

C) *S2 - Oil and Gas Generating Capacity*

The quantitative parameter S2 of Rock-Eval analysis (potential yield) is used to evaluate the generating capacity of the sediments. Those having over 2.5 mg/g rock potential yield are classified as fair, between 5 mg/g rock and 10 mg/g rock as good, and greater than 10 mg/g rock as very good to excellent.

The potential yield (S2) in the Pelican Trough is estimated to be very good to excellent with S2 values commonly exceeding 10 mg/g rock (Figure 8.4). The Palaeocene section, in particular, has extremely high organic richness generating capacity with typical S2 values ranging from 10-60 mg/g. Several smaller intervals within the Eocene (Figure 8.4) commonly exhibit good to very good source richness with S2 values between 5-15 mg/g.

D) *S2/S3 Ratio: Hydrocarbon Source Potential*

The S2/S3 ratio is a quantitative measure of source potential and type. S2/S3 values greater than 5 often indicate oil source potential.

At Pelican 5 the S2/S3 ratio is generally very good (2-20) to excellent (> 20) throughout the lower Eocene to Palaeocene. These values are consistent with data from most other Bass Basin wells (Figure 8.5), which exhibit with high ratios around the *M. diversus* - Palaeocene sections. Cretaceous sediments have generally lower S2/S3 ratios, falling within the moderate to good range (2-10).

8.3 Source Rock Type

The organic geochemical character of the shaley EVCM sediments was examined from pyrolysis data with the objective of determining the proportions of kerogen types I, II and III. At Flinders 1 and Pelican 5 a very high proportion (more than 80%) of kerogen type III, characteristic of deltaic environments, is observed. Kerogen type III produces less hydrocarbons than kerogens of types I or II per unit volume (Tissot and Espitalié, 1975), but this is offset because the total organic carbon is high (> 5% for most potential source intervals). A good total organic carbon content (TOC > 10%)