



ASH UTILISATION
Ashes in a Sustainable Society

Ash Utilisation 2012
January 25-27

Värmeforsks Ash Programme 2002-2011

- 60 participants from industry and authorities
- more than 140 projects
- project volume ~ 10 million €

The financing of the Ash Programme is three folded

Swedish Energy Agency:	~30%
Participants in the programme:	~ 30%
Additional funding for individual projects:	~ 40%



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Forest



Recycling
Growth
Emissions
Water chemistry

Environment



Test methods
Quality control
Environmental
and risk
assessments

Geotechnical



Roads
Surfaces
Soil
stabilization

Landfills



Landfill closure
Dens layers
Stabilization
Covering Mine Tailings



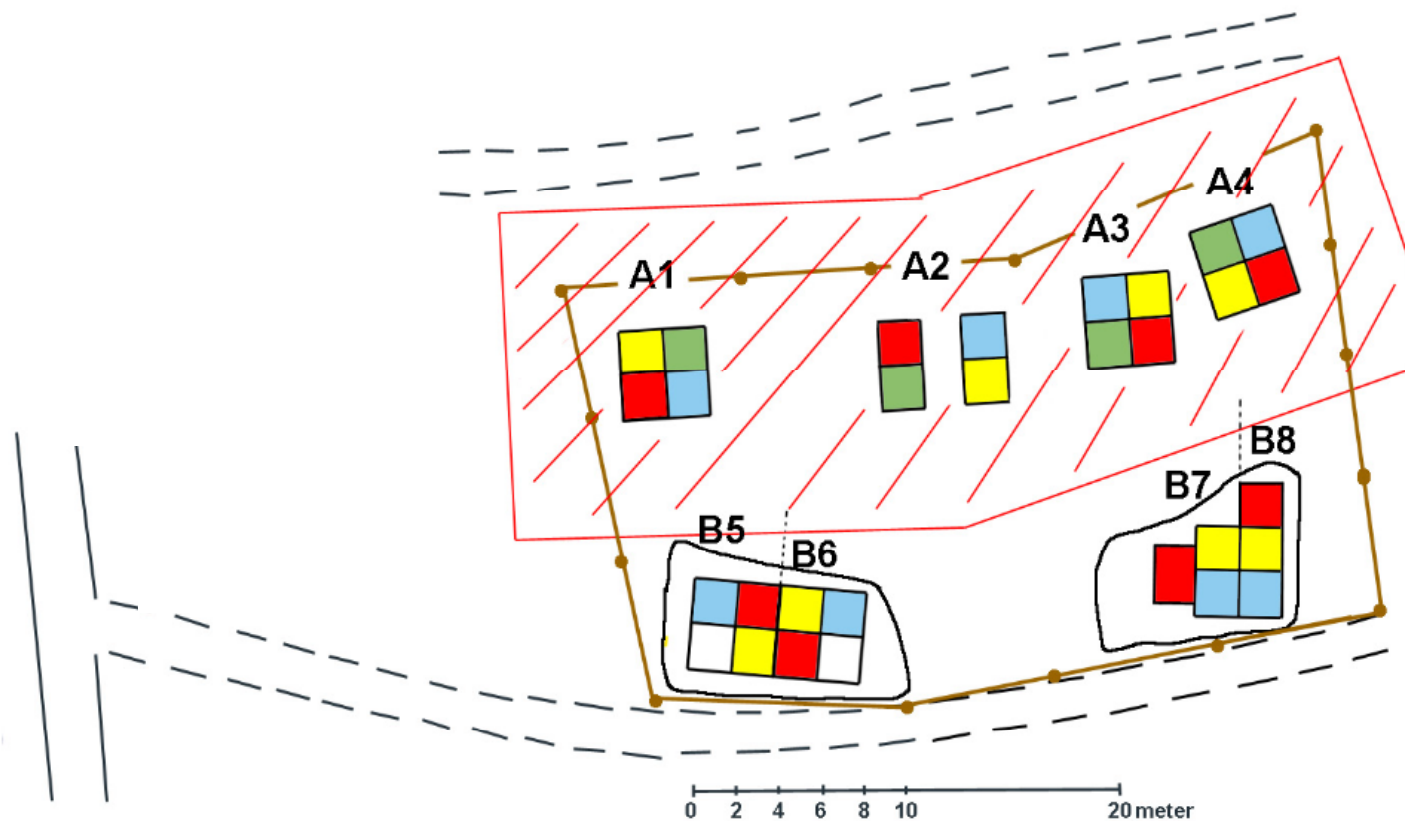
2012

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Recycling to forest and agriculture land

