

## **EPC Operations Committee Meeting Minutes**

Time: 2:00 – 3:00 pm

Date: 10-28-21

Location: virtual

Attendance:

Patty Summers (Zeochem)  
Jenny Heinlein (Dow)  
Miguel Maldonado (TECHNIP FMC)  
David Dutschmann (ExxonMobil)  
Richard Rolke (Dow)  
John Dillon (Dow)  
Jeff Edwards (CP Chem)

### **Agenda:**

- Anti-Trust statement – Patty
- Volunteers? Chair & Co-chair roles for Operations Sub-committee and EPC Session
- Membership – new members approved
- Update on 2022 Conference (April 10 – 14, San Antonio, TX)
- Update on abstracts – open discussion

### **Anti-Trust Statement:**

“No activity of the Committee shall involve the exchange, collection or dissemination of information among competitors for the purpose of bringing about or attempting to bring about any understanding or agreement, written or oral, formal or informal, express or implied, among competitors with regard to costs, prices or pricing methods, terms or conditions of sale, distribution, production quotas or other limitations, on either the timing, or volume of production, or sales, or allocation of territories or customers.”

### **Meeting Minutes**

#### **Roles:**

Discussed the openings for more volunteers for chairs and co-chairs.

#### **Membership:**

During the E-mail vote earlier this week, all 12 of those who voted agreed to approve the following new members (there were no objections):

1. **Chris Carr – from Exxon Mobil** to overlap with David Dutschmann until his retirement and then remain as a member. Chris is currently involved with olefins recovery.
2. **Brian McVicker – also from Exxon Mobil** but in a different function. Brian is associated with furnace operations.
3. **John Dillon – representing Dow**, would join the committee as an additional member. John has 30 years experience in hydrocarbons including two overseas assignments. He is currently located in Freeport and provides troubleshooting.

4. **Ali Abbasaspour – from Honeywell UOP** to replace Allan Hatami who is in a new role. Ali has been in the technical service organization supporting olefin producers for many years.

**Main Committee:**

No update other than it is hoped the conference can be in person. Dan mentioned that other sub committees have shared that it seems there is a reluctance to do papers due to the fact that the conference may be virtual.

**Papers Discussion:**

**Paper 1. Technip and YNCC, large plant expansion/revamp** – abstract is a good one and should be uploaded to our subcommittee's Operations Session. Miguel to follow up.

**Paper 2. ExxonMobil: use of simulators for training and preparing for start-up** – David says this is still on track and like in past years, the abstract may not be approved by legal until mid to late November.

Dow continues to drive forward on one paper.

We may be receiving a paper on the use of hydrogen for the furnaces from the technology session.

Other paper discussions:

David lead the brainstorming of other ways to get papers (thank you David). We discussed reaching out to universities. He will contact Lamar and we also discussed UT and A & M. Patty was to follow up with those Universities, however, we are not sure they are doing any research relevant to ethylene production.

Patty again said she would reach out to Solomon. There was a discussion just following this meeting where the new team at Solomon said they would be interested, but that they are currently in data gathering mode, so spring of 2022 would be too soon to commit to a paper. Their resources will be tied up writing and delivering the study results. Spring 2023 would be better for them.

Patty also reached out to Sanjeev Kapur (long time member of the industry and now a consultant) regarding his interest in doing a tutorial. He would certainly be interested assuming that we don't have enough other papers to fill the session. His initial thought would be a series of troubleshooting tips.

Following the meeting, two additional abstracts were submitted:

Abstract id# 639184: **Promising Chemical Treatment Approach for 1,3-Butadiene Fouling**

Henrique Silva<sup>1</sup>, Tatiana Barbosa<sup>2</sup>, Fabio Rios<sup>3</sup>, Williane Carneiro<sup>3</sup> and Zaelma Matos<sup>4</sup>, (1)Customer Application Engineering, Suez Water Technologies & Solutions, Cotia, SP, Brazil, (2)SUEZ Water Technologies & Solutions, Camacari, Brazil, (3)Braskem S. A., Camacari, Brazil, (4)Braskem S.A., Camaçari, Brazil

At Braskem's Camaçari site, in a Nippon Zeon design plant, 1,3-butadiene is produced by extractive distillation with dimethylformamide (DMF) used as solvent. Since longer campaigns have been desired, the treatment of the extraction section has become more challenging, especially due to its historical issues with widespread polymerization at the bottoms of extractive towers.

This paper recaps the general mechanisms involving fouling on butadiene extraction and how SUEZ and Braskem are working together to control severe fouling on the system with a promising inhibition chemical program currently used. Then some positive preliminaries results will be shown.

This process is featured by high temperature at the bottoms of the extractive distillation towers. Hence, this environment is severe enough to easily foul rubber and sheet forms of polybutadiene on economizers, reboilers and on tower's chimney trays. OH-TEMPO chemical additive is commonly used in this system with the function of inhibit this phenomenon, but for large runs purposes this approach may be not enough. To improve inhibition efficiency, a new synergic blend of OH-TEMPO with a specific antioxidant has been used covering critical areas of the process and responding better than the previous chemical used.

Abstract id# 639298: **Benchmarking Study of Caustic Tower Operation and New Analytical Method for Red Oil Polymer**

Joop Dees, Customer Application Engineering, SUEZ Water Technologies & Solutions, 's Heer Arendskerke, Zeeland, Netherlands and Steven Imbert, SUEZ Water Technologies & Solutions, Herentals, Belgium

Process streams in ethylene units contains acid gases, like carbon dioxide and hydrogen sulfide, as a result of cracking and coking/decoking reactions in the furnaces. The acid gases are typically removed in the caustic tower, which is integrated into the charge gas compressor. Other components, like aldehydes and ketones, are present as contaminants in the cracked gases and can polymerize under basic conditions to form aldol condensation polymer. The polymer can deposit on the internals of the caustic column and in the downstream spent caustic process like tankage, caustic stripper and/or wet air oxidizer. The fouling can have a huge impact on the overall plant performance.

The fouling has a significant effect on the efficiency and reliability of the caustic column operation and is heavily affected by operational process parameters. A global benchmarking study identified the most important parameters such as temperature profiles, caustic strengths, and aldehyde content. The process conditions were then simulated in the laboratory to better quantify their impact on polymer formation.

A new analytical method was also developed for quantifying the red oil polymer during the laboratory work and the results favorably compared with the traditional manpower-intensive analytical method (polymer extraction with solvent). The new method has now been deployed to the field, where it reduces the analysis time from several hours to minutes and has shown to be very accurate.

**Action items:**

- Patty to contact Solomon about potential papers on sustainability (or other ideas) - done
- Vik to update the sub-committee roster before stepping down from co-chair role
- Miguel to ask his team to upload the abstract to our session

Next Meeting: Tuesday, November 9, 2022 2:00pm – 3:00pm VIRTUAL