APPENDIX 3

The rock type classification used in this appendix is based on the nomenclature presented in Mattila's report (2006). Positioning of rosettes is illustrated in Figure 3-1. This appendix is compiled from testing memos prepared by Airix Ympäristö Oy, Aalto University, Unisigma Oy.

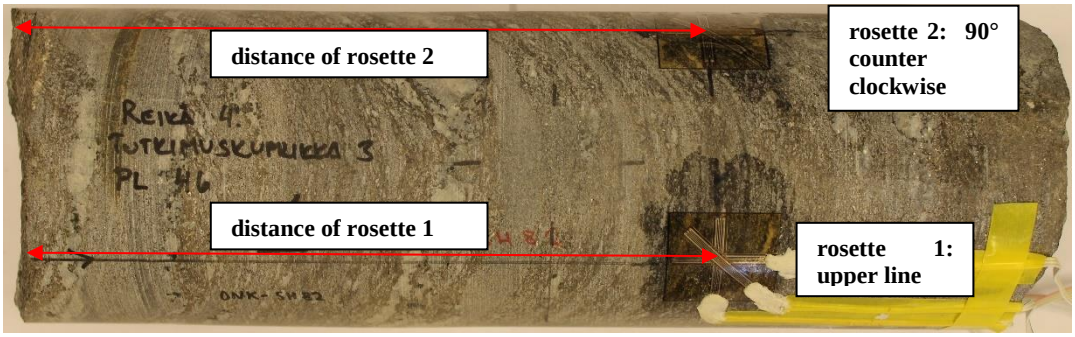

Figure 3-1. Illustration of rosettes' positions. Distance was measured from the bottom of the sample to the centre of the rosette.

A3.1 ONK-KU2 level 156

Rock type is white pegmatitic granite with massive foliation. Fractures occur and also the surface seems fragile or even broken. The samples are not foliated. Due to uneven surface of the samples, Confidence of the results is mainly low. At level 157 the rock type is coarse grained pegmatitic granite (leucosome) and measurement were successful. At level 160 the rock type is coarse grained pegmatitic granite (leucosome) and results are mainly rather good (Table 3-1).

Table 3-1. Results of the biaxial measurements. Confidence is high (H), low (L) or failed (F).

Hole ID	Rosette 1 (top)				Rosette 2				All		
	rock type	v[-]	E [GPa]	conf.	rock type	v[-]	E [GPa]	conf.	v[-]	E [GPa]	conf.
ONK-SH50	PGR	0.18	41.4	L	PGR	0.13	41.1	L	0.16	41.3	L
ONK-SH51	PGR	0.32	48.3	L	PGR	0.21	61.7	H	0.27	54.2	L
ONK-SH52	PGR	0.17	38.1	H	PGR	0.33	59.3	H	0.23	45.7	H
ONK-SH53	PGR	0.09	24.8	F	PGR	0.11	41.9	L			
ONK-SH54	Cannot be measured.										
ONK-SH55	Cannot be measured.										
ONK-SH111	PGR	0.21	40.6	H	PGR	0.18	47.4	H	0.19	43.3	H
ONK-SH112	PGR	0.11	41.0	H	PGR	0.17	39.4	L	0.14	40.2	L
ONK-SH113	PGR	0.14	39.2	H	PGR	0.19	47.5	H	0.16	42.4	H

The rosettes were attached to the upper line of the rock and 90 degrees clockwise (Table 3-2).

Table 3-2. Rosettes' positions on core samples.

Hole ID	Rosette 1 (top)	distance [cm]	Rosette 2	distance [cm]
ONK-SH50	upper line	7.7	90° clockwise	7.7
ONK-SH51	30° counter clockwise	16.3	115° counter clockwise	16.4
ONK-SH52	upper line	14.1	90° clockwise	14.2
ONK-SH53	upper line	8.8	90° counter clockwise	8.8
ONK-SH54	Cannot be measured.			
ONK-SH55	Cannot be measured.			
ONK-SH111	upper line	13.5	90° counter clockwise	13.6
Hole ID	Rosette 1 (top)	distance [cm]	Rosette 2	distance [cm]
ONK-SH112	upper line	16.4	90° counter clockwise	16.4
ONK-SH113	upper line	24.3	90° counter clockwise	24.6

A3.2 ONK-KU2 level 204

Rock type is mostly diatexitic gneiss (DGN). Irregular foliation is seen widely but in quartz/feldspar-rich areas it is not seen. In the pegmatitic core sample, the surface of the rock seems fragile. More than a half of the rosettes were successful but in gneisses both rosettes of the sample have to be successful to be classificated as a high Confidence result (Table 3-3).