As planned





2012

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Recycling to forest and agriculture land



... in reality





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Geotecnichal/ Gravel roads



Reference section



Test section



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Geotechnical/Stabilization&Solidification of dredged materials

50 – 100 kg/m³

***Gävle Harbour
1million m³ of
contaminated
sediment***





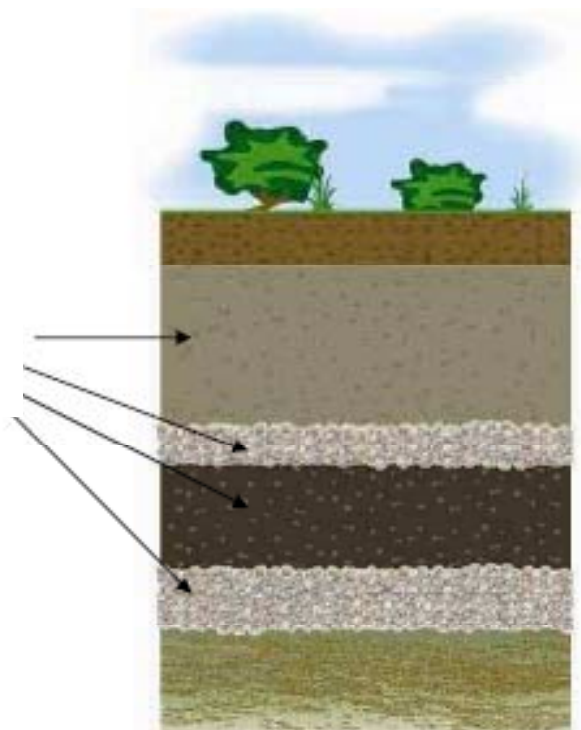
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Landfill construction

Ashes in
these layers



Vegetation layer > 0,3 m

Protection layer > 1,5 m

Drainage layer > 0,3 m

Liner > 1 m

Barrier layer > 0,3 m

Waste



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Landfill coverage Fly ash stabilized sewage sludge FSA



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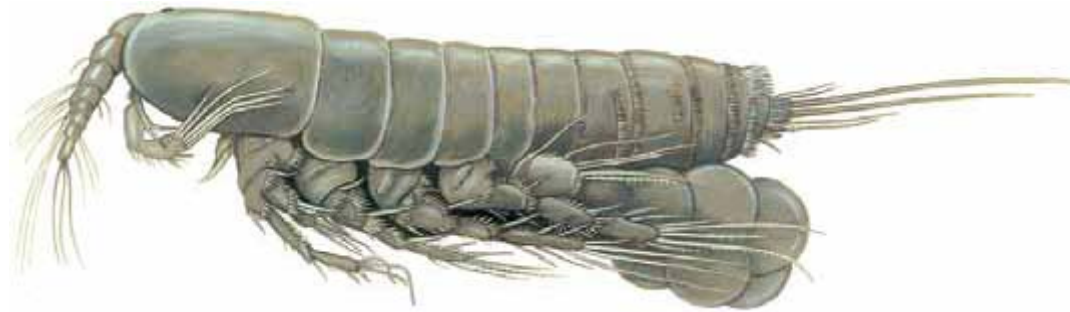


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Environmental tests



Nitocra spinipes is an organism that is well suited for ecotoxicological studies of the leachate from the ash as it is well studied, salt-resistant and can be used for both acute and chronic tests.



