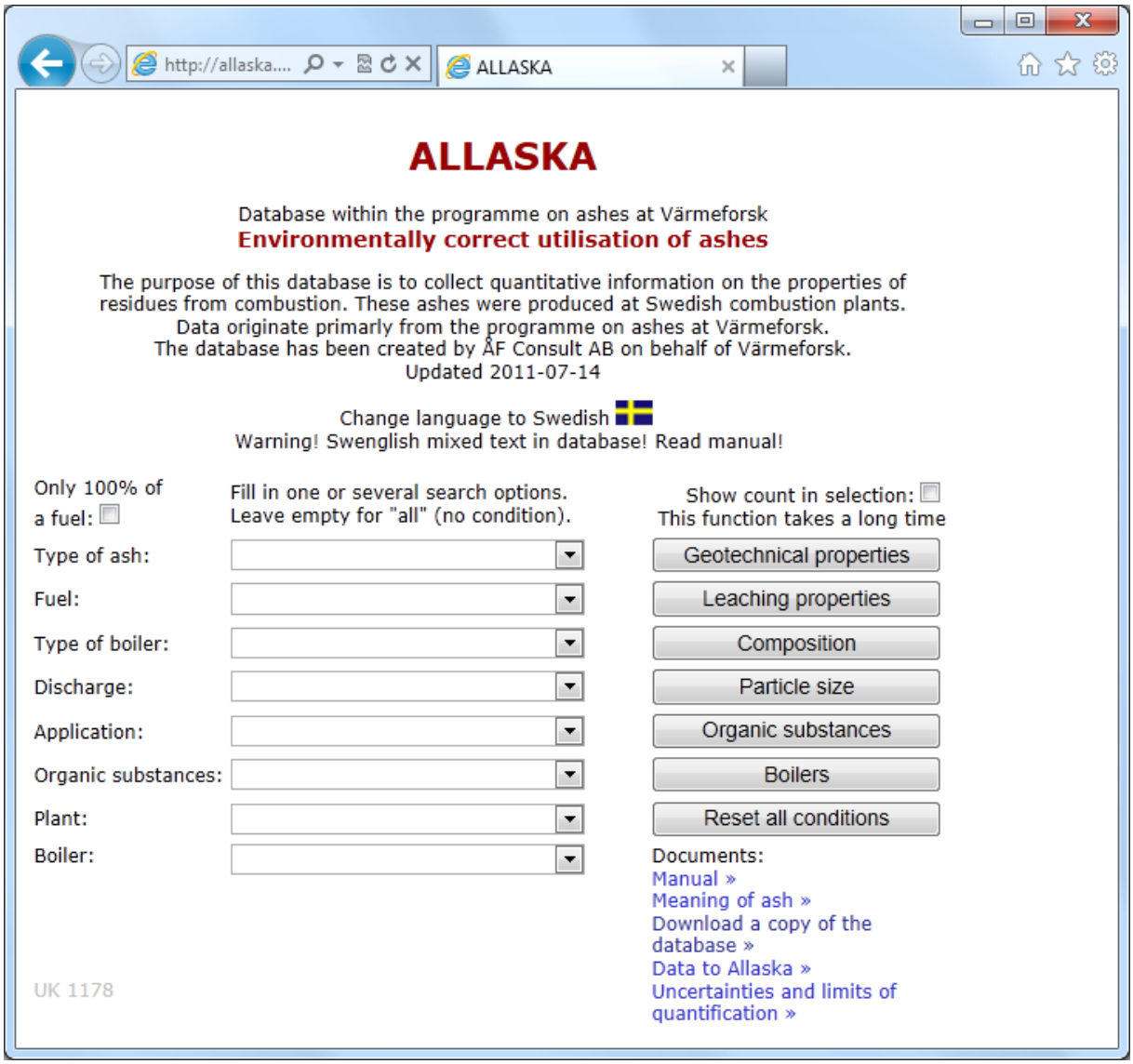
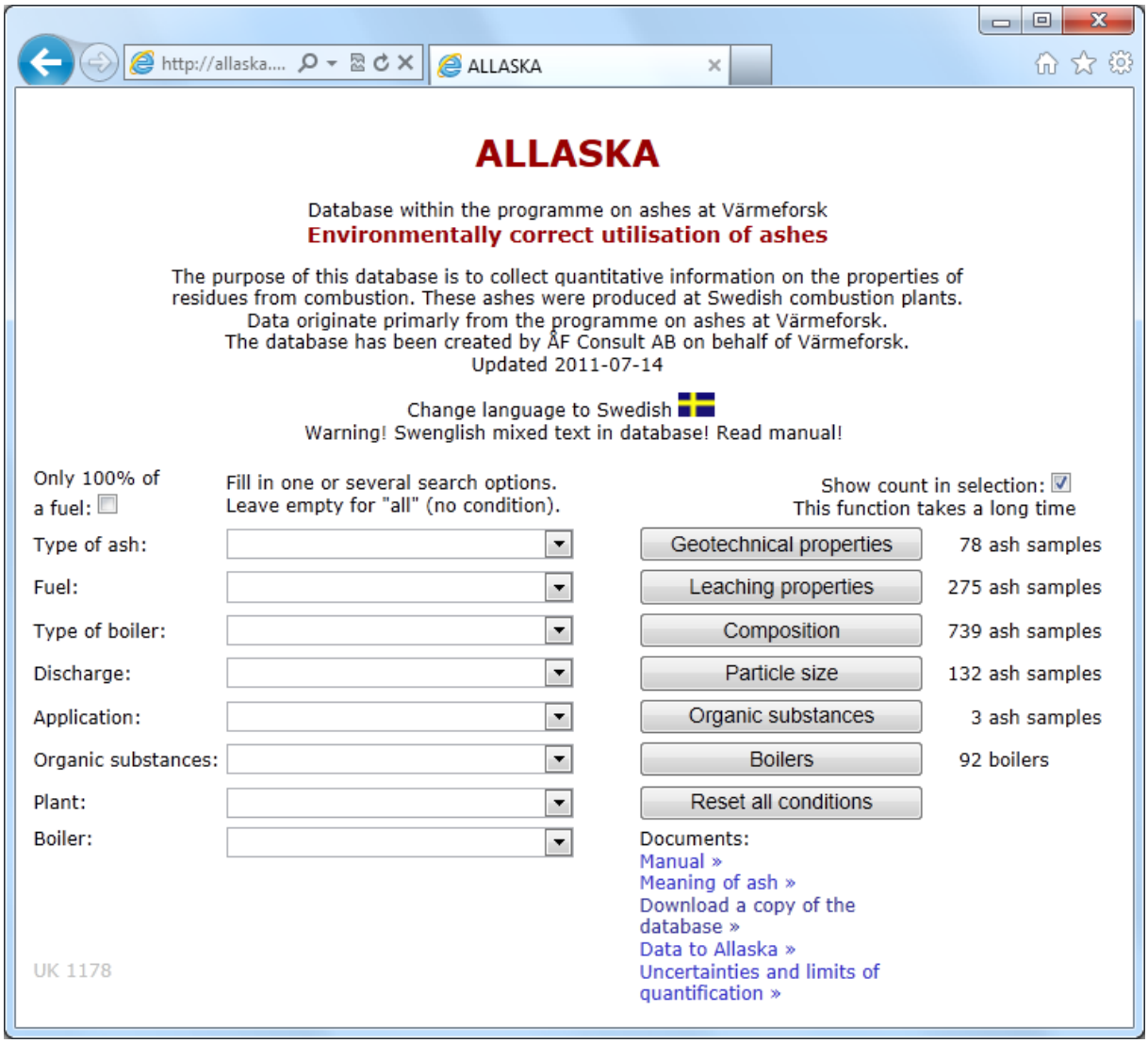
Manual for the user of ALLASKA

It should be possible to use ALLASKA without prior experience, but questions always arise. The purpose of this short manual is to answer the most common questions and to facilitate for the inexperienced to get a start.



Searching



All help texts may be shown either in Swedish or in English. Click on the flag to choose the language.

When you click on any of the four buttons to the right, a search is initiated in the data that have been entered into ALLASKA. A report then presents the summary of the result.

To limit the search to those ashes that are interesting for you, choose conditions in the menus to the left on the screen. Please note that these are pre-selected conditions. If you wish to have all categories in a menu, leave this row blank.

You can limit the result to ash samples that only has 100% of one fuel through a checkbox.

If there are no ash samples in ALLASKA that meet all the conditions that you selected, ALLASKA returns the answer: “No ash samples in the selection” in red bottom left.

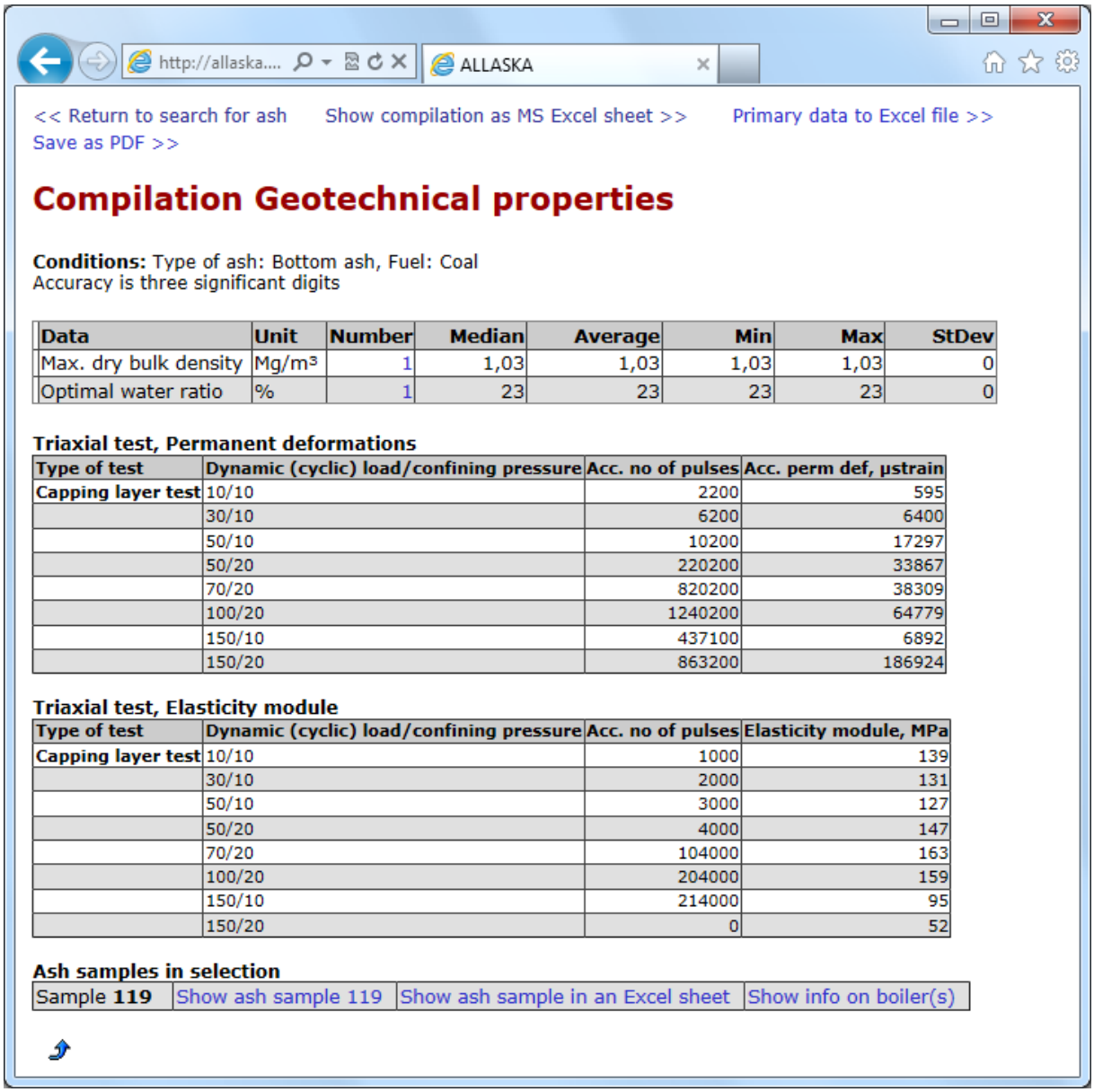
You may pre-view the number of samples in your selection by switching on the cell “Show number of samples in the selection”. This may take some time as ALLASKA will search through all samples in the database, as much time as doing a real search.

When you click on the button “Boilers” to the right, a report will be shown on which boilers have contributed ash samples in the selection.

By clicking “Reset all conditions” the search forms will be restored to their original conditions.

In list with documents You can choose this manual and other information.

Reports



<< Return to search for ash Show compilation as MS Excel sheet >> Primary data to Excel file >>
Save as PDF >>

Compilation Geotechnical properties

Conditions: Type of ash: Bottom ash, Fuel: Coal
Accuracy is three significant digits

Data	Unit	Number	Median	Average	Min	Max	StDev
Max. dry bulk density	Mg/m³	1	1,03	1,03	1,03	1,03	0
Optimal water ratio	%	1	23	23	23	23	0

Triaxial test, Permanent deformations

Type of test	Dynamic (cyclic) load/confining pressure	Acc. no of pulses	Acc. perm def, µstrain
Capping layer test	10/10	2200	595
	30/10	6200	6400
	50/10	10200	17297
	50/20	220200	33867
	70/20	820200	38309
	100/20	1240200	64779
	150/10	437100	6892
	150/20	863200	186924

Triaxial test, Elasticity module

Type of test	Dynamic (cyclic) load/confining pressure	Acc. no of pulses	Elasticity module, MPa
Capping layer test	10/10	1000	139
	30/10	2000	131
	50/10	3000	127
	50/20	4000	147
	70/20	104000	163
	100/20	204000	159
	150/10	214000	95
	150/20	0	52

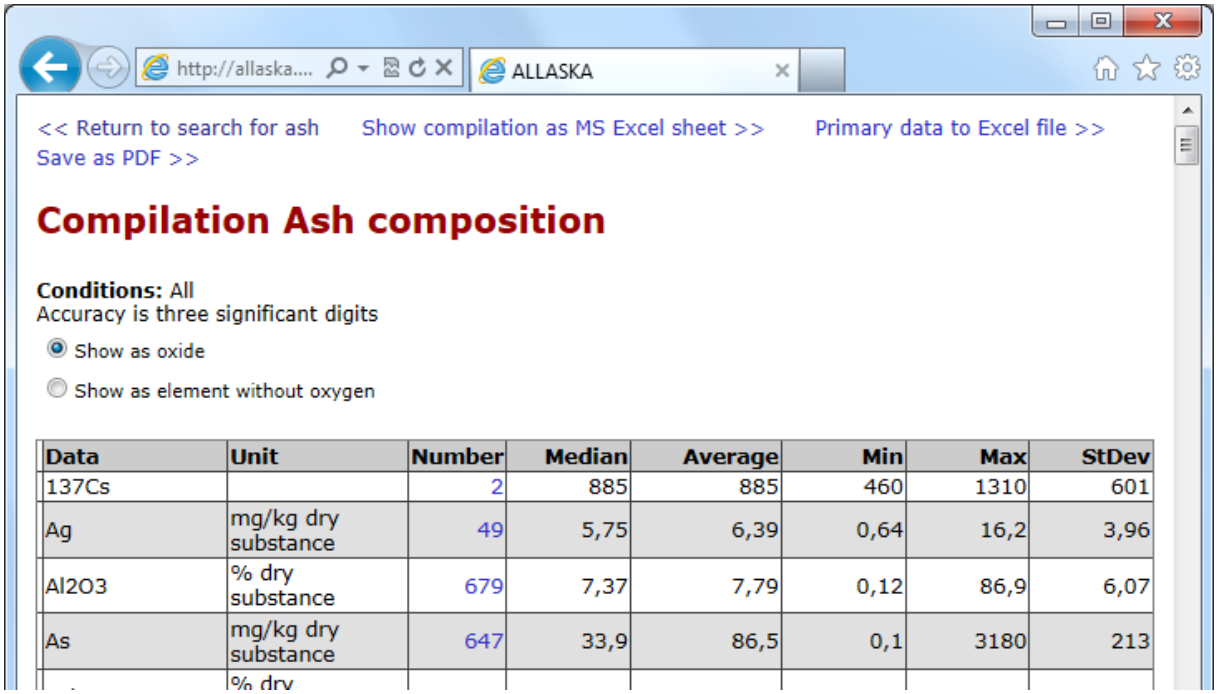
Ash samples in selection

Sample **119**	Show ash sample 119	Show ash sample in an Excel sheet	Show info on boiler(s)

The report presents statistical information for each variable (average, median, minimum and maximum, standard deviation) as well as the number of values available for each variable.

Compilation Geotechnical properties
Also shows Triaxial test, Permanent deformations and Elasticity module.

Compilation of the ash composition
You can choose to display the values of oxide or show elemental without oxygen.

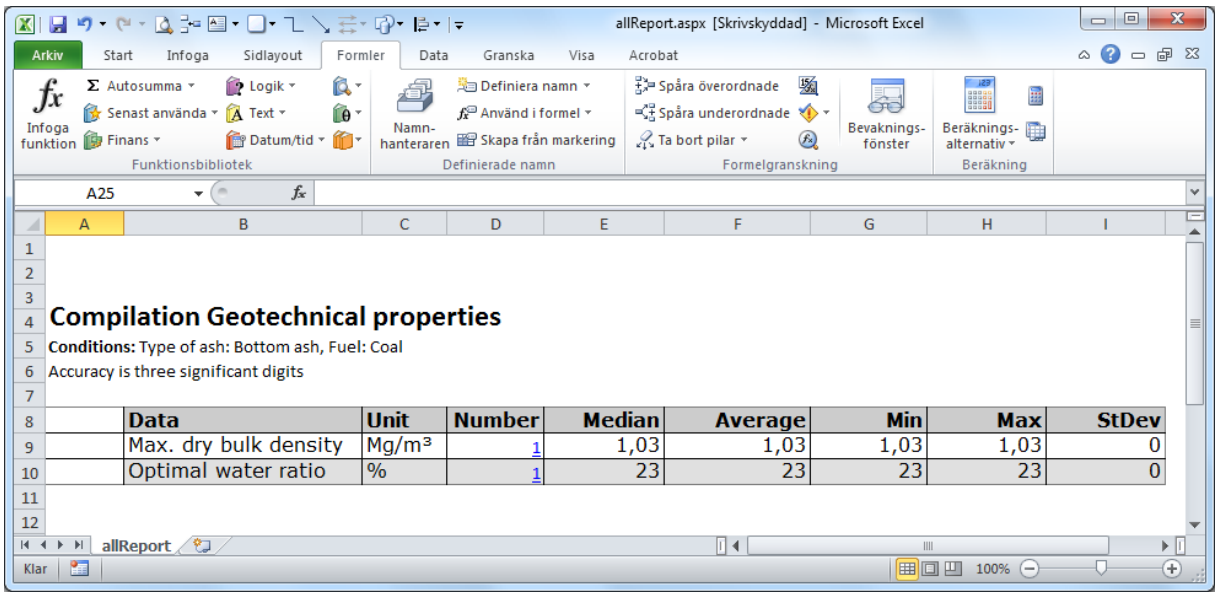


Data	Unit	Number	Median	Average	Min	Max	StDev
137Cs		2	885	885	460	1310	601
Ag	mg/kg dry substance	49	5,75	6,39	0,64	16,2	3,96
Al2O3	% dry substance	679	7,37	7,79	0,12	86,9	6,07
As	mg/kg dry substance	647	33,9	86,5	0,1	3180	213

All compilations

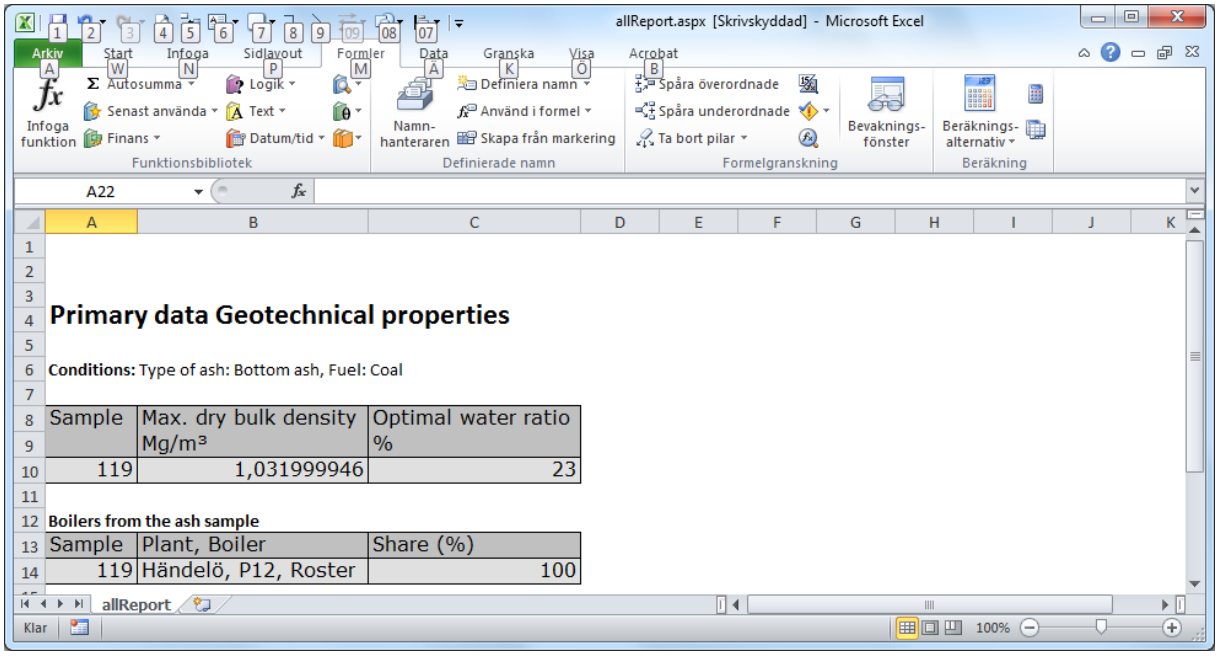
During the compilation are the askprov that supplied data for the compilation.

The report can also be opened by Microsoft Excel. Click on the link Show compilation as MS Excel sheet >>. The screens can look very different in different browsers. Choose preferably "Open". Possible warning. Microsoft Excel opens in new window. Want to save your results, choose File, Save As.



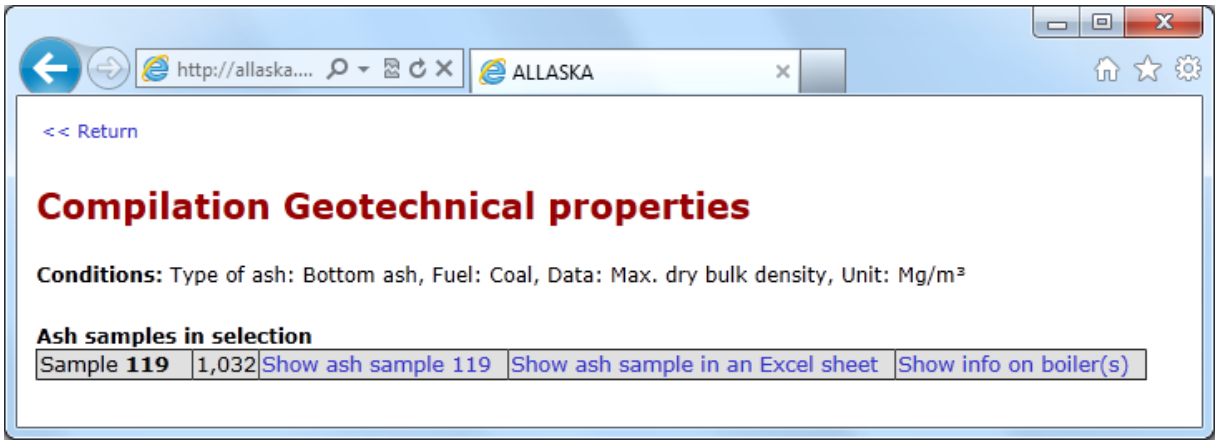
Data	Unit	Number	Median	Average	Min	Max	StDev
Max. dry bulk density	Mg/m³	1	1,03	1,03	1,03	1,03	0
Optimal water ratio	%	1	23	23	23	23	0

Another way to see data about the sample is in pivot form. Click on the link Primary data to Excel file >>.