Table 3-3. Results of the biaxial measurements. Confidence is high (H), low (L) or failed (F).

Hole ID	Rosette 1 (top)				Rosette 2				All		
	rock type	v[-]	E [GPa]	conf.	rock type	v[-]	E [GPa]	conf.	v[-]	E [GPa]	conf.
ONK-SH57	DGN	0.15	53.2	L	DGN	0.19	60.9	L	0.17	56.8	L
ONK-SH58	VGN	0.24	61.4	H	VGN	0.14	52.1	L	0.19	56.4	L
ONK-SH59	DGN	0.29	58.6	H	DGN	0.24	60.4	H	0.26	59.3	H
ONK-SH60	DGN	0.35	37.2	F	DGN	0.22	54.6	H			
ONK-SH61	PGR (leuco-some)	0.15	45.8	H	PGR (leuco-some)	0.19	40.6	H	0.17	42.2	H

The rosettes were attached to the upper line of the rock and 90 degrees clockwise (Table 3-4).

Table 3-4. Rosettes' positions on core samples.

Hole ID	Rosette 1 (top)	distance [cm]	Rosette 2	distance [cm]
ONK-SH57	upper line	13.8	90° clockwise	13.8
ONK-SH58	upper line	13.3	90° clockwise	13.4
ONK-SH59	upper line	12.5	90° clockwise	12.5
ONK-SH60	15° counter clockwise	12.5	75° clockwise	12.4
ONK-SH61	55° counter clockwise	8.9	35° clockwise	12.9

A3.3 ONK-KU2 level 222

Rock type is mainly veined gneiss (VGN), but also relatively large areas of pegmatitic formations (PGR) occur. The gneiss is often small in grain size and strongly foliated (banded foliation). In the quartz/feldspar-rich areas the foliation is not seen surfaces where strain gauges are glued. Success of the measurements was variable (Table 3-5). In some cases, the surface of the rock was uneven due to drilling. Also in protection film of rosette 2 of ONK-SH62 was a hole that could have had an influence to the result.

Table 3-5. Results of the biaxial measurements. Confidence is high (H), low (L) or failed (F).

Hole ID	Rosette 1 (top)				Rosette 2				All		
	rock type	v[-]	E [GPa]	conf.	rock type	v[-]	E [GPa]	conf.	v[-]	E [GPa]	conf.
ONK-SH62	PGR (leuco-some)	0.23	43.3	L	DGN	0.12	39.7	L	0.17	41.4	L
ONK-SH63	Cannot be measured.										
ONK-SH64	VGN	0.23	54.6	H	VGN	0.29	55.3	H	0.26	54.9	H
ONK-SH65	VGN	0.10	36.2	F	VGN	0.18	54.7	L			
ONK-SH66	VGN	0.31	47.7	L	VGN	0.25	47.2	L	0.28	47.5	L
ONK-SH67	VGN	0.31	49.9	H	VGN	0.25	49.4	H	0.28	49.6	H

The rosettes were meant to be attached to the upper line of the rock and 90 degrees counter clockwise but it was not possible in every sample due to the uneven surface of the rock (Table 3-6).

Table 3-6. Rosettes' positions on core samples.

