



Title	Preface to the Special Issue on "Recycling of Wastes and Environmental Problems"
Author(s)	Kawaguchi, Takazo; Kashiwaya, Yoshiaki
Citation	ISIJ International, 40(3), 211-211 <a href="https://doi.org/10.2355/isijinternational.40.211">https://doi.org/10.2355/isijinternational.40.211</a>
Issue Date	2000-03-15
Doc URL	<a href="http://hdl.handle.net/2115/75703">http://hdl.handle.net/2115/75703</a>
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Type	article
File Information	ISIJ Int. 40(3)_211.pdf



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# Preface to the Special Issue on "Recycling of Wastes and Environmental Problems"

Takazo KAWAGUCHI and Yoshiaki KASHIWAYA<sup>1)</sup>

Iron & Steel Research Laboratories, Sumitomo Metal Industries, Ltd., Kashima, Ibaraki, 314-0255 Japan.

1) Division of Materials Science and Engineering, Graduate school of Eng., Hokkaido University, Kita-ku, Kita-13, Nishi-8, Sapporo. 060-8682 Japan.

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The problem of the waste and the environment can be seen as millennial issues. We cannot distance this away from our everyday life. It is a common problem for all people of the world and will be the most important challenge of the 21st Century. Because of its deep and wide nature, there is no easy perfect solution. The attitude of the iron and steel industry should be clearly presented, however, ways in which the industry to address its responsibility announced.

In Japan, the environmental problems must be immediately focused on. By-products such as slags, dusts and some kinds of gases from steel plants are being continuously generated. Although most dusts and slags are recycled and utilized effectively, some are still being used to reclaim land and it is important that the technology for recycling and decreasing them be given attention. According to the regulations on pollutants in exhaust gas from steel plants, increasing interest will turn to technology to reduce these. Because of the problems of the greenhouse effect and municipal waste treatment, expectations for the utilization of steel-making technology and the steel plants themselves are bound to grow. Under these circumstances, we were pleased to accept a request from the Editorial Board of ISIJ International, to undertake a special issue on the fundamental study, research on application and development of technology based on the ironmaking and steelmaking processes.

Legal regulations about the protection of the environment with regard to the dumping of waste and the residual

concentration of dioxin have been newly established in addition to the present regulations. Although some projects are already underway, most of them are still in the study phase. We had therefore expected a relatively small number of contributions. However, 13 articles and reviews are being published and we appreciate the efforts of those who submitted them. The region of environmental protection technology is very wide and cuts across many research fields. The recycling of dusts, the effective utilization of burning waste, the treatment of hazardous waste and energy saving technologies are written of in this special issue.

These describe some of the excellent technology developed to date by energetic researchers and are valuable, although we regret that complete reviews of all the noteworthy research findings introduced in Japan, could not be adequately presented here.

Work now being done on dioxin, slag treatment and energy generation (technology for decreasing CO<sub>2</sub>) are not included, but many researchers are currently involved with these subjects, a number of contributions will be presented in the near future. Needless to say, technologies to protect the local and global environments will become more and more essential for us as the 21st Century begins and must be developed. We hope to publish various field articles in future regarding such environmental technologies so that they as well as these in this special issue can benefit mankind.