ABSTRACT for The Symposium on UK-Lime Research 2021

Please send completed abstracts to Rebecca.Hooper@mineralproducts.org

by Wednesday 30th June 2021

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| **Title of Abstract** | *Assessment of hydrated lime* *Ca(OH)2 as a faecal sludge sanitation tool for emergency settings (cholera treatment centres, refugee camps…)*  |
| **Abstract** | Rapid treatment of faecal sludge (FS) in emergency settings (e.g., cholera treatment centres) is key to preventing the onward spread of disease. Our recent research suggests that hydrated lime (Ca(OH)2) may be more effective than chlorine (Cl) at disinfecting FS, due to the large amount of organic matter present. However, despite these promising findings, humanitarian agencies treating FS with Ca(OH)2 have reported high operational costs. Therefore, further optimization of the Ca(OH)2 disinfection protocol is needed. Current practice at the Cox’s Bazar refugee camp (Bangladesh) involves the use of 16-20 g/L of Ca(OH)2 to treat FS. The study reported here aims to assess the efficacy of various concentrations of Ca(OH)2 at disinfecting FS. A simulated sludge matrix consisting of dried FS (20%) and raw municipal wastewater (80%) was treated with 16 g/L, 30 g/L, 45g/L, 90 g/L and 135 g/L of Ca(OH)2. Indicator organisms (Total coliforms, *E. coli,* *Vibrio furnissii* and somatic coliphages) were used to determine treatment efficacy following contact times of 1hr and one week. Preliminary results showed overall average log reductions (for all indicators) after 1hr and one week as 0.6 and 1.90 (at 16g/L); 1.1 and 4.7 (at 30g/L); 2.4 and 5.3 (at 45g/L); 3.3 and 5.2 (at 90g/L); and 3.3 and 5.1 (at 135g/L), respectively. Initial results suggest that increasing lime dosage from what is currently prescribed, would further improve treatment efficacy. However, further research is underway to establish an optimum concentration which achