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Title: Mineralogical Diversity of Ca$_2$SiO$_4$-bearing Combustion Metamorphic Rocks in the Hatrurim Basin: Implications for Storage and Partitioning of Elements in Oil Shale Clinkering

From: Ella Sokol, Svetlana Kokh, Victor Sharygin, Victoria Danilovsky, Yurii Seryotkin, Ruslan Liferovich, Anna Deviatiiarova, Elena Nigmatulina, Nikolay Karmanov

To: Reviewer #1.

Dear colleague,

Herewith we’re submitting the revised manuscript entitled “Mineralogical Diversity of Ca$_2$SiO$_4$-bearing Combustion Metamorphic Rocks in the Hatrurim Basin: Implications for Storage and Partitioning of Elements in Oil Shale Clinkering” by Ella Sokol, Svetlana Kokh, Victor Sharygin, Victoria Danilovsky, Yurii Seryotkin, Ruslan Liferovich, Anna Deviatiiarova, Elena Nigmatulina, Nikolay Karmanov to be considered for publication in Minerals.

On behalf of all coauthors of minerals-559757 I express our gratitude for your comments, suggestions, and improvements, which were extremely useful. In the new version we have considered overwhelming majority of your remarks and suggestions. Please, find the list of specific corrections below.

**Author’s answers to reviewer #1 comments.**

Q.: Reviewer’s comment: I would recommend to accept this article, but after semi-minor revision, concerning the Introduction.

Although Ca$_2$SiO$_4$-bearing rocks constitute a significant part of the Hatrurim Formation, a specific mineral assemblages in other rock types (melilitic, pyroxene etc.) should be briefly (~1 page) mentioned in the beginning of the introduction, so that the reader could see that the Hatrurim Fm is not composed solely of Ca$_2$SiO$_4$-bearing rocks. I believe, embedding of one more page into 69-page manuscript will not extend the volume of the article.

Ps.10-11, paragraph 3.3 in revised version. The paragraph 3.3. "Combustion metamorphic rocks within the Hatrurim Basin» has been renamed and completely rewritten. The brief characterization of the spatial distribution and mineral composition of the main groups of CM rocks of the Hatrurim Basin was introduced into the paragraph. We believe this additional information to be appropriate in this section. Since Introduction is focused on the issues of mineralogy and trace element composition of industrial cement clinkers, this extraneous material may break its integrity. We’d be grateful if the reviewer and editor will support our decision. (Lines 250-295 in revised version).

Q.: Reviewer’s comment: The next thing concerns the age of the Hatrurim Formation. The reported determinations give the values between 16 Ma and 200 Ka (Kolodny et al., Chemical Geology 385 (2014) 140–155) - please correct and make appropriate reference to this work.

A: The corresponding corrections have been made. The sentence was rewritten as ‘According to $^{40}$Ar/$^{39}$Ar, K/Ar and $^{230}$Th–$^{234}$U dating of different MZ rocks [11,66-67], the fluid flow and further gas ignition occasionally occurred between 16 and 0.2 Ma (mainly in the interval 7–0.5 Ma), which is the time span of the most active Dead Sea rifting [68,69]’. The reference
on the paper Kolodny et al., Chemical Geology 385 (2014) 140–155) has been added into the list of references. (Lines 210-213 in revised version).

REFERENCES
A.: List of references has been actualized.

The authors are deeply grateful to the anonymous reviewer for goodwill and priceless help with the manuscript improvement.

24.07.2019
Dr. Svetlana Kokh