You can also save all data on the screen as a PDF. Click on the link Save as PDF >>.
Dialog box may appear different in different browsers. Select "Open".

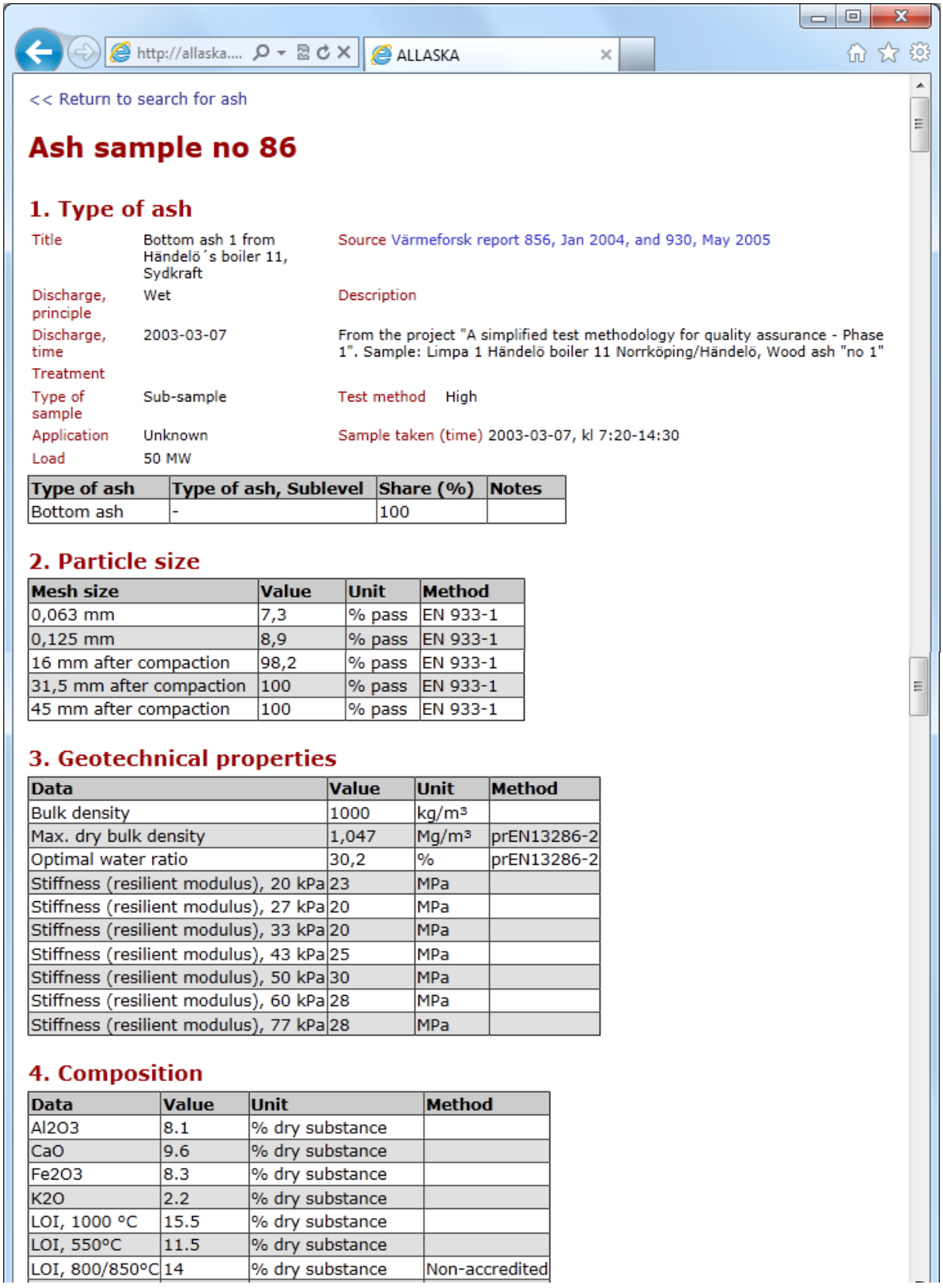
Although there are 40 samples in the selection, data for a particular variable may have been contributed by only seven samples. To see which these are, click on the figure in the column number in the compilation. A new report comes up with just these samples.



For each sample, you can obtain additional information on the sample (on screen or as Excel sheet) and information about the boiler that delivered the ashes.

Show Ash sample

To choose a report of an ash sample click the link Show ash sample no for a page in the browser or Show ash sample in an Excel sheet to get an Excel sheet.



<< Return to search for ash

Ash sample no 86

1. Type of ash

Title	Bottom ash 1 from Händelö´s boiler 11, Sydkraft	Source	Värmeforsk report 856, Jan 2004, and 930, May 2005
Discharge, principle	Wet	Description	
Discharge, time	2003-03-07		From the project "A simplified test methodology for quality assurance - Phase 1". Sample: Limpa 1 Händelö boiler 11 Norrköping/Händelö, Wood ash "no 1"
Treatment			
Type of sample	Sub-sample	Test method	High
Application	Unknown	Sample taken (time)	2003-03-07, kl 7:20-14:30
Load	50 MW		

Type of ash	Type of ash, Sublevel	Share (%)	Notes
Bottom ash	-	100	

2. Particle size

Mesh size	Value	Unit	Method
0,063 mm	7,3	% pass	EN 933-1
0,125 mm	8,9	% pass	EN 933-1
16 mm after compaction	98,2	% pass	EN 933-1
31,5 mm after compaction	100	% pass	EN 933-1
45 mm after compaction	100	% pass	EN 933-1

