

DATA REPOSITORY ITEM: SAMPLE DESCRIPTION AND EXPERIMENTAL METHODS

The end-Permian section at Val Badia consists of the uppermost part of the Bellerophon Formation (the Badiota facies) and the base of the Werfen Formation (the Tesero Member and lowermost part of the Mazzin Member), which were deposited in the western Tethys Ocean. The exposed Bellerophon Formation consists of dark fossiliferous limestones and occasional organic-rich marls. These sediments were deposited in a shallow marine setting, with restricted circulation, on an eastward dipping homoclinal ramp (Noé 1987). The Tesero Member sharply overlies the Bellerophon Formation and is composed of 2.6 m of marls, marly limestones and oolitic limestones. The Mazzin Member overlies the Tesero Member and consists of light grey limestones and marly mudstones with calcarenite and calcisiltite storm layers. The depositional environments of the upper part of the Bellerophon Formation and lower part of the Werfen Formation have been discussed in detail by Wignall and Hallam (1992). It should be noted that the formation boundary does not coincide with the formal Permian-Triassic boundary. The marker for this boundary, the conodont *Hindeodus parvus*, appears in the basal part of the Mazzin Member (e.g. Perri, 1991) and so the Tesero Member should now be regarded as latest Permian in age. Samples were collected from the Bellerophon Formation, Tesero Member and Mazzin Member.

High molecular weight organic materials (kerogens) were isolated from the mineral matrix with hydrofluoric (HF) and hydrochloric (HCl) acids. HF/HCl residues were analysed by Curie-point Py-GC. Samples were pressed onto a flattened ferromagnetic wire and pyrolysed by inductive heating for 10 seconds (Curie temperature 610 °C). The pyrolysis unit was directly coupled to a Hewlett Packard 5890 gas chromatograph equipped with a cryogenic unit and fitted with a CP-Sil 5 capillary column (25 m x 0.32 mm x 0.45 µm). The GC oven was held at 0 °C for 5

mins and subsequently programmed from 0 °C to 320 °C at 3 °C min⁻¹. The final temperature was held for 10 min. Identification of the pyrolysis products was performed by Curie-point Py-GCMS, where an identical GC was interfaced to a VG Autospec Ultima mass spectrometer operated at 70 eV with a mass range m/z 40-800 and a cycle time of 1.8 seconds (resolution 1000).

$\delta^{13}\text{C}_{\text{carb}}$ values were determined after heating the samples under vacuum to 400 °C (30 min) before treatment with H₃PO₄ to produce CO₂. For determination of TOC % and $\delta^{13}\text{C}_{\text{org}}$, the samples were treated with 0.1N HCl (x 2), rinsed with distilled water, dried at 60°C overnight, and then combusted to CO₂ (900 °C). The CO₂ from both procedures was introduced into a VG SIRA 24 EM IRMS and the ratio of ¹³C/¹²C measured. All obtained carbon-isotope ratios are expressed in the usual notation, relative to the international PDB standard as follows: $\delta^{13}\text{C} \text{ ‰} = [({}^{13}\text{C} / {}^{12}\text{C}_{\text{sample}} - {}^{13}\text{C} / {}^{12}\text{C}_{\text{standard}}) / ({}^{13}\text{C} / {}^{12}\text{C}_{\text{standard}})] \times 1000$.

REFERENCES CITED IN DATA REPOSITORY ITEM

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