

Evolution of published research on molten slags and fluxes in the second millennium

Rob BOOM^{1,2)}, S. RIAZ³⁾, Yanping XIAO^{1,4)} and Kenneth C. MILLS⁵⁾*

- 1) *Dept. of Materials Science & Engineering, Delft University of Technology, Mekelweg 2 2628 CD, Delft, NL*
- 2) *Materials Innovation Institute M2i, Delft, NL*
- 3) *Tata Steel RD&T, Teesside Technology Centre, Grangetown, TS6 6US, UK*
- 4) *Dept Metallurgical Engineering, Anhui University of Science and Technology, Ma'anshan, 243002, Anhui, China*
- 5) *Dept. of Materials Science & Engineering, Imperial College, London, SW7 2AZ, UK*

Starting in 1997 with the 5th International Conference on Slags and Fluxes a survey on research on slags has been done preceding the next conference on slags and fluxes. Trends from 1980, the year of the first conference in Halifax, Canada, have been traced and discussed. In the present paper the recent trends in slag-related research is analysed in terms of:

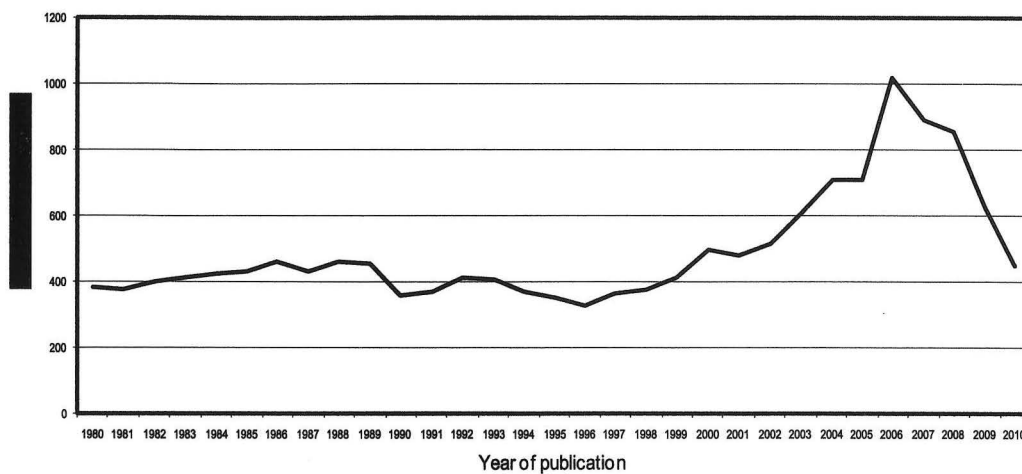
- Annual publication rate
- Geographical origin of the work
- Nature of the research (e.g. thermodynamics, kinetics)
- Nature of the slag studied.

For the ninth conference in the series the survey is focused on research on molten slags and fluxes published from 2000 till 2010. In these ten years the centre of the metals industry has been shifted to China, and the slags and fluxes literature follows this trend in geography and numbers of papers. The increased attention for sustainable metals production including recycling of valuable metals and reuses of slags as cement or construction material is reflected in the type of research on slags. Minimization of slag production per unit of metal produced is another trend triggering innovative production process development. An in-depth analysis is given of papers published in the period 2008-2011 in selected journals from China, Europe and USA in terms of slag systems, type of research and applied experimental techniques. For Europe Steel Research International was selected, for USA Metallurgical Transactions whilst for China two journals were selected: 《北京科技大学学报》 Journal of Mineral Metallurgy Materials; and 《钢铁研究学报》 Journal of Iron and Steel Research. The journal selection was made upon frequency of paper publications on slag research and on quality impact level.

The number of publications on slag research as collected from the Metadex data base had a maximum in 2006 with 1021 publications, and then lowered in 2007 to 891, to 854 in 2008 and 624 in 2009. The latter still implies on average two papers published per weekly day. In 2010 the decreasing trend is found to continue: a total of 451 papers were published. Is this a signal that

* Corresponding author: r.boom@tudelft.nl

slags as a research item is losing the attraction for researchers or is this lower value simple an indication that the unknown territory of slags and fluxes is diminishing? The results for 2011 will be available at the time of the conference.



Keywords: Literature survey, geography, slag types, slag origin, experimental techniques