3. Geotechnical properties

Data	Value	Unit	Method
Bulk density	1000	kg/m³	
Max. dry bulk density	1,047	Mg/m³	prEN13286-2
Optimal water ratio	30,2	%	prEN13286-2
Stiffness (resilient modulus), 20 kPa	23	MPa	
Stiffness (resilient modulus), 27 kPa	20	MPa	
Stiffness (resilient modulus), 33 kPa	20	MPa	
Stiffness (resilient modulus), 43 kPa	25	MPa	
Stiffness (resilient modulus), 50 kPa	30	MPa	
Stiffness (resilient modulus), 60 kPa	28	MPa	
Stiffness (resilient modulus), 77 kPa	28	MPa	

4. Composition

Data	Value	Unit	Method
Al2O3	8.1	% dry substance	
CaO	9.6	% dry substance	
Fe2O3	8.3	% dry substance	
K2O	2.2	% dry substance	
LOI, 1000 °C	15.5	% dry substance	
LOI, 550°C	11.5	% dry substance	
LOI, 800/850°C	14	% dry substance	Non-accredited

5. Leaching properties

Type of test	Data	Value	Unit	Method
Two-stage leaching - L/S=10	Al	147	mg/kg dry substance	EN 12457-3
Two-stage leaching - L/S=2	Al	38.6	mg/kg dry substance	EN 12457-3
Two-stage leaching - L/S=2	As	0.025	mg/kg dry substance	EN 12457-3
Two-stage leaching - L/S=10	As	0.0966	mg/kg dry substance	EN 12457-3
Two-stage leaching - L/S=10	Ba	1.79	mg/kg dry substance	EN 12457-3
Two-stage leaching - L/S=2	Ba	0.196	mg/kg dry substance	EN 12457-3
Two-stage leaching - L/S=2	Ca	324	mg/kg dry substance	EN 12457-3
Two-stage leaching - L/S=10	Ca	759	mg/kg dry substance	EN 12457-3
Two-stage leaching - L/S=10	Cd	0.0026	mg/kg dry substance	EN 12457-3

6. Triaxial test

Test no	**633**	Date 2003-05-20 Diameter	150 mm	Height	300 mm
Aimed degree of compaction	90 %	Achieved degree of compaction	67,6 %		
Aimed dry bulk density	0,942 Mg/m3	Achieved dry bulk density	0,707 Mg/m3		
Aimed relative water ratio (relative to optimum water ratio)	100 %	Achieved relative water ratio before test	96 %	Achieved relative water ratio before test	96 %
Comments					

Permanent deformations Test no 633

Type of test	Dynamic (cyclic) load/confining pressure	Acc. no of pulses	Acc. perm def, µstrain
Capping layer test	10/10	100	119
	10/10	200	164
	10/10	300	187
	10/10	400	212
	10/10	500	225
	10/10	600	237
	10/10	700	246

Elasticity module Test no 633

Type of test	Dynamic (cyclic) load/confining pressure	Acc. no of pulses	Elasticity module, MPa
Capping layer test	30/10		20
	10/10		23
	50/10		20
	50/20		25
	70/20		29
	100/20		28
	150/10		28

7. Organic substances

Name	CASno	Value	Unit	Method of analysis	Synonyms
Acenaphtene	000083-32-9	0.115	mg/kg		
Acenaphtylene	000208-96-8	6.3	mg/kg		
Anthracene	000120-12-7	0.75	mg/kg		
Benz(a)anthracene	000056-55-3	0.425	mg/kg		

