

rakeistus

Rakeistus Oy

We are experts in granulation of ash

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Rakeistus oy - background

- Established 2012
- A private company
- The only company in Europe, which has been concentrated on granulation of ash and building granulators
- Rakeistus Oy has taken part to research to utilizing of ash with two universities in Finland

Bioash – what is it?

- Bioash is originated by burning of biomass – e.g. wood, peat
- Bioash contains very much useful nutrients
 - e.g. phosphorus, potassium
 - plenty of calcium as well – neutralize sourness of ground
- E.g. in Finland it's originated of bioash ca. 650 000ton/a
 - The beginning of 2020 it's estimated to be over 1 milj. ton
- Over 500 000ton it's gone lost, carefully estimated – every year

Bioash for useful purpose

- So: Bioash, which
 - as untreated is a waste or for us it's a byproduct and rawmaterial
 - correctly handled very valuable fertilizer of forest
 - it's applied to technical constructions e.g. to under roads
- How to get bioash for useful purpose

Answer is:

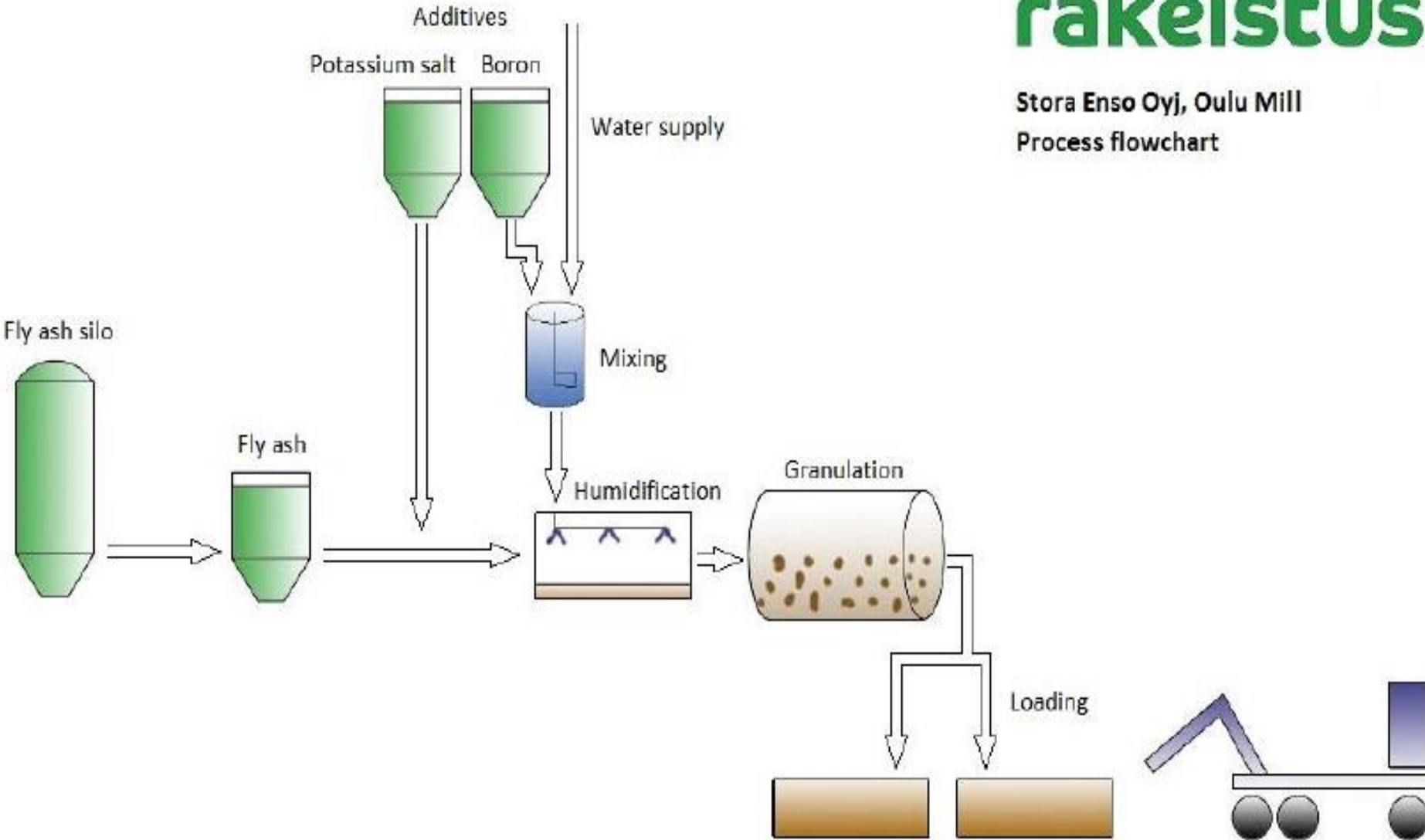
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What it means - granulation?

