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著者	SUZUOKA Toshiro
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## Exact Solutions of Two Ideal Cases in Grain Boundary Diffusion Problem and the Application to Sectioning Method\*

Toshiro SUZUOKA

*The Research Institute for Iron, Steel and Other Metals*

### Abstract

Exact solutions of grain boundary diffusion based on the two mathematical conditions assumed for the surface source are discussed for the purpose of application to the experiments by means of sectioning method. It is concluded that the result obtained by either of these solutions is in effect unaffected by possible deviations from the ideal condition, and one of them, the "instantaneous source" solution, is the most successful one in analyzing the problem. The expression for the solutions can be transformed to another type of expression more appropriate to the grain boundary diffusion, and some discussions and numerical evaluations of these solutions over a more extensive range of parameters than previous are given.

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