8. Additives

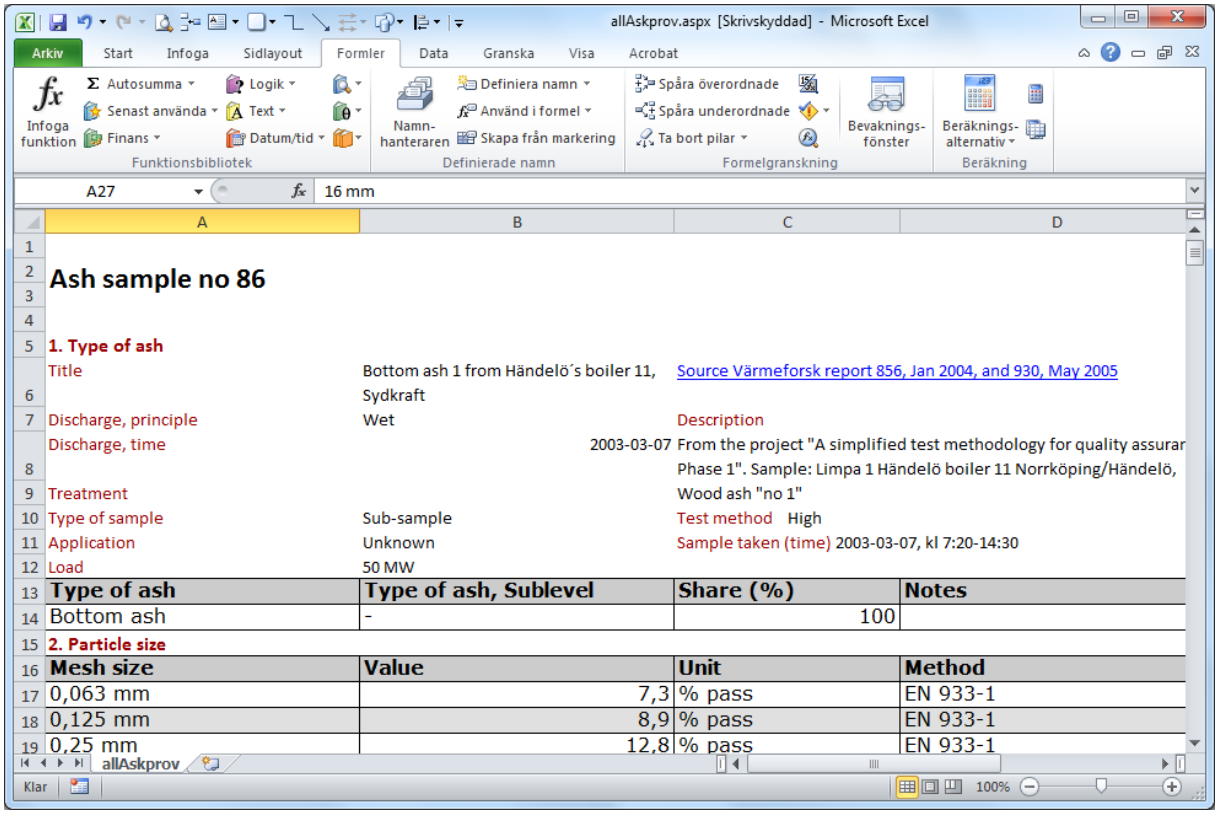
9. Fuels

Fuel, main level	Sublevel	Form of fuel	Share of total fuel input (%)	Ash content (% TS)	Moisture content (%)
Waste	Recycled wood chips		100		
Comments:					

10. Boilers from the ash sample

Plant, Term	Share (%)
Händelö, P11 Roster	100

In lists Composition, Leaching properties and Organic substances < (less then-sign) is shoed before the value when it is below the detection level. The value is included when calculated.



allAskprov.aspx [Skrivskyddad] - Microsoft Excel

A27: 16 mm

Ash sample no 86

1. Type of ash

Title	Bottom ash 1 from Händelö´s boiler 11, Sydkraft	Source	Värmeforsk report 856, Jan 2004, and 930, May 2005
Discharge, principle	Wet	Description	
Discharge, time	2003-03-07	From the project "A simplified test methodology for quality assurar Phase 1". Sample: Limpa 1 Händelö boiler 11 Norrköping/Händelö,	
Treatment		Wood ash "no 1"	
Type of sample	Sub-sample	Test method	High
Application	Unknown	Sample taken (time)	2003-03-07, kl 7:20-14:30
Load	50 MW		

Type of ash	Type of ash, Sublevel	Share (%)	Notes
Bottom ash	-	100	

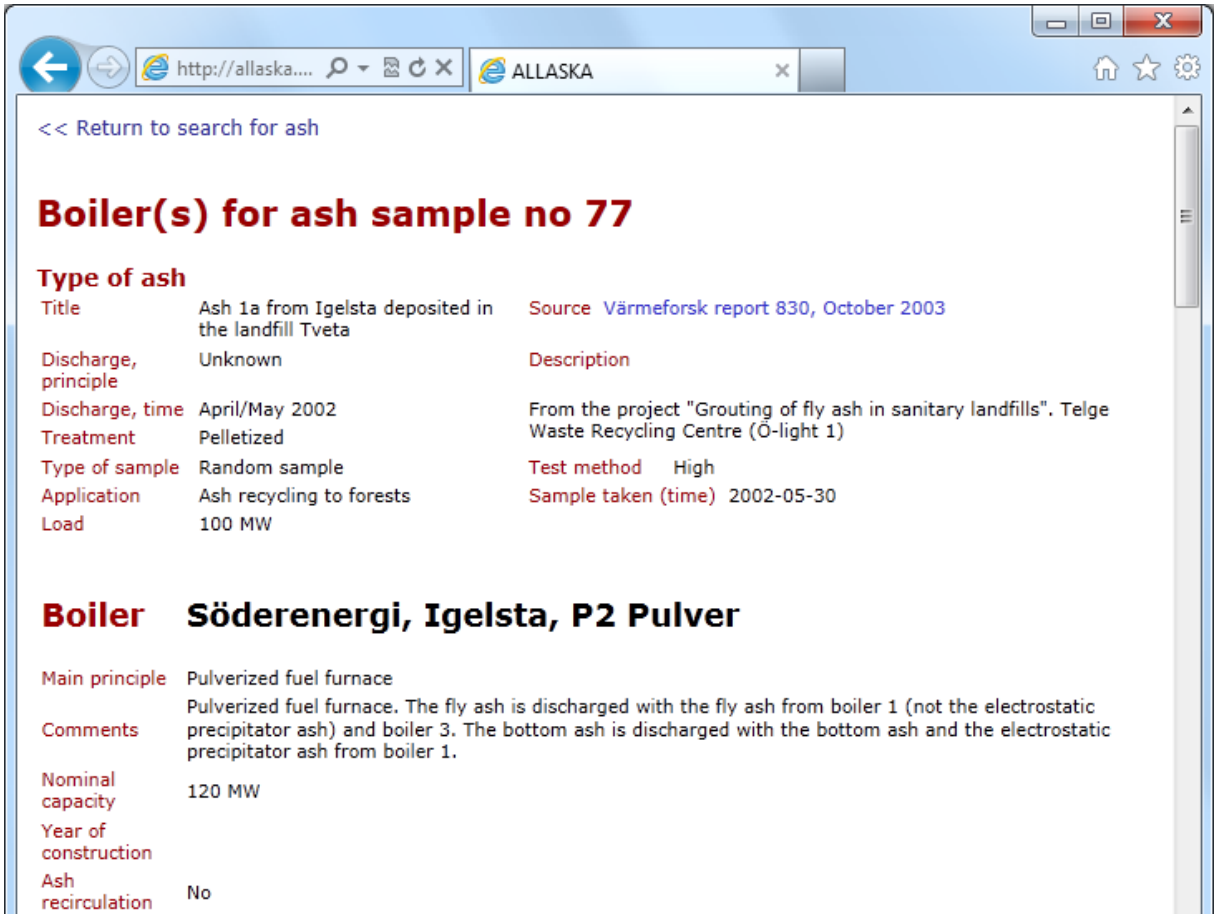
2. Particle size

Mesh size	Value	Unit	Method
0,063 mm	7,3	% pass	EN 933-1
0,125 mm	8,9	% pass	EN 933-1
0,25 mm	12,8	% pass	EN 933-1

The ash samples showed as Microsoft Excel.

Show info on boiler(s)

For information on the boiler, click on the link “Show info on boiler(s)”. This new report will show the information on the boiler, as well as the other ash samples that have been produced by the boiler.