- It's a process, in which dusty flyash changes to clean and easy handled granules. A granulated bioash is
 - the best fertilizler of forests
 - an addition of additives easily
 - light and economical alternative for gravel

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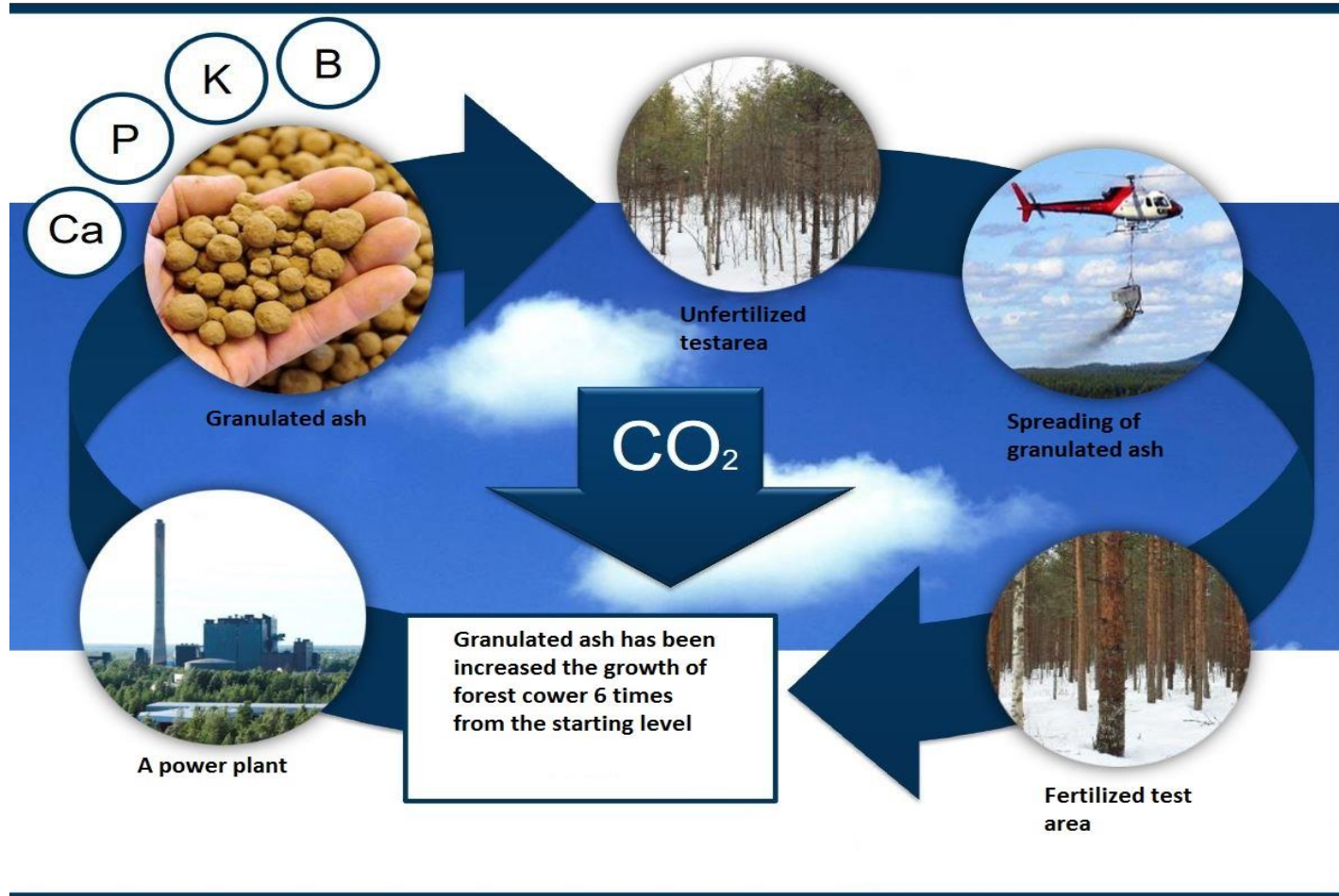
Stora Enso Oyj, Oulu Mill
Process flowchart



