

## Reference Sample – *Spruce needles C (Austria)*

(used in the 24th Needle/Leaf Interlaboratory Test as Sample 4)

Element concentration calculated on dry mass (105°C).

Element	N/L	Unit	Mean	S <sub>R</sub>
<b>N</b>	159/40	mg/g	13,33	0,443
<b>S</b>	148/37	mg/g	0,93	0,074
<b>P</b>	160/40	mg/g	2,29	0,082
<b>Ca</b>	160/40	mg/g	5,49	0,294
<b>Mg</b>	160/40	mg/g	1,34	0,059
<b>K</b>	155/39	mg/g	8,17	0,349
<b>Zn</b>	128/32	µg/g	31,39	1,484
<b>Mn</b>	140/35	µg/g	993,61	48,943
<b>Fe</b>	130/33	µg/g	65,58	4,525
<b>Cu</b>	119/30	µg/g	3,10	0,223
<b>Pb</b>	55/14	µg/g	0,067	0,032
<b>Cd</b>	88/22	ng/g	70,50	6,360
<b>B</b>	76/19	µg/g	2,43	0,332
<b>C</b>	136/34	g/100g	51,73	0,709
<b>As</b>	28/7	ng/g	12,96	2,165
<b>Co</b>	60/15	µg/g	0,50	0,035
<b>Cr</b>	83/21	µg/g	2,68	0,319
<b>Hg</b>	52/13	ng/g	7,81	1,562
<b>Mo</b>	31/8	ng/g	431,36	57,728
<b>Ni</b>	100/25	µg/g	7,97	0,521
<b>Tl</b>	32/8	ng/g	30,91	2,403
<b>V</b>	36/9	µg/g	1,17	0,076

N ..... Outlier free single values

L ..... Number of laboratories without outliers type 2

Mean ... Total mean value from all results without outliers

S<sub>R</sub> ... Standard deviation from all outlier free results

$S_{mean} = \frac{S_R}{\sqrt{N}}$  Standard error of the mean

A homogeneity test was made with 250 mg sample material – the recommended minimum sample intake is therefore 250 mg.