

## AISTech 2011 – The AIST Indianapolis Conference

AISTech 2011 took place May 2–5, 2011 at the Indiana Convention Center in Indianapolis, Indiana, USA.

In a little more than 5 years, annual AISTech Conferences and Exhibitions have become the world's steel industry premier events: 5529 attendees, 434 technical presentations, 413 exhibiting companies, and 40 countries represented in 2011. For those of our readers who are not familiar with AIST, let us recall that AIST stands for "Association for Iron and Steel Technology". It results from the merger in 2002 of two monuments of the steel industry: the Iron and Steel Society (ISS) and the Association of Iron and Steel Engineers (AISE). Headquarters are in Pittsburgh, PA. Membership is in excess of 10 000. Definition of a new model to better service the steel industry is definitively on the front burner of this brilliant organization!

The President Award Breakfast (1048 in attendance) was a good opportunity to review the association's key components: member-run organization (steel producers, suppliers, academia, and students), technology committees, national and international chapters, preservation of collective knowledge (continuing education, short courses), and recognition of services (>30 awards distributed at AISTech 2011). Major efforts are made to attract students through scholarships, internships (to showcase the steel industry) and sponsoring of teaching chairs to university professors. Safety in the workplace receives special attention: each injury and fatality is broadcast to all technical committee members with detailed description of the accident, causes and proposed solutions.

There were 85 technical sessions. They covered all aspects of steelmaking from cokemaking and ironmaking to cold rolling and galvanizing, environment, maintenance, safety, energy, lubrication, material handling, packaging, shipping, and more! It is simply amazing that with so many papers presented (434) and so many people attending (5529), the conference evolved without any glitch. Part of the reasons is certainly the "tenure" of the AIST staff and the location of the conference center: a huge rectangular building with large hotels disposed just across the 4 streets all around with protected skyways.

If we concentrate on continuous casting, there were no fewer than 44 papers presented.

Some of them were definitively new and "food for thought."

- As an example, let us mention a paper that very clearly explained the mechanism of argon bubble entrapment in the first solidified shell of high sulfur (>0.020%) ultra-low carbon steels. It is a 2-step mechanism involving a thermal gradient (that pushes argon bubbles to the shell) and a surface tension gradient (that helps trap the bubbles). It scientifically explains the beneficial effect of the Danieli Rotelec rotative electromagnetic stirring in the mold (EMRS) that eliminates pinhole-based defects on those demanding grades (homogenization of temperature around the meniscus and washing of the solidification front).
- Reoxidation of steel between the ladle and the mold was the object of several papers. Basic tundish powers were abandoned at some steelplant because they form crusty slags that promote bald eyes i.e., direct exposure of steel to air.
- New tundish designs were proposed to reduce tundish skulls to 3 tons vs. the traditional 6–9 tons.
- Control (solidification) models were presented to manage soft reduction. However, said one of the speakers, nothing is better than taking sulfur prints whose analysis will immediately tell whether reduction was applied too high or too low.

Some papers, unfortunately, were not new, showing lack of reading and (voluntary?) ignorance of previous publications.

- An impressive number of papers dealt with steel flow structure in thick slab caster molds. None of them referred to flow measurements made in actual industrial casters. Since 2000, it is known that argon bubbles are no spheres with

constant diameter; physical and mathematical models need be absolutely calibrated with industrial data for their results to be applicable to real life operations.

- In another example, a paper reported on a 3-year research program preparing increasing casting speed from 1.5 to 2.0 m/min on an existing machine. Extensive mathematical simulations, water modeling work, mold water temperature measurements, slab surface temperature measurements, and slab bulging measurements were conducted and described in great detail to prove that casting speed could be increased in confidence. As no machine revamping was made, one attendee asked what the designed casting speed was on the machine. The speaker bluntly replied "2.0 m/min!" So, what was the point of the project?

Anyway, all in all, the conference was a great event; a forum to meet people, without forgetting the must-see exhibition. I enjoyed it!

Next year's conference will be in Atlanta, Georgia, May 7–10, 2012. Take a note of it!

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