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(54) Title: STRUVITE-K AND SYNGENITE COMPOSITION FOR USE IN BUILDING MATERIALS

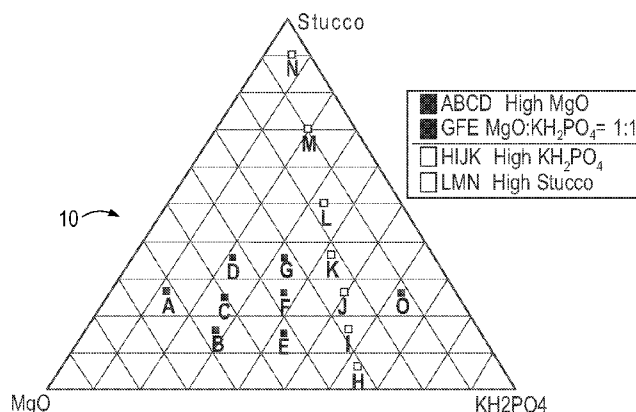


FIG. 2

(57) Abstract: A composition and process for manufacture thereof used in hybrid inventive building materials comprising Syngenite ($K_2Ca(SO_4)_2 \cdot H_2O$) and Struvite-K ($KMgPO_4 \cdot 6H_2O$). Starting constituents include magnesium oxide (MgO), monopotassium phosphate (MKP) and stucco (calcium sulfate hemihydrate), mixed in predetermined ratios, cause reactions to proceed through multiple phases, which reactions variously are proceeding simultaneously and in parallel. Variables, e.g., water temperature, pH, mixing times and rates, have been found to affect resultant reaction products. Preferred ratios of chemical constituents and manufacturing parameters, including predetermined weight percent and specified ratios of Struvite-K and Syngenite are provided for building products used for specified purposes. Reactions are optimized in stoichiometry and additives to reduce the combined heat of formation to non-destructive levels. Various additives help control and guide reactions. Building products, such as board panels, include the resultant composition. A significant amount of the composition is disposed adjacent a building panel face.



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— *of inventorship (Rule 4.17(iv))*