Hole ID	Rosette 1 (top)	distance [cm]	Rosette 2	distance [cm]
ONK-SH62	upper line	9.5	90° counter clockwise	9.5
ONK-SH63	Cannot be measured.			
ONK-SH64	90° counter clockwise	13.3	under line	13.4
ONK-SH65	90° counter clockwise	8.3	under line	8.4
ONK-SH66	upper line	12	90° counter clockwise	11.8
ONK-SH67	upper line	11.3	90° clockwise	11.2

A3.4 ONK-KU2 level 265

All pilot holes were drilled in diatexitic gneiss, where grain size and the amount of leucosome varied. Pilot hole samples from R1 were not available. Samples R2, R4, R5 and R6 are coarse grained diatexitic gneisses, where leucosome can be seen in several locations as like veins, contacts are diffusive (not sharp). The sample from the hole R3 is more medium or fine grained than that previously mentioned. This hole was drilled partly in fine grained mica or quartz gneiss (Hakala et al. 2013).

Table 3-7. ONK-KU2 ONK-KU2 level 265: Biaxial test results for the unloading phase. Values that were excluded are marked in grey.

Hole ID	Tangential [GPa]	Inclined [GPa]	Axial [GPa]	Mean [GPa]
ONK-SH68	72.6	62.1	59.8	64.9
ONK-SH69	48.1	49.4	47.5	48.4
ONK-SH70	52.8	51.7	52.0	52.2
ONK-SH71	51.8	51.9	56.9	53.5
ONK-SH72	42.4	46.2	44.9	44.5
ONK-SH73	49.0	37.5	31.8	39.4
Mean for all accepted				50.5
Min/Mean				63 %
Max/Mean				144 %
St.dev/Mean				18 %

A3.5 ONK-KU2 level 315

Rock type is veined gneiss (VGN) or diatexitic gneiss (DGN). Foliation is stronger in the first samples (banded foliation) and it is getting weaker in the latter samples (irregular foliation). However, the foliation is not obvious in smaller scale, in the surface where strain gauges are glued. Grain size is mainly small. Some problems occurred in another strain gage in two core samples. However, the other strain gage rosette of the rock was successful (Table 3-8).

Table 3-8. Results of the biaxial measurements. Confidence is high (H), low (L) or failed (F).

Hole ID	Rosette 1 (top)				Rosette 2				All		
	rock type	v[-]	E [GPa]	conf.	rock type	v[-]	E [GPa]	conf.	v[-]	E [GPa]	conf.
ONK-SH119	VGN	0.27	80.4	H	VGN	0.19	63.1	H	0.22	70.5	H
ONK-SH120	DGN	0.25	71.8	H	DGN	0.38	56.4	F			
ONK-SH121	DGN	0.26	59.9	H	DGN	0.22	55.9	H	0.24	57.8	H
ONK-SH122	DGN	0.24	68.9	H	DGN	0.30	98.5	F			
ONK-SH123	VGN	0.21	55.6	H	VGN	0.24	72.3	H	0.22	62.4	H

The rosettes were meant to be attached to the upper line of the rock and 90 degrees counter clockwise but it was not possible in every sample due to the uneven surface of the rock (Table 3-9).

Table 3-9. Rosettes' positions on core samples.

Hole ID	Rosette 1 (top)	distance [cm]	Rosette 2	distance [cm]
ONK-SH119	upper line	10.2	90° clockwise	10.4
ONK-SH120	145° counter clockwise	21.2	235° counter clockwise	21.1
ONK-SH121	160° counter clockwise	29.6	250° counter clockwise	29.4
ONK-SH122	45° counter clockwise	13.5	45° clockwise	13.5
ONK-SH123	upper line	11.2	90° clockwise	11.2

A3.6 ONK-KU2 level 360

Rock type is veined gneiss (VGN) or mica gneiss (MGN) and the grain size is small. Foliation is diverse. It occurs either as gneissic, schistose, banded or massive form. The measurements went mainly well and the results are reliable (Table 3-10).

Table 3-10. Results of the biaxial measurements. Confidence is high (H), low (L) or failed (F).