Why then an intergrated granulator

- No need to build extra facilities
- Fast to put to use, quick impletation, immediately ready to start production
- Patented system
- Fully automatized, no need fulltime operators
- Delivering of granulated ash directly to forest
- Possibility to additives, easy to set to system
- Different sizes and tailormade machines
- An ecological act, a natural circulation

A circulation of bioash



A profitable business

- Many possibility to use granulated ash, mainly today as a fertilizer in forests
- A demand and use of granulated ash is growing, it's to be built many biopowerplants in future, oil and coal give way as a fuel
- Granulated ash is able to compete with chemical fertilizers
- A producer for granulated ash can charge of granulation and sell granulated ash as well
- Paybacktime is short
- It's good for image

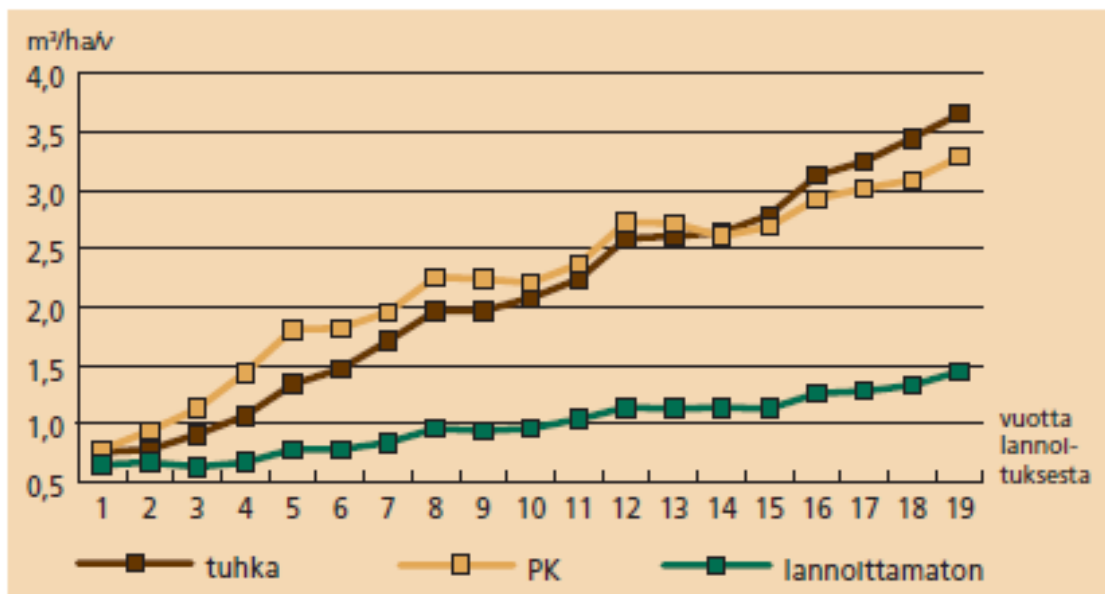
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In picture on the right side without fertilizing and on the left side fertilized.



Below, the influence of ash to plantation

Puuntuhkan vaikutus turvemaiden metsissä



Männikön tilavuuskasvun kehitys paksuturpeisella ja runsastyyppisellä neva-rämeellä puuntuhkan- (tuhka), fosfori- ja kaliumlannoituksen (PK) jälkeen. Tuhkalannoituksen vaikutus näkyy puuston kasvussa PK-lannoitusta hitaammin.

Lähde: Metsäntutkimuslaitos

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Ash 0 t/ha



Ash 16 t/ha

After 60 years, in Finland

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Fertilized by granulated ash after three years



What next?

Take contact to Rakeistus Oy, we are experts of granulation!

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Thank You for your attention!