Note

In your journal papers appear in which, to describe the process of the non-isothermal decomposition of substances, the following equation is being used:

$$\frac{dC}{dt} = -kC^n$$

where $k = k_0 \exp(-E/RT)$. Frequently this equation is presented in the form

$$dC/dT = -kC^n/b,$$

where $b = dT/dt$, that is, the heating rate.

Experimental investigations and theoretical analysis demonstrated that in non-isothermal conditions the above equations are unappliable, and their use leads to erroneous conclusions. Some of the papers in which this has been established are: O. F. Shlensky and G. E. Vishnevsky, Dan SSSR., 246 (1979) 151; O. F. Shlensky, A. P. Bronshteyn, G. N. Makarov and G. M. Tseytlin, Dan SSSR., 253 No. 4. (1980). For describing non-isothermal decomposition, mathematical models are suggested that differ from traditional models. References are found in the cited papers.

In view of the important consequences of the question, I recommend that in the future no paper attempting to describe the process of non-isothermal kinetics should be accepted for publication, such paper not being conform to modern concepts.

Should the Editorial Board have doubts regarding the matter, I beg you to print this letter in your journal in order to introduce its discussion. On my part I am ready to present additional material.

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