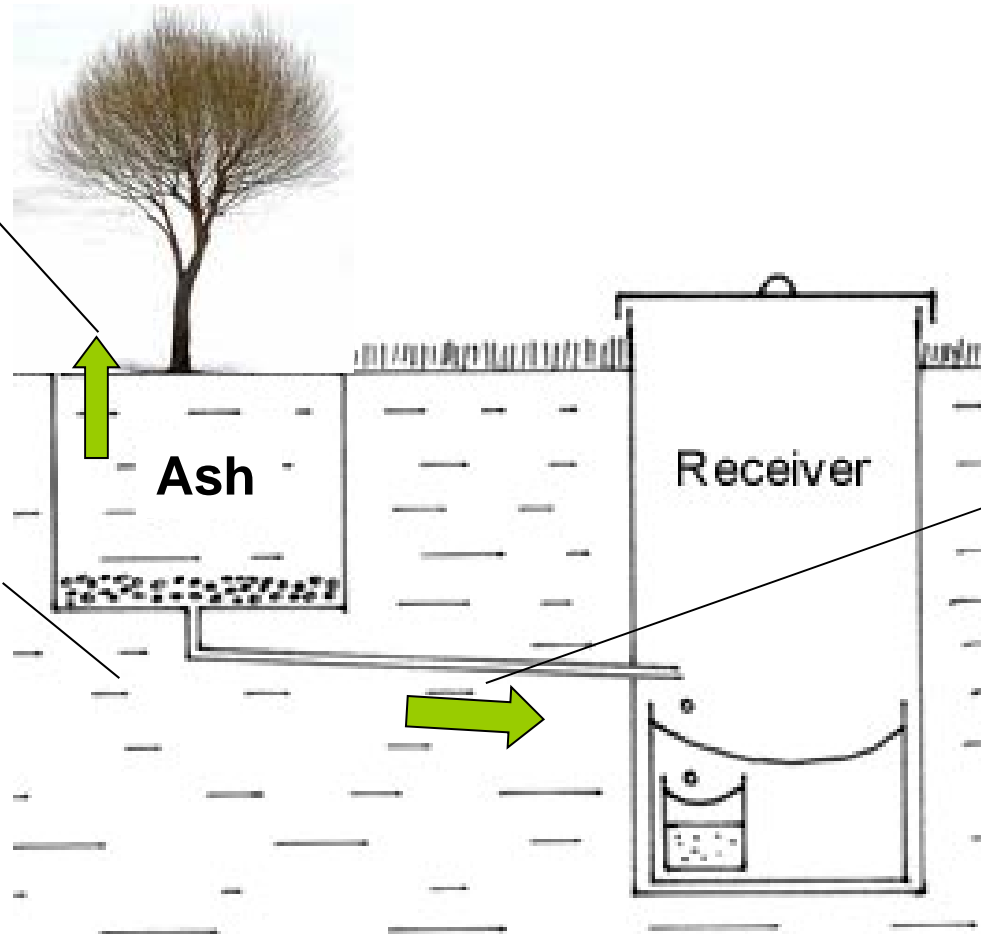
2012

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Environmental/Leaching or uptake?

0,004-0,006 % in
vegetation above
ground

> 99 % of the initial
content of As, Cd, Cr,
Cu, Ni, Pb, Sb, Zn still
in the ash after 15
years



0,01-0,05 %
in formed
leachate



2012

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Communication



Report database - Windows Internet Explorer

http://www.varmeforsk.se/reports

Arkiv Redigera Visa Favoriter Verktyg Hjälp

Förslag på webbplatser Gratis Hotmail WebSlice-galleri

Report database



- START
- ABOUT VÄRMEOFORSK
- PROGRAMMES
- MANAGING VÄRMEOFORSK PROJECTS
- REPORT DATABASE
- CONTACT
- ASH 2012

Värmeforsk's report database

This is a register of all Värmeforsk reports published since 1972.

Antal rapporter: 1359 Visa: 10 per sida Sida: 1 / 136 [Nästa](#)

1208. Ash ? Long-term ecotoxicological risk to the environment

Number: [1208](#)
Research Area: Ash Programme
Report type: Main report
Project code: Q9-754

Search the report database

Keywords:

Number:

Project code:

Title:

Author:

Single year of publication:

or

First year of publication:

Allaska en - Windows Internet Explorer

http://www.varmeforsk.se/allaska-en

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Allaska en




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ALLASKA

Database within the programme on ashes at Värmeforsk
Environmentally correct utilisation of ashes

The purpose of this database is to collect quantitative information on the properties of residues from combustion. These ashes were produced at Swedish combustion plants.

Data originate primarily from the programme on ashes at Värmeforsk.
The database has been created by ÅF Consult AB on behalf of Värmeforsk.
Updated 2011-07-14

Change language to Swedish 
Warning! Swenglish mixed text in database! Read manual!

Only 100% of a fuel:

Type of ash:

Fuel:

Type of boiler:

Discharge:

Fill in one or several search options.
Leave empty for "all" (no condition).

Show count in selection:
This function takes a long time

Geotechnical properties

Leaching properties

Composition

Particle size



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In the future...

Environmental legislation

New fuels- new ashes!

Shortage of ashes

New uses of ashes within 10 years

Technique for ash recirculation.

Communication of good results!



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