Hole ID	Rosette 1 (top)				Rosette 2				All		
	rock type	v[-]	E [GPa]	conf.	rock type	v[-]	E [GPa]	conf.	v[-]	E [GPa]	conf.
ONK-SH145	VGN	0.24	68.1	H	VGN	0.24	67.8	H	0.24	68.0	H
ONK-SH146	VGN	0.37	86.2	F	VGN	0.27	69.3	H			
ONK-SH147	MGN	0.29	74.9	H	MGN	0.23	62.0	H	0.26	67.9	H
ONK-SH148	VGN	0.32	78.0	H	VGN	0.23	58.5	H	0.27	66.7	H
ONK-SH149	MGN	0.29	70.2	H	MGN	0.26	59.1	H	0.28	64.1	H
ONK-SH150	MGN	0.25	68.8	H	MGN	0.21	73.1	H	0.23	70.6	H

The rosettes were aim to attach on the upper line of the rock and 90 degrees counter clockwise (Table 3-11). If the rock surface was uneven, the rosette's position was moved.

Table 3-11. Rosettes' positions on core samples.

Hole ID	Rosette 1 (top)	distance [cm]	Rosette 2	distance [cm]
ONK-SH145	upper line	18.3	90° counter clockwise	18
ONK-SH146	upper line	12.2	90° counter clockwise	12
ONK-SH147	52° counter clockwise	12.4	142° counter clockwise	12.4
ONK-SH148	20° counter clockwise	10.2	115° counter clockwise	10.4
ONK-SH149	upper line	21.5	90° counter clockwise	21.3
ONK-SH150	upper line	11.8	90° clockwise	11.8

A3.7 ONK-KU2 level 413

Rock type is mainly veined gneiss (VGN). Foliation is mostly banded. Grain size is small. Also one pegmatitic granite (PGR) sample was measured and that had a bigger grain size.

Measurements went well and the results are reliable although strains did not recover very well and therefore the Poisson's ratio and Young's modulus are calculated mainly from the strain values occurred from 15 MPa pressure (Table 3-12).

Table 3-12. Results of the biaxial measurements. Confidence is high (H), low (L) or failed (F).

Hole ID	Rosette 1 (top)				Rosette 2				All		
	rock type	v[-]	E [GPa]	conf.	rock type	v[-]	E [GPa]	conf.	v[-]	E [GPa]	conf.
ONK-SH139	VGN	0.20	57.3	H	VGN	0.18	50.2	H	0.19	52.9	H
ONK-SH140	VGN	0.27	64.7	H	VGN	0.18	58.1	H	0.22	61.1	H
ONK-SH141	VGN	0.25	63.0	H	VGN	0.23	43.0	L	0.24	51.1	L
ONK-SH142	PGR	0.24	55.2	H	PGR	0.20	49.8	H	0.22	51.8	H
ONK-SH143	VGN	0.30	54.8	H	VGN	0.19	44.2	L	0.24	48.9	L
ONK-SH144	VGN	0.22	56.9	H	VGN	0.17	62.6	L	0.20	59.6	L

The rosettes were meant to be attached to the upper line of the rock and 90 degrees counter clockwise (Table 3-13). That could not be done in all the samples due to the uneven surface of the sample or for example different rock type or large crystal under the strain gauge rosette. Distance from the bottom of the sample to the centre of the rosette was also measured.

Table 3-13. Rosettes' positions on core samples.

Hole ID	Rosette 1 (top)	distance [cm]	Rosette 2	distance [cm]
ONK-SH139	upper line	14	90° counter clockwise	14.5
ONK-SH140	33° clockwise	10.7	123° clockwise	10.7
ONK-SH141	upper line	17	90° counter clockwise	16.7
ONK-SH142	upper line	14	90° counter clockwise	14
ONK-SH143	25° counter clockwise	14.8	115° counter clockwise	15
ONK-SH144	11° clockwise	9.5	100° clockwise	9.5

A3.8 ONK-EDZ PL46

Rock type in ONK-SH74-77 is medium grained, mica bearing and moderately or intensely banded veined gneiss. Measurements went well and Confidence of results is mainly high (Table 3-14). In ONK-SH79-84 rock type is mica bearing and fine grained veined gneiss. Foliation is banded or intense schistosity. The measurements went perfectly providing excellent results.

Table 3-14. Results of the biaxial measurements. Confidence is high (H), low (L) or failed (F).

