Influence of Fluorescing Vitrinite on the Fluidity of some Bowen Basin coals.

INTRODUCTION

Nearly three decades ago, in a study of the Wolgan coal from near Lithgow, New South Wales, CREANEY, PEARSON & MARCONI (1980) concluded that the presence of bituminous materials in the coal was responsible for variations in the coal’s fluidity.

When we recently observed considerable variation in the Giesler fluidity among samples of coal from a Bowen Basin property, specifically from 5000 ddpm to 16000 ddpm, (Figure 1, below), we immediately thought that the variation in the fluidity peak (DDPM's) is a function of the proportion of Detrovitrinite to Telocolinite. This type of variation is caused by bitumen-bearing vitrinite. This type of variation is caused by bitumen-bearing vitrinite. This type of variation is caused by bitumen-bearing vitrinite.

This poster is concerned with demonstrating (1) the presence of bituminous materials in the coal, five examples of its Giesler fluidity are shown above. In (a) and (b) there are very high Giesler fluidities - in excess of 50,000 DDPM, and as high as 170,000 DDPM, see Figure 9, below. This is caused by large amounts of bitumen that is soaked into the vitrinite structure. There is a correspondingly large display of fluorescent by the vitrinite as (c).

CONCLUSIONS

There are unexplained variations of fluidity in some Bowen Basin coals. We have documented in other areas that such variations are caused by bitumen-bearing vitrinite. Here we demonstrate fluorescence of vitrinite in some Bowen Basin coals, and suggest that this may be the cause of Giesler fluidity fluctuations.

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