

## TC13 ENVIRONMENT

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### SUMMARY

TC13 is the environment committee of ICG. All environmental issues affecting the glass industry are covered. Members are drawn from industry, consultancies and glass federations. The TC13 meets twice a year and produces extensive minutes detailing the many topics addressed. Subjects range from characterising and controlling glass furnace emissions to understanding the impact of new regulations on the different sectors of the industry. The TC13 regularly produces briefing papers and journal articles and is a source of important expertise for the industry.

All members actively contribute during the meetings. Minutes and Annual Reports are written by the secretary. Reports and external publications are written by the secretary and jointly authored.

TC13's own website, kindly hosted by CelSian, houses an extensive collection of data and is regularly updated with useful information on the work of the TC. <http://tc13.celsian.nl/> (Note that the bulk of the documents are in a members-only password-protected area.)

### ACTIVITIES IN 2019

The first meeting of 2019 was hosted by AGC at Louvain-La-Neuve, Belgium. The meeting had a full agenda and the thirteen participants (including one invited guest) discussed many important environmental and health issues associated with the manufacture of different types of glass.

The meeting started with ICG business, which included discussion on expanding the committee membership to include more representatives from container glass, management of the website and Project ICG 2030.

SO<sub>x</sub> emissions and the difficulty meeting the BREF limits with current abatement technologies was then discussed, which led to a later presentation on the Sorb Saver system from America which can help improve absorption efficiency.

It was confirmed that the TC13 work on respirable crystalline silica in sand had been published in the Glass Worldwide, January/February 2019 edition. The committee then reviewed the REACH dossier for glass and decided that it should be updated to include new information.

The committee then covered the topic of furnace emissions, which included discussion on methods for SO<sub>3</sub> measurement and a comprehensive presentation on comparative tests, which demonstrate the suitability of FTIR for measurement of HCl, SO<sub>2</sub>, NO<sub>x</sub> and NH<sub>3</sub>. There was discussion on PCB measurements and how results close to and less than the blank value should be reported. Results of emissions measurements of boron and mercury from container glass were also presented. These highlighted a potential issue in Germany where new draft limits have been proposed.

The second meeting of 2019 was hosted by Saint Gobain at their German and Eastern Europe headquarters in Aachen, Germany. The meeting had a full agenda and the sixteen participants (including three invited guests) discussed many important environmental and health issues associated with the manufacture of different types of glass.

The committee first discussed ICG issues which included changes to membership and potential new members, improvements to the TC13 websites hosted by ICG and Celsian and the proposal to make 2022 the United Nations International Year of Glass for 2022.

There was a presentation on the design of an abatement system to remove boron from the waste gas emissions of a tableware furnace. The factors affecting the removal efficiency were discussed as well as the recycling of the boron filter dust into the furnace.

The group then considered the revision of the TC13 leaching method which is used to determine whether a glass substance requires registering under REACH. The group agreed to revise the paper as long as further information becomes available on limits for boron leaching and examples of where the method has been used.

The committee then addressed emissions from glass furnaces. This included discussion on the formation of condensable particulate after a ceramic catalytic filter, a presentation on the Sorb Saver system and a summary of NO<sub>x</sub> emissions limits in the Italian glass industry. There was also a comprehensive presentation on measurement of dioxins and PCBs and discussion on quality control requirements and treatment of the blank values.

The group then went on to discuss ceramic candles filter elements and the different methods of manufacture.

The meeting concluded with a round table on regulations and new abatement plants.

## **ACTIVITIES IN 2020**

The first meeting of 2020 was due to be hosted by Schott, Germany, however this was cancelled due to the pandemic. The group decided to move discussions on-line and held three meetings via web conference during the year. Each meeting had a shorter than usual agenda and started with ICG business, which included discussion on expanding the committee membership and management of the TC13 websites.

The group discussed the revision of the TC13 leaching method paper and the inclusion of a limit for boron with leaching test results for boron glasses. The revision will also include updates of definitions from ECHA.

The main topic of the meetings was emissions from glass furnaces. This included discussion on the possible reasons for differences between measured versus calculated flow rate and the measurement data required for a TC13 paper on the topic. The group also explored the different EPA methods for measurement of SO<sub>2</sub> /SO<sub>3</sub>, and their application to measurement of furnace emissions, as part of the discussions on the data collection exercise, to investigate the factors affecting the conversion of SO<sub>2</sub> to SO<sub>3</sub> in an SCR. There was also an update on measurement of PCB emissions.

Bormioli Rocco gave an overview of emissions limits at their sites and the different techniques they use to reduce emissions. Celsian demonstrated their Energy Balance Model software and showed how it can be used to look at the effect of different air/fuel ratios. There was a presentation on the EU funded SUGAR project, which aims to use waste heat from the furnace to convert natural gas into a syngas using a steam methane reformer. The technology is expected to reduce CO<sub>2</sub> emissions by 15%.

The group also discussed regulations and installation of new abatement plants worldwide.

## **PLANS FOR 2021**

The first meeting planned for 2021 will be a web conference in April. The committee will continue to meet via web conference until face to face meeting can resume.

The rolling assessment of environmental issues addressed at each meeting will continue. This will include discussions on the flue gas flow measurement, the REACH leaching method, emissions measurement techniques, conversion of SO<sub>2</sub> to SO<sub>3</sub> in SCRs and occupational exposure measurements. The group will also start to consider CO<sub>2</sub> emissions.

The committee plans to publish a paper discussing the calculation of flue gas volume flow and an update to its paper on the TC13 REACH leaching method which will include new limits for boron.