Hole ID	Rosette 1 (top)				Rosette 2				All		
	rock type	v[-]	E [GPa]	conf.	rock type	v[-]	E [Gpa]	conf.	v[-]	E [Gpa]	conf.
ONK-SH74	VGN	0.21	45.7	H	VGN	0.24	46.4	H	0.22	45.4	H
ONK-SH75	VGN	0.19	47.5	H	VGN	0.15	52.3	H	0.17	49.6	H
ONK-SH76	VGN	0.21	55.1	H	VGN	0.22	51.9	H	0.22	53.5	H
ONK-SH77	VGN	0.20	62.3	H	VGN	0.15	50.5	H	0.17	55.5	H
ONK-SH79	Cannot be measured.										
ONK-SH80	Cannot be measured.										
ONK-SH81	VGN	0.26	70.7	H	VGN	0.18	67.8	H	0.22	69.0	H
ONK-SH82	VGN	0.32	56.2	H	VGN	0.25	45.7	H	0.28	50.0	H
ONK-SH83	VGN	0.25	57.6	H	VGN	0.22	49.9	H	0.23	53.0	H
ONK-SH84	Cannot be measured.										

The rosettes were attached according to the foliation, one rosette perpendicular to the plane and another at a 90 degree angle (Table 3-15).

Table 3-15. Rosettes' positions on core samples.

Hole ID	Rosette 1 (top)	distance [cm]	Rosette 2	distance [cm]
ONK-SH74	65° counter clockwise	10.9	155° counter clockwise	11
ONK-SH75	35° counter clockwise	9.4	125° counter clockwise	9.6
ONK-SH76	168° clockwise	12	90° counter clockwise	12
ONK-SH77	149° clockwise	15.5	55° clockwise	15.5
ONK-SH79	Cannot be measured.			
ONK-SH80	Cannot be measured.			
ONK-SH81	130° clockwise	14.5	220° clockwise	14.5
ONK-SH82	35° counter clockwise	18	55° clockwise	19.8
ONK-SH83	35° clockwise	26	125° clockwise	27.5
ONK-SH84	Cannot be measured.			

A3.9 ONK-TKU3-EH3

Rock type is moderately banded, mica bearing and medium grained veined gneiss (VGN). Results have mainly low Confidence (Table 3-16).

Table 3-16. Results of the biaxial measurements. Confidence is high (H), low (L) or failed (F).

Hole ID	Rosette 1 (top)				Rosette 2				All		
	rock type	v[-]	E [GPa]	conf.	rock type	v[-]	E [GPa]	conf.	v[-]	E [GPa]	conf.
ONK-SH114	VGN	0.27	48.3	L	VGN	0.19	39.3	L	0.24	31.8	L
ONK-SH115	VGN	0.19	45.9	L	VGN	0.26	51.0	L	0.24	35.5	L
ONK-SH116	VGN	0.31	71.0	H	VGN	0.22	49.1	L	0.28	42.3	L
ONK-SH118	-	0.2	52.7	-	-	0.19	62.3	-	0.19	57.1	-

The rosettes were attached to the upper line of the rock and 90 degrees clockwise (Table 3-17).

Table 3-17. Rosettes' positions on core samples.

Hole ID	Rosette 1 (top)	distance [cm]	Rosette 2	distance [cm]
ONK-SH114	upper line	-	90° clockwise	-
ONK-SH115	upper line	-	90° clockwise	-
ONK-SH116	upper line	-	90° clockwise	-

A3.10 ONK-TKU3 PL46

Table 3-18. ONK-TKU3-PL46: Biaxial test results for the unloading phase. Values that were excluded are marked in grey.

	Rosette 1		Rosette 2		Both rosettes	
Hole ID	ν	E (GPa)	ν	E (GPa)	ν	E (GPa)
SH201	0.22	43.5	0.16	35.3	0.18	39.0
SH200	0.29	68.8	0.25	51.3	0.27	58.7
SH199	-0.29	-74.8	0.66	21.7	1.05	61.1
SH198	0.17	52.4			0.17	53.1
SH197	0.17	54.7	0.17	37.5	0.17	44.5
Mean for all accepted					0.19	49.5
Min/Mean					89 %	76 %
Max/Mean					153 %	139 %
St.dev/Mean					30 %	22 %

A3.11 ONK-TKU3 PL61

Table 3-19. ONK-TKU3 PL61: Biaxial test results for the unloading phase.

