

# DATA BULLETIN

## *Determining the nitrogen and carbon isotopic composition of wood using Geovision*

Stable isotope analyses in wood are of interest for research on the carbon and nitrogen cycle, plant physiology and palaeo-climatology. With traditional chromatographic techniques, complete baseline separation of the nitrogen and carbon peaks is difficult due to the high C/N ratio in wood. The purge and trap technique of the Geovision guarantees baseline separation, even for extreme element ratios.

Finely ground wood samples were weighed into tin boats and pressed with a manual pressing tool in order to remove ambient air from the sample. Each sample was analysed twice on the Geovision. The elemental and isotopic composition are presented below.

The isotope ratios are calibrated against international isotope reference materials and related to the VPDB ( $^{13}\text{C}$ ) and air- $\text{N}_2$  ( $^{15}\text{N}$ ) scale. For the elemental composition measurements acetanilide is used for calibration.

### CONFIGURATION:

Geovision in CN mode

### SAMPLE:

5 mg wood, solid

SAMPLE	N [%]	C [%]	$\delta^{15}\text{N}$ [‰]	$\delta^{13}\text{C}$ [‰]
wood-1	0.65	46.8	$0.15 \pm 0.14$	$-26.32 \pm 0.05$
wood-2	0.68	47.6	$1.07 \pm 0.04$	$-27.01 \pm 0.01$
wood-3	0.68	46.2	$-0.61 \pm 0.12$	$-28.45 \pm 0.07$
wood-4	0.62	45.4	$3.14 \pm 0.10$	$-26.40 \pm 0.01$



The results show that the isotope ratios of wood can be determined with a very high precision. Due to the purge and trap technique of the **vision**, nitrogen and carbon peaks are completely separated, even for wood samples with an extremely high C/N ratio.

The Geovision is well suitable for the analysis of CN isotopes in wood samples.

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