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Letter to the Editor

A contribution to the debate on LPG fires

In a contribution to this journal as yet in press and accessible through Science Direct, J.E.S. Venart takes issue over a number of points in an article from earlier in the year on LPG fires [1]. One point made by Venart the present author the present author would like to develop.

Citing a 1967 source by H.C. Hottel and F.A. Sarofim, Venart states that the absorptivity of white paint towards solar radiation is 0.3. It is doubtful whether this is generally true. If a surface is painted white all that is certain is that it is reflecting in the visible region of the solar radiation it receives. To give a single figure at all is to make the implicit assumption that the white paint is 'gray' in the sense of that term in thermal radiation, that is, that it has the same emissivity for all wavelengths within the solar spectrum. There is no reason at all why this should be so. Non-gray bodies, which have significantly different emissivities towards different wavelengths, are not rare amongst materials of practical importance. A white paint, depending on its composition, might be quite powerfully absorbing at wavelengths lower or higher than those in the visible range.

At one time cars for export to warm countries such as Australia tended to be painted white to make for passenger comfort. This practice is no longer prevalent. It might be simply that purchasers desire a range of colours but it is more probable that the belief that white cars are more comfortable in hot weather was not convincingly supported by experience. If so the points made in the paragraph above are relevant. That being said, the author did observe during a recent trip to India that there all saloon cars in government service are white!

Reference

[1] P.K. Raj, J. Hazardous Mater. A 122 (2005) 37–49.

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