



SDI FINAL EVALUATION FORM 1.1

PART 1:

Journal Name:	International Research Journal of Pure and Applied Chemistry
Manuscript Number:	2015_IRJPAC_18119
Title of the Manuscript:	Desulfurization of Tawke diesel fuel Using Na-Y type zeolite and active carbon (the authors changed the title)
Type of the Article	Original Research Article

PART 2:

FINAL EVALUATOR'S comments on revised paper (if any)	Authors' response to final evaluator's comments
I done my comments based on the first evaluation. Many questions were not answered. The changes done by the authors were not enough to improve the quality of the manuscript. The authors are not careful with English use and form. Several mistakes are still present in the manuscript. NE means new evaluation. 1- The authors need to rewrite the whole manuscript taking care of English use. Sometimes is difficult to understand the text. It is also necessary to improve the clarity of the text. NE: The authors should look for professional help to improve English use. The changes made by the authors did not turn the text clear and understandable. 2- The temperature used to dry the adsorbents is not high enough to dry zeolites that require at least 500 °C to be dried. NE: It is written in the manuscript that zeolites Y and MOR were calcined at 550°C after ion exchange with NH₄NO₃ that is OK. However, it is was written that all adsorbents were heated at 120°C before using them (lines 81-82) that is not enough for zeolites. 3- The authors chosen the activated carbon sample to define the best contact time; however, different adsorbents will probably require different contact time depending on the affinity of the sulphur compounds and the surface of the adsorbent. So, the kinetic profile should has been done for all adsorbents. NE: New results for clay sample appeared, but not for zeolites. At least, it is important that the authors justify their choice for clay and activated carbon. 4- Figures 1 and 2 are very similar (it seems like they are the same) and the description of the results presented at lines 107-110 cannot be observed in the figures. For both figures, the greatest reduction of sulphur content was observed after 1 h. Then, the sulphur content seems to be constant. NE: The authors changed the figures and the comments about them. However, the added comments on lines 135-136 are not correct for activated carbon. The sentence is lines 138-139 is not correct, the sulphur content did not decrease continuously for activated carbon. 5- The sulphur content shown in Table 2 for activated carbon does not seem to be the same as the result shown in Figures 1 or 2 (the amount of adsorbent used was not defined by the authors for Table 2). NE: The authors answered the comment.	1.this is the most desirable changes that we made, the reviewer should mention exactly the which paragraph is not clear? 2.it is corrected clearly. 3.zeolites contact time did not show any change with our diesel so we did not mention them in the manuscript and we have a shortage in their quantity. 4. it is corrected as the reviewer suggested. 5. corrected



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6- Different performances of the adsorbents were clearly seen in Table 2. However, the explanations given by the authors are not accurate. The following sentence is too general, “The results show that under present experimental conditions the adsorption capacity varied among activated charcoal, granular H-Y , granular H-MOR without binder and desiccant depending upon the nature of exchanged capacity, pore size and the acidity of each adsorbent used in this process.” No characterization of the adsorbents was done. So, the influence of pore size and acidity was not checked. What do authors mean by “nature of exchanged capacity”? The sentence “The activated charcoal exhibited better performance in desulfurization of diesel and the sulfur content treated with granular H-MOR type zeolite without binder is less than that treated with granular H-Y type zeolite this due to the adsorption on MOR without binder affected by method of synthesis (clay particles) and MOR type zeolite more sensitive than Y type zeolite to the impurities (poisoning).” is also not accurate. Mordenites and Y zeolites are different materials although they are zeolites. Crystalline structure, textural properties, chemical composition and acidity are different for these two materials. What do the authors mean by ‘sensibility to impurities’? NE: The authors did not answer the comment or changed the text. 7- No explanation was given for the good performance of activated carbon. NE: The authors did not answer the comment. 8- The authors did not mention the presence of dyes in diesel when they presented its physicochemical properties. NE: The authors changed dyes for “colored materials”. It is important to specify these compounds. 9- No discussion was done about the influence of adsorption temperature (Table 2). NE: The authors did not answer the comment. 10- The GC analysis was used to improve the characterization of sulphur compounds. However, only the chromatograms are shown and no identification of the compounds was done. So, the chromatograms are useless. NE: The authors did not answer the comment and kept the useless information. New comments 1- Figure 3 was added. The experimental information should be clearly informed such as amount of adsorbent, time of contact, the chosen zeolite. No comments about the influence of adsorption temperature were done by the authors. 2- The authors added Figures 4 and 5. Why did the authors decide to identify thiols, sulfones and sulfoxides? Reference 13 presented these bands because the oxidative desulfurization was studied that is not the case in the present manuscript. I do not agree with the authors comments in lines 170-175. The same bands appear in these figures. Minor REVISION comments - Table 1: check unity for sulphur content; check cell “refractive index (RI) at” NE: The authors did not correct the table. -What does calculate mean in Table 1? NE: The authors did not answer the question or modify the text. - What is molecular sieve desiccant NO 17-1159 (type of material)? NE: The authors did not answer the question or modify the text. - What was the detector used for gas chromatography? NE: The authors did not answer the question or modify the text.	6.changed to adsorption capacity and the sentences "" pore size and the acidity"" and ""to the impurities (poisoning)"" deleted 7.we added some comments for the good performance of activated carbon. 8.we don’t have the means to specify these colorant materials. 9.the discussion was done about the influence of adsorption temperature (see line 159-163) 10. unfortunately we don’t have the standards for sulfer compounds but we suppose that we can compare between the intensities differences before and after desulfurization. 11.figure 3 was corrected with your valuable comments and the discussion as above in number 9 12. table 1 units were corrected. 13. calculated means : diesel index = aniline point *API(1/100) 14. GC detector is FID flame ionization detector 15. molecular sieve desiccant NO 17-1159 changed to molecular sieve 3A. 16.table 2 cell title modified. 17.table 2 adsorbent amount checked. 18.in figure 4 and 5 we changed the analysis and thanks to the reviewer for his (her) valuable notes
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- Table 2: check cell “treated with granular H-”; check cell “treated with activated”; improve the presentation in title cells.

NE: The authors did not answer the question, but modified the table.

- What was the amount of adsorbent used for adsorption with the different materials (Table 2)? Justify the choice.

NE: The authors did not answer the question, but added the information.

- Check the journal rules for reporting references.

NE: The authors did not answer the question or modify the text.