

Energy Efficiency in Glass Production (TC09) – Annual report 2015

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SUMMARY

The most important aim for 2015 and 2016 is to define a uniform approach to define energy efficiency or specific energy use within or across the various glass industry sectors. With financial support of ICG, TC09 started a project to realize this goal. The existing non-uniformity is compounded by the fact that there is no common approach in the consideration of factors such as the effect of cullet, the efficiency of electric boosting, age, furnace design etc.. In first instance TC09 is focussing on glass melting furnaces, the largest energy consumers of a glass factory.

TC09 will develop recommended Best Practices for defining energy use and efficiency so that companies within each glass sector can make useful comparisons. This approach will be used to explain some of the differences in performance between sectors and aid discussions with non-technical and/or external agencies.

The results of this project will be used to explain the energy balances of glass furnaces and to evaluate the methodology of applied energy balance models, measuring techniques and benchmark data. The first step in this study is an energy benchmark study for six float glass furnaces. In this study glass furnace energy consumption of individual glass furnaces will be benchmarked against a database of energy consumption of (anonymous) glass furnaces.

Besides this study on the definition of energy efficiency, TC09 exchanged information on running projects and new initiatives to reduce energy consumption in the glass production process. Many companies apply energy benchmark studies as a starting point of energy reduction programs. To reduce the CO₂ footprint and energy consumption some companies switched from air-fuel to oxy-fuel, while others increased the fraction of electric boosting. New initiatives in the glass industry are for example the application of Organic Rankine Cycle (ORC), Heat-Ox systems to preheat fuel and oxygen, the application of the 'Optimelt' TCR system and the use of smart batches which melt more easily.

ACTIVITIES in 2015

1. TC09 Meetings

In 2015 two TC09 meetings were organized, the first meeting was organized on 20th April 2015 in Bilbao, Spain in connection with the Glass Trend/TC09 seminar on energy efficiency. The 2nd meeting took place on 15th October in Eindhoven, the Netherlands. The meetings were attended by respectively 21 and 17 (guest-) members.

2. Energy benchmark project

As explained in the summary an energy benchmark project has been started for 6 float furnace with the aim to define a uniform approach to define energy efficiency or specific energy use within or across the various glass industry sectors

3. Co-organizer of workshop on energy efficiency

On 21 and 22 April 2015 a seminar on: 'Glass furnace heating technologies and energy efficiency', was organized in cooperation with Glass Trend in Bilbao Spain. The workshop was hosted by Vidrala and more than 50 people attended the workshop.

4. Exchange of information

TC09 exchanged information on running projects and new initiatives to reduce energy consumption in the glass production process.

5. Publications & Presentations

- Hans van Limpt, 'ICG's TC09 focuses on energy', p52, Glass International July/August 2015;
- Hans van Limpt, Activities of the new ICG TC9 on Energy efficiency, paper presented at the workshop on energy efficiency, 22nd April 2015, Bilbao, Spain;
- Abstract of Glass Trend / TC09 event: 'Experts gather in Bilbao for Glass Trend seminar', p49-51, Glass International July/August 2015;

PLANS FOR 2015 AND DELIVERABLES

- Organization of 2 annual meetings.
- Execution of energy benchmark project for float furnaces.
- Exchange of information on running projects and new initiatives to reduce energy consumption in the glass production process