
Sulphur balance and Carryover measurements methodologies

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Abstract

Batch carryover is a well know phenomenon occurring in the glass furnace during the melting processes. It is mainly due to entrainment of solid particulates into the waste stream as it passes over the batch cover area (fine sand, lime and dolomite decrepitation, fine cullet and dust) and the condensation of the volatilized compounds from the exposed glass surface (sodium, calcium, magnesium, etc.).

The most important carryover effect is the deposition of materials in the regenerators with increase risk of plugging of the checkers and lifetime reduction of the refractory materials due to corrosion.

Furthermore aspects like glass type, glass oxidation state, capability of glass to absorb SO₃, overall furnace functioning conditions and sulphur amount in the fuel are important in choosing the quantity of sulphate in batch composition. However the computation of sulphur oxides mass flows (Sulphur Balance) relative to glass furnaces, especially when filter dust is recycled, gives crucial information, which could be useful for different management purposes. In spite of the method for determining the sulfur balance is well defined, unfortunately there are no uniquely defined methodologies to assess the carryover in a glass furnace.

In the first part of the presentation will be took into consideration an empirical procedure to asses the sulphur balance. In the second part of the presentation will be compared two methods of sampling and analysis to investigate the amount of carryover in a glass furnace. The first one methods is based on a cooled suction probe connected with a series of impingers; the gas is withdraw and the dust particles and condensed compounds adsorbed in a water solution. The second method whereas requires an alumina tube and a basket filter holder. The applicability ad reliability of the methods will be assessed and discussed.

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