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Erratum

Erratum to “Bitumen microstructure by modulated differential scanning calorimetry” [Thermochim. Acta 374 (2001) 105–114]☆

J-F. Masson*, G.M. Polomark

Institute for Research in Construction, National Research Council of Canada, Building M-20, Ottawa, Ont., Canada K1A OR6

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A correction is made to the composition of the bitumen investigated. As a result, the proportion of the endothermic background that arises from fractions other than the saturates is reduced, and Sections 4.3 and 5.0 must reflect this change. The modifications are italicized where appropriate.

In Section 2 (**Experimental**), the first paragraph must read as follows:

Bitumen was provided by Petro-Canada. It had a 85/100 penetration grade and a respective saturates, aromatics, resins, and asphaltenes content of *9*, *27*, *43*, *and 20%*, as measured with the Iatroscan by successive elution in heptane, toluene and tetrahydrofuran.

In Section 4.3 (*Origin of thermal events*), the last paragraph must read as follows:

A mesophase structure for bitumen is consistent with the entropy of transition, $\Delta S = \Delta H/T$, obtained from the background (Fig. 7). Considering an average molecular weight of $1000\,\mathrm{g\,mol^{-1}}$ for bitumen [27–28], a transition centre at $T = 300\,\mathrm{K}$ and $\Delta H \approx 7\,\mathrm{J\,g^{-1}}$, the calculated entropy of transition is $\sim 23\,\mathrm{J\,K^{-1}\,mol^{-1}}$. This value is typical of that for the orientational disordering of irregular structures [20,25,26]. This implies that *an important* contributor to the background could be an ensemble of alkylated aromatics of various sizes and shapes, and that the transition arises *in good part* from isotropization, a situation most common in mesophases [20,25,26]. The disordering of more regular structures, i.e., melting of the saturates, may then only *partly contribute* to the endotherm. This is consistent with the work of Harrison et al. [8] who failed to find a correlation between saturates content and the size of the endotherm. This is also shown by a simple calculation. The heat of fusion of the saturates is $17–30\,\mathrm{J\,g^{-1}}$ [9,10,34]. With a *9%* saturates content for the bitumen at hand, the expected heat of fusion was *1.5–3.0* $J\,g^{-1}$. Yet that obtained was $\sim 7\,\mathrm{J\,g^{-1}}$, which indicates that more than *50%* of the background arises from isotropization of fractions other than the saturates.

In Section 5 (**Conclusion**), the fourth sentence of the second paragraph should read as follows:

From the enthalpy of the endotherms, ΔH, it is estimated that more than *50%* of the total endotherm arises from isotropization of these aromatics, *the rest arising from the melting* of the crystalline saturates.

Reference [36] has been updated and reads as follows:

[36] J.-F. Masson, G.M. Polomark, Energy Fuels 16 (2002) 470.

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* Corresponding author. Tel.: +1-613-993-2144;
fax: +1-613-954-5984.
E-mail address: jean-francois.masson@nrc.gc.ca (J.-F. Masson).

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