<< Return to search for ash

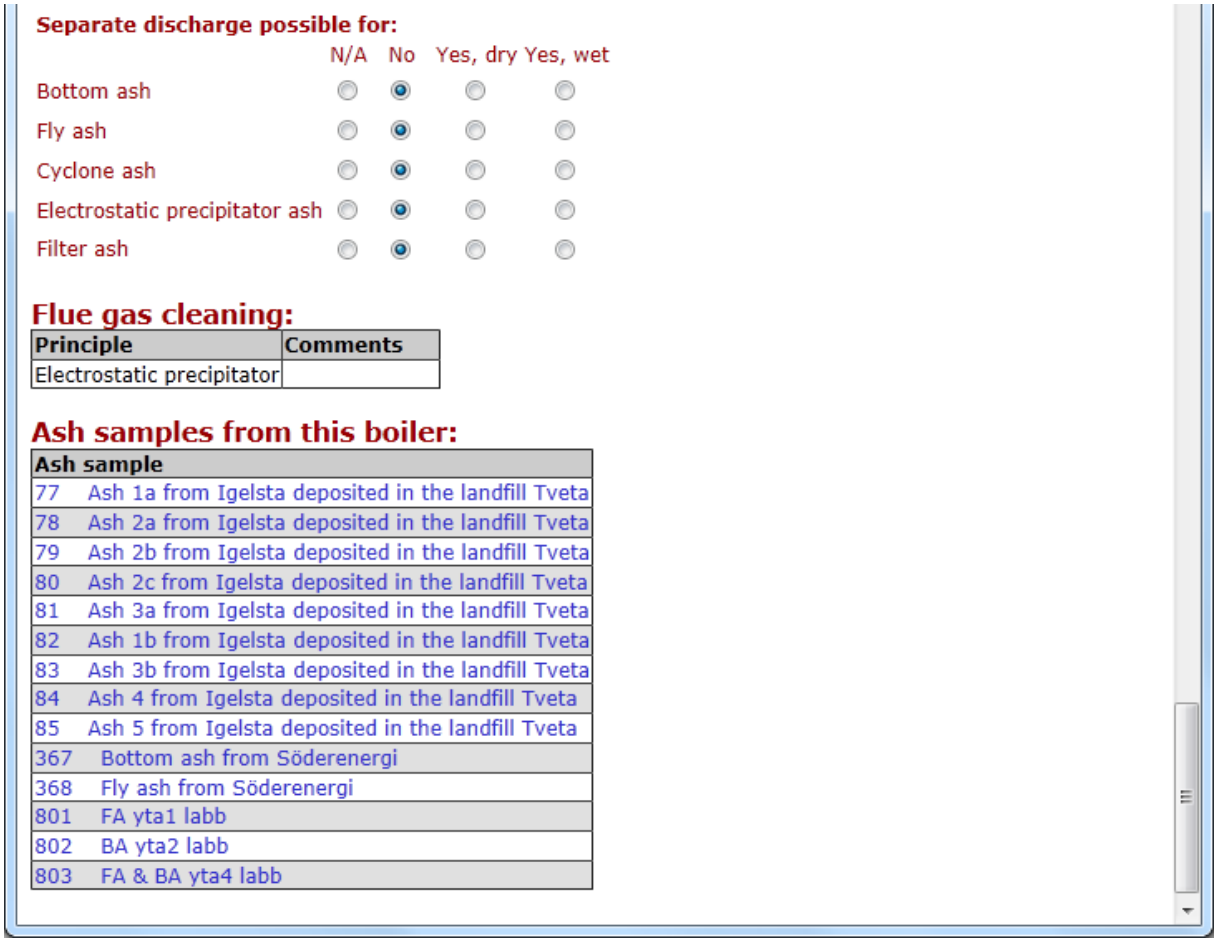
Boiler(s) for ash sample no 77

Type of ash

Title	Ash 1a from Igelsta deposited in the landfill Tveta	Source	Värmeforsk report 830, October 2003
Discharge, principle	Unknown	Description	
Discharge, time	April/May 2002	From the project "Grouting of fly ash in sanitary landfills". Telge Waste Recycling Centre (Ö-light 1)	
Treatment	Pelletized		
Type of sample	Random sample	Test method	High
Application	Ash recycling to forests	Sample taken (time)	2002-05-30
Load	100 MW		

Boiler Söderenergi, Igelsta, P2 Pulver

Main principle	Pulverized fuel furnace
Comments	Pulverized fuel furnace. The fly ash is discharged with the fly ash from boiler 1 (not the electrostatic precipitator ash) and boiler 3. The bottom ash is discharged with the bottom ash and the electrostatic precipitator ash from boiler 1.
Nominal capacity	120 MW
Year of construction	
Ash recirculation	No



Conditions in the search

All samples that have been entered in ALLASKA will form the basis of the report, if one leaves all cells to the left blank. However, the search may be restricted to those samples that are interesting to you by choosing from the preselected conditions.

Please note: Choose plant before choosing boiler.

Are you missing values?

Do you miss values or samples that should have been returned by ALLASKA? There may be several reasons for that:

- Those who entered data into ALLASKA overlooked it.
- There may be data for this variable, but the test is not a standard test (this may be more frequent for leaching properties than for composition).
- The value reported for a sample may be below the level of detection – in this case no value has been entered. There are alternatives: one could have entered the value of the level of detection, half this value or zero. The choice would have influenced the mean and other statistical values returned by the search. At present, the user may judge by himself/herself by comparing the number of values for this variable, e.g. the concentration of mercury, with the number of values recorded for a similar variable, e.g. the concentration of chromium. To investigate further, please go to the original report.
- The performer of the investigation has not wished to divulge from which boiler this ash sample has been taken. Search instead for a boiler that has not been identified – the data may be there.
- The data were not published in a project financed by the programme “Environmentally correct use of ashes” or the regular RD&D programme at Värmeforsk or the national “Framework Programme Ash Recycling” 1992-1996.

Download a copy of the database

You must have Microsoft Access version 2002 (XP) or later to use the database.
Click on link beneath Documents: Download a copy of the database ».