	Rosette 1		Rosette 2		Both rosettes	
Hole ID	ν	E (GPa)	ν	E (GPa)	ν	E (GPa)
SH205	0.08	34.0	0.16	29.0	0.13	31.3
SH206	0.22	44.9	0.30	56.2	0.26	49.9
SH204	0.17	46.9	0.32	67.5	0.23	55.3
SH203	0.23	53.5	0.30	61.7	0.26	57.2
SH202	0.19	71.5	0.23	63.9	0.21	67.5
Mean for all accepted					0.24	57.8
Min/Mean					33 %	50 %
Max/Mean					133 %	124 %
St.dev/Mean					31 %	24 %

A3.12 ONK-VT1 PL3662

Rock type is mainly fine or medium grained veined gneiss, sometimes mafic or mica bearing. In DGN sections, leucosome is coarse grained pegmatitic granite and melanosome banded, mica bearing veined gneiss. Confidence of the results is mainly high (Table 3-20).

Table 3-20. Results of the biaxial measurements. Confidence is high (H), low (L) or failed (F).

Hole ID	Rosette 1 (top)				Rosette 2				All		
	rock type	v[-]	E [GPa]	conf.	rock type	v[-]	E [GPa]	conf.	v[-]	E [GPa]	conf.
ONK-SH85	PGR	0.18	59.4	H	PGR	0.22	50.3	H	0.20	54.5	H
ONK-SH86	VGN	0.23	70.4	H	VGN	0.17	47.8	H	0.19	56.9	H
ONK-SH87	DGN	0.07	74.6	L	DGN	0.07	59.7	L	0.07	49.6	L
ONK-SH88	VGN	0.20	70.8	H	VGN	0.23	68.4	H	0.22	69.6	H

Rosettes' positions are presented in Table 3-21.

Table 3-21. Rosettes' positions on core samples.

Hole ID	Rosette 1 (top)	distance [cm]	Rosette 2	distance [cm]
ONK-SH85	-	-	-	-
ONK-SH86	upper line	10.2	270° clockwise	10.2
ONK-SH87	-	-	-	-
ONK-SH88	upper line	13.0	90° clockwise	13.0

A3.13 ONK-VT1 PL4020

Measurements are made by UniSigma Oy and Aalto University in 2011. Measurement results of Aalto University are presented in Eloranta (2011).

Rock types are banded mica bearing veined gneiss and coarse grained granitic leucosome. Melanosome is gneissic, banded and fine grained. A couple of measurements failed but mainly Confidence of the results is high (Table 3-22).

Table 3-22. Results of the biaxial measurements. Confidence is high (H), low (L) or failed (F).

Hole ID	Rosette 1 (top)				Rosette 2				All		
	rock type	v[-]	E [GPa]	conf.	rock type	v[-]	E [GPa]	conf.	v[-]	E [GPa]	conf.
ONK-SH90	DGN	0.22	82.9	H	DGN			F			
ONK-SH91	PGR	0.15	61.8	H	PGR	0.21	46.4	H	0.18	53.0	H
ONK-SH92	DGN	0.21	77.5	H	DGN	0.29	76.0	H	0.25	76.7	H

Rosettes' positions are presented in Table 3-23.

Table 3-23. Rosettes' positions on core samples.

Hole ID	Rosette 1 (top)	distance [cm]	Rosette 2	distance [cm]
ONK-SH90	180° clockwise	12.0	270° clockwise	12.0
ONK-SH91	180° clockwise	12.0	90° clockwise	12.0
ONK-SH92	52° clockwise	12.0	142° clockwise	12.0

A3.14 ONK-VT1 PL4186

Rock type is moderately banded, mica bearing and medium grained veined gneiss (VGN). The result is excellent (Table 3-24).

Table 3-24. Results of the biaxial measurements. Confidence is high (H), low (L) or failed (F).

Hole ID	Rosette 1 (top)				Rosette 2				All		
	rock type	v[-]	E [GPa]	conf.	rock type	v[-]	E [GPa]	conf.	v[-]	E [GPa]	conf.
ONK-SH93	VGN			F	VGN	0.18	45.6	H	0.34	55.2	F
ONK-SH95	VGN	0.22	65.3	H	PGR (leuco-some)	0.19	57.2	H	0.20	61.0	H
ONK-SH96	PGR	0.24	39.6	L	PGR	0.30	42.9	H	0.30	29.8	L

Rosettes' positions are presented in Table 3-25.

Table 3-25. Rosettes' positions on core samples.

Hole ID	Rosette 1 (top)	distance [cm]	Rosette 2	distance [cm]
ONK-SH93	upper line	-	90° clockwise	-
ONK-SH95	upper line	-	90° clockwise	-
ONK-SH96	upper line	-	90° clockwise	-

A3.15 ONK VT1 PL4267

Rock type is moderately banded, mica bearing and medium grained veined gneiss (VGN). The result is excellent (Table 3-26).

Table 3-26. Results of the biaxial measurements. Confidence is high (H), low (L) or failed (F).

Hole ID	Rosette 1 (top)				Rosette 2				All		
	rock type	v[-]	E [GPa]	conf.	rock type	v[-]	E [GPa]	conf.	v[-]	E [GPa]	conf.
ONK-SH99	-	0.26	57.8	-	-	0.18	59.8	-	0.22	58.8	-
ONK-SH100	VGN	0.25	69.9	H	VGN	0.25	66.0	H	0.25	67.6	H
ONK-SH101	-	0.21	45.3	-	-	0.19	46.7	-	0.2	46.0	-

The measurements were performed according to the foliation, one rosette perpendicular to the plane and another at a 90 degree angle (Table 3-27).

Rosettes' positions are presented in Table 3-27.

Table 3-27. Rosettes' positions on core samples.

Hole ID	Rosette 1 (top)	distance [cm]	Rosette 2	distance [cm]
ONK-SH100	22° clockwise	11.2	112° clockwise	12.6

A3.16 ONK-TT4399 PL40

Table 3-28. Results of the biaxial measurements.

Hole ID	Rosette 1 (top)				Rosette 2				All		
	rock type	v[-]	E [GPa]	conf.	rock type	v[-]	E [GPa]	conf.	v[-]	E [GPa]	conf.
ONK-SH102	-	0.15	45.8	-	-	0.13	55.4	-	0.14	50.2	-
ONK-SH104	-	0.23	57.4	-	-	0.25	73.4	-	0.24	64.4	-
ONK-SH106	-	0.21	60.3	-	-	0.18	69.1	-	0.20	64.4	-

A3.17 ONK-DT1 PL36

Rock type of ONK-SH108 and ONK-SH110 is banded, fine or medium grained and mica bearing veined gneiss. Results are good (Table 3-29) although hysteresis –phenomenon may be seen in pressure-strain graphs (Appendix).

ONK-SH107 and ONK-SH109 are measured in 2011 by UniSigma Oy. Rock type of ONK-SH107 is coarse grained pegmatitic granite. Rock type of ONK-SH109 is fine grained mica gneiss. Foliation type is massive for both of these samples.

Table 3-29. Results of the biaxial measurements. Confidence is high (H), low (L) or failed (F).

Hole ID	Rosette 1 (top)				Rosette 2				All		
	rock type	v[-]	E [GPa]	conf.	rock type	v[-]	E [GPa]	conf.	v[-]	E [GPa]	conf.
ONK-SH107	PGR	0.23	47.8	H	PGR	0.17	46.1	L	0.21	34.7	L
ONK-SH108	VGN	0.15	54.7	H	VGN	0.13	34.6	H	0.14	42.4	H
ONK-SH109	MGN	0.11	51.9	H	MGN	0.16	48.3	H	0.14	37.3	H
ONK-SH110	VGN	0.20	42.7	H	VGN	0.21	71.4	H	0.20	53.1	H

The rosettes were attached according to the foliation, one rosette perpendicular to the plane and another at a 90 degree angle (Table 3-30).

Table 3-30. Rosettes' positions on core samples.

Hole ID	Rosette 1 (top)	distance [cm]	Rosette 2	distance [cm]
ONK-SH107	upper line	-	90° clockwise	-
ONK-SH108	10° counter clockwise	14.5	80° clockwise	11
ONK-SH109	upper line	-	90° clockwise	-
ONK-SH110	55° counter clockwise	13.9	145° counter clockwise	14

A3.18 ONK-DT2 PL26

Rock type is mainly fine grained veined gneiss with moderate foliation. Some larger quartz/feldspar grains occur. Measurements succeeded and the results are high in Confidence at least one of the rosettes in 4 of 5 samples (Table 3-31).

Table 3-31. Results of the biaxial measurements. Confidence is high (H), low (L) or failed (F).

Hole ID	Rosette 1 (top)				Rosette 2				All		
	rock type	v[-]	E [GPa]	conf.	rock type	v[-]	E [GPa]	conf.	v[-]	E [GPa]	conf.
ONK-SH153	VGN	0.28	76.5	H	VGN	0.19	57.5	H	0.23	65.8	H
ONK-SH154	VGN	0.33	67.7	H	VGN	0.22	43.9	L	0.26	53.3	L
ONK-SH155	VGN	0.33	66.8	H	VGN	0.25	63.2	H	0.29	64.9	H
ONK-SH156	DGN	0.24	50.5	H	DGN	0.17	59.1	H	0.21	54.5	H
ONK-SH157	VGN	0.29	58.4	H	VGN	0.22	52.1	H	0.25	55.1	H

The rosettes were attached to the upper line of the rock and 90 degrees clockwise (Table 3-32). That could not be done in all the samples due to the uneven surface of the sample or for example different rock type or large crystal under the strain gauge rosette.

Table 3-32. Rosettes' positions on core samples.

Hole ID	Rosette 1 (top)	distance [cm]	Rosette 2	distance [cm]
ONK-SH153	upper line	28	90° clockwise	28
ONK-SH154	upper line	24.1	90° counter clockwise	24.1
ONK-SH155	upper line	13.8	90° clockwise	14
ONK-SH156	upper line	9.8	90° clockwise	9.3
ONK-SH157	upper line*	21.7	90° clockwise	21.5

A3.19 ONK-DT2 PL96

Rock type is medium to coarse grained pegmatite (PGR) appearing fragile. PGR has sometimes cordierite and mica bearing. Gluing failed in two strain gages but the other rosette of the sample was successful (Table 3-33).

Table 3-33. Results of the biaxial measurements. Confidence is high (H), low (L) or failed (F).

Hole ID	Rosette 1 (top)				Rosette 2				All		
	rock type	v[-]	E [GPa]	conf.	rock type	v[-]	E [GPa]	conf.	v[-]	E [GPa]	conf.
ONK-SH158	PGR	0.25	54.4	L	PGR	0.10	61.0	F			
ONK-SH159	PGR	0.20	58.1	H	PGR	0.23	67.6	H	0.22	62.1	H
ONK-SH160	PGR	0.23	76.8	F	PGR	0.18	62.7	H			
ONK-SH161	PGR	0.25	55.7	H	PGR	0.18	63.9	H	0.21	59.0	H
ONK-SH162	-	0.28	34.1	-	-	0.18	48.3	-	0.21	35.1	-

Rosettes' positions are presented in Table 3-34.

Table 3-34. Rosettes' positions on core samples.

Hole ID	Rosette 1 (top)	distance [cm]	Rosette 2	distance [cm]
ONK-SH158	70° clockwise	12	160° clockwise	14
ONK-SH159	90° counter clockwise*	15.4	under line	16
ONK-SH160	upper line	13.4	90° clockwise	13.3
ONK-SH161	upper line*	12.8	90° counter clockwise	11