

# STATE OF THE ART SO<sub>x</sub> REDUCTION WITH QUANTA<sup>®</sup> TECHNOLOGY

SO<sub>x</sub> additive usage declined drastically during a recent commercial trial.

During a recent commercial trial with Quanta Technology, the additions of a commercially available SO<sub>x</sub> additive declined by about 41% after Quanta Technology was applied to the additive. This publication describes the preliminary findings of this trial and the potential for cost savings available for additive users. Figure 1 below shows how additive additions declined when the treated material was used in the FCCU.

In order to quantify the normalized impact of Quanta Technology on SO<sub>x</sub> reduction performance, multi-variable regression analysis was performed. With this technique, a model was developed to predict SO<sub>x</sub> reduction with data previous to the trial. The model identified flue gas O<sub>2</sub> content, SO<sub>x</sub> additive concentration, feed rate and feed sulfur content as the most relevant predictors of SO<sub>x</sub> removal rate.

In figure 2 in the next page, it can be seen how the regression model accurately predicts the SO<sub>x</sub> removal rate previous to the trial when the untreated material was used. In the right hand side of the same plot, the predicted and the actual SO<sub>x</sub> removal rates start deviating from each other. The difference between these two populations can be attributed to the effect of Quanta technology and it can be clearly seen that actual removal rate is higher than predicted for the untreated material at the operating conditions experienced during the trial.

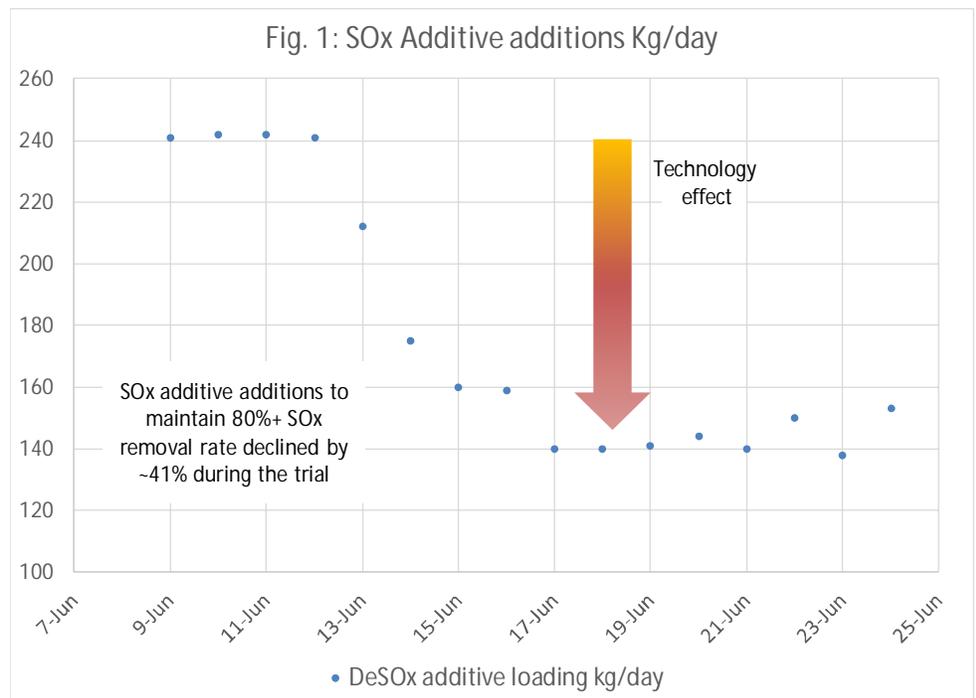
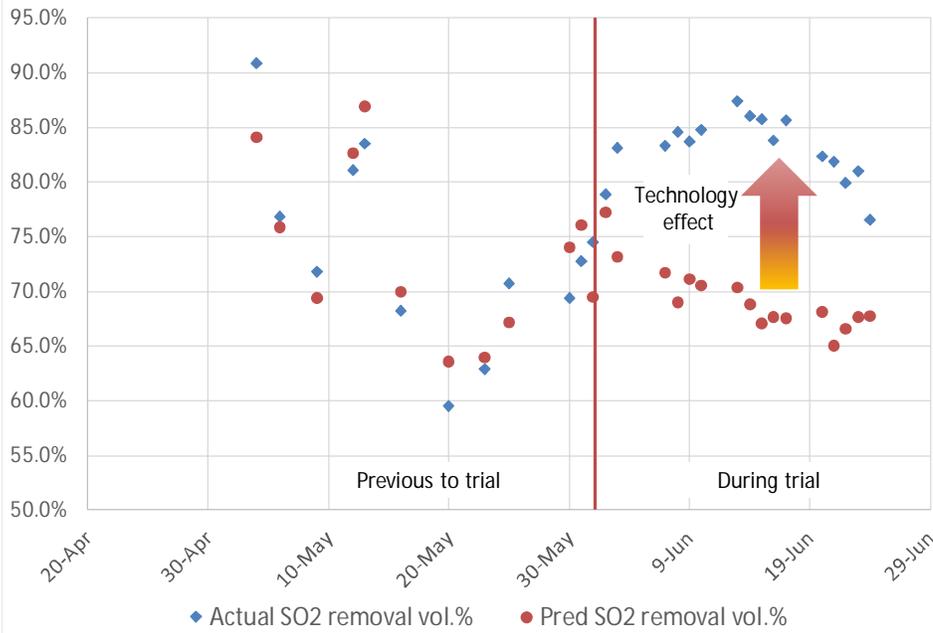


Fig. 2: SO2 removal rates (vol%)



Once the impact of independent variables different than the Quanta treatment was identified and isolated, Quanta concluded that the normalized effect of the technology was an improvement of 15 vol% (abs) in the SOx removal rate at this location. Refiners can benefit from the room created in several ways, such as for example; 1) reducing the amount of SOx additive (by 41% or more) to stay within compliance, or

The specific details about the nature of the treatment applied to the SOx additive remain confidential at this early stage because Quanta is applying for a new patent; however, the benefits are readily available for customers that desire to take advantage of the technology right away.

2) Increasing the amount of sulfur precursors to the FCCU. This can be achieved by increasing the feed rate to the FCCU, or by increasing the amount of sulfur in the feed, all of which would result in superior financial performance.

Call Quanta today so we can help you reduce your compliance costs and improve environmental performance.

REINVENTING FCC

ONE UNIT AT A TIME

Quanta Technologies LLC

General Number: +1 281 456-4155  
 Augusto Quiñones: +1 281 802-6478  
 Raul Arriaga: +1 281 802-4326

[www.QUANTALLC.com](http://www.QUANTALLC.com)  
[Augusto.Quinones@quantallc.com](mailto:Augusto.Quinones@quantallc.com)  
[Raul.Arriaga@quantallc.com](mailto:Raul.Arriaga@quantallc.com)

All information concerning this technology and all suggestions for handling and use of the products contained herein are offered in good faith and are believed to be reliable. Quanta Technologies LLC, however, makes no warranty as to the accuracy of such information and suggestions as to the product's merchantability or suitability for any particular purpose, or that any suggested use will not infringe any patent. Nothing contained herein shall be construed as granting or extending any license under any patent. Buyer must determine for him or herself, by preliminary tests or otherwise, the suitability of this product for his or her purpose. The information contained herein supersedes all previously issued notices on the subject matter covered.