is driven off. Second, the outer layer is converted to volatile gases leaving char and ash. Fluidized sand then ablates the char revealing a clean reaction surface. The char is oxidized within the bed to provide heat for the process. This cycle occurs over a period of seconds causing small spikes and dips in the temperature of the fluid bed. These in turn, reduce the energy [BTU] quality of the gases produced. ALC 1002 these processes occur almost simultaneously, producing a constant evolution of gases and even burn rate form the char. As a result, the gasifier can be run at optimum efficiency.

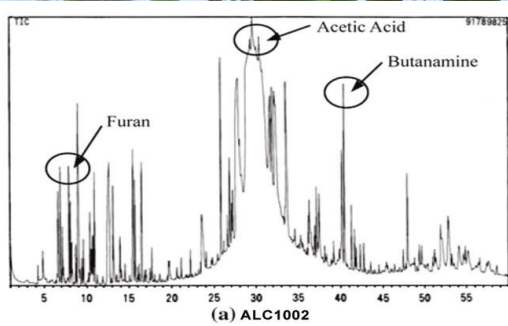
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The Alkane section in these Gas Chromatography pictures above is the region within wood which produces all the nasty's such as phenolics and fume gas problems. As you can see clone ALC 1002 has no Alkane spike.

The ideal feed stock will be fast charring, with a high ignition point. Have a low density but a high energy value per tonne. Produce no phenolics or toxic by-products. The surface should ablate and gasifier readily. Be hardy and fast growing. ALC 1002 has been engineered so its gasification and growing profile are close to ideal.

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