



SDI Review Form 1.6

Journal Name:	American Chemical Science Journal
Manuscript Number:	2014_ACSj_15746
Title of the Manuscript:	Physico-Chemical and Mechanical Behavior of Natural Clay as a Porous Medium during Convective Drying
Type of the Article	

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This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

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SDI Review Form 1.6

PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<u>Compulsory</u> REVISION comments	<p>A)</p> <p>In:</p> <p>3.1 Clay identification If we examine table 3, we can conclude that the major fraction of the clay is silica. It is also rich in Iron, Aluminium, and Potassium. The other compounds are negligible of about 2.5 %.</p> <p>I can't see any compounds of "about 2.5 %".</p> <p>Probably the authors intend to say "less than 2.5 %"?</p> <p>B)</p> <p>In page 6:</p> <p>The authors say that the losses in ignition are also important due the nature of clay (natural: non purified).</p> <p>Comment: 14.44 % seems a normal value for a clay heated at 1000 ° C. I would suggest to cut this sentence, just put the value in the table, as it is.</p>	<p>The meaning is less than 2.5%.</p> <p>Ok changed in the text.</p> <p>Ok done also.</p>



SDI Review Form 1.6

	<p>c)</p> <p>In</p> <p>Table 3. Chemical composition of clay in mass percentage.</p> <p>3 significative figures (after the comma) seem excessive. Normaly by AA spectrometry we can get not more than 0,5 % relative accuracy. Correct for 39.4; 15.6;0.68; 1.14; accordingly. LLI let it be 14.44 %, as this is a more accurate measurement.</p> <p>D)</p> <p>In</p> <p>Fig. 7. Clay density versus water content.</p> <p>And</p> <p>Fig. 8. Volume shrinkage versus moisture content</p> <p>And</p> <p>Fig.9. Porosity gaseous ratio versus water content</p> <p><u>Indicate the units for moisture content.</u> Probably it is the fraction of water to total mass, in weight. It is however, necessary to be precise. The same</p>	<p>All numbers are corrected in table 3.</p> <p>The unit used for the moisture content is (kg of water / kg of dry solid) In many references, we used other equivalent units like (kg/kg) short unit. or (d.b.) wich means moisture content at dry basis.</p>
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SDI Review Form 1.6

	<p>comments for Table 1 and to first sentence of section 2.3.</p> <p>In page 4, the authors indicate:</p> <p>“The corresponding moisture content of the sample is determined by the measure of the humid mass and the dry mass.”</p> <p>It could be clear if they indicate:</p> <p>“The corresponding moisture content of the sample is determined by the <u>ratio of the measures</u> of the humid mass and the dry mass.”</p> <p>Of course, if it is this that the author want to express as “moisture content”.</p> <p>E)</p> <p>In figure 9, units for porosity should also be indicated.</p> <p>F)</p> <p>Fig. 11. Relaxation function curves at different moisture content.</p> <p>Is not readable. It seems also, that some legends inside figure are in French, not English.</p> <p>G)</p>	<p>The correction is done in the text.</p> <p>The porosity is without unit. The definition of that porosity is the fraction of the gas. It is calculated by the division of the gas volume by the total volume of the sample.</p> <p>The words are deleted.</p>
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SDI Review Form 1.6

	<p>In the conclusions part, it is said:</p> <p>“Clay identification by atomic absorption spectrophotometer and X-ray diffractometer was shown kaolinite as the major fraction”</p> <p>This is not consistent with the diffractometer, where quartz was identified as a major constituent.</p>	<p>The conclusion has been modified in the text.</p>
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SDI Review Form 1.6

<p>Minor REVISION comments</p>	<p>A)</p> <p>In</p> <p>2.1 Clay identification Natural clay extracted from “<i>Tabarka</i>” region in Tunisia was used as a model material in this study. Firstly, the nature of this clay is identified by atomic absorption spectrophotometer (type Perkin Elmer 560) [2, 7]. Major elements are to be dosed (Si, Al, Fe, Mg, Mn, Ca, Na, and K). Secondly, the losses in ignition (Bound humidity and organic material in clay) were determined in a furnace at 1000°C. Finally, the X-ray diffractometer is used to determine the main clay composition (quartz, kaolinite, illite, smectite, bentonite, ...) [2, 7].</p> <p>I would suggest the following alternative text, that seems more clear:</p> <p>2.1 Clay identification and characterization Natural clay extracted from “<i>Tabarka</i>” region in Tunisia was used as a model material in this study. The characterization was done by atomic absorption spectrophotometer (type Perkin Elmer 560) [2, 7], major elements contents being determined. Also, loss on ignition at 1000°C was obtained. X-ray diffractometry allowed identify the main clay mineral components [2, 7].</p>	<p>This paragraph is corrected as mentionned.</p>
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	<p>B)</p> <p>In:</p> <p>3.1 Clay identification</p> <p>I would suggest:</p> <p>3.1 Clay characterization</p> <p>C)</p> <p>Fig. 5. X-ray diffraction pattern for clay It would be useful to identify the peaks</p> <p>D)</p> <p>In</p> <p>For the true density of the clay is evaluated to $(2685 \pm 35 \text{ kg/m}^3)$.</p> <p>I would suggest to write:</p> <p>The true density of the clay was evaluated as $2685 \pm 35 \text{ kg/m}^3$</p> <p>Same suggestion for the conclusions part.</p>	<p>The title 3.1. has been modified.</p> <p>OK</p>
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<u>Optional/General</u> comments		