32 mL min⁻¹ He + 3 mL min⁻¹ O₃ programmable T oven $[\beta, T(t)]$ traditional vacuum line quartz and CO, isotope analysis reactor with sample fraction mass (m) $(G_0 \mu gC)$ fraction isotopes time $(\delta^{13}C_a, Fm_a)$ Cu. Pt. Ni switchable catalyst constant T cryogenic traps oven (800°C) in-line infrared CO2 analyser water trap $\frac{dG(t)}{u}$ (µgC sec⁻¹)

time