



TreeFree Biomass Solutions Inc. Mckinstry Innovation Center 210 S. Hudson St. Suite 328 Seattle, WA 98134 Office: 206-246-6277

www.nilefiber.com

Nile Fiber™ Biomass FeedStock Specification Sheet

Nile Fiber[™] is a specialized cultivar of Arundo Donax cultivated by Treefree Biomass Solutions Inc. in Seattle WA. In Europe, Arundo Donax is considered the future champion of energy crops. Arundo Donax is a hardwood replacement and can be used in a multitude of industries from energy (for combustion purposes), pulp and paper, to composite building materials. Nile Fiber[™] to the untrained eye most closely resembles Bamboo. TreeFree Biomass Solutions Inc. created a patent portfolio around Arundo Donax a specialized cultivar called Nile Fiber[™] developed to supply a feedstock for the above industries. Nile Fiber[™] can be substituted as a hard wood chip globally for export. Nile Fiber[™] burns at 8000 BTU+ and can be used in most coal fire biomass facilities.

Biology

Nile Fiber[™] is a tall, perennial C3 grass species in the subfamily Arundinoideae of the Poaceae family. The hollow stems, 3 to 5 cm thick, have a cane-like appearance similar to bamboo. Mature stands can reach a height up to 8 m. Stems produced during the first growing season are unbranched and photosynthetic. It is an asexually reproducing species due seed sterility. It needs to be established by vegetative propagation, due to a lack of viable seed production. Underground it produces an extensive network of large, but short rhizomes like bulbs, and fibrous tap roots.

In Central Europe Arundo is grown as an annual energy crop in aeas with low soil temperatures. The base growth temperature reported for Nile FiberTM is 7°C, and a maximum cut-off is at 30°C. It has a high photosynthetic capacity, associated with absence of light saturation. Carbon dioxide exchange rates are high compared to other C3 and C4 species. Under natural conditions, the maximum CO2 uptake ranged between 19.8 and 36.7 µmol m-2 s-1, depending on irradiance, leaf age, and is regulated by leaf conductance.

Biofuels – Nile Fiber™

Nile Fiber[™] is a strong candidate for use as a renewable biofuel source because of its fast growth rate, ability to grow in different soil types and climatic conditions. Nile Fiber[™] will produces an average of three kilograms of biomass per square metre (25 tons per acre) once established. The energy density of the biomass produced is 17 MJ/Kg regardless of fertilizer usage.

Studies in the European Union have identified Arundo as the most productive and lowest impact of all energy biomass crops (see FAIR REPORT E.U. 2004). Nile Fiber's[™] ability to grow 20 to 25 years without replanting is also significant.



1. Full Harvest Chip - Close up fresh harvest Dimentions: 50.8mm x 12.7mm x 6.35mm



2. Screened Chip - Close up of Nile Fiber™ Chips Dimentions: 50.8mm x 12.7mm x 6.35mm



Nile Fiber[™] Chip Specification:

Nile Fiber[™] Chips are chipped and screened with disk chippers on site in the field at time of harvest. Due to differing site locations the dimensions of chips may vary.

We offer two qualities of chips:

1. Full Harvest Chip meaning the full harvest of the stalks and leaves are included. The result of this is a chip with a ash content n the 5% range.

2. Screened Chip results in a refined quality chip with no fines or leaves and a reduced ash content of aprox. 2.5%

Specifications

Purpose / Fuel grade for combustion Wood specification / Nile Fiber ™ Cane Grass Chip Size specification / length 25.4mm to 76.2 mm / width 25.4mm to 76.2mm / density 3.175mm to 6.35mm Average moisture content (% +/-) 5% to 10% Wood density (wet and dry basis aprox.) same as above Weight / 1 cubic feet is 4.08233Kg

Sample chips are available upon request. Call our offices at 206-246-6277

We comply with the The Phytosanitary Certificate Issuance and Tracking (PCIT) system. This tracks the inspection of agricultural commodities and certifies compliance with plant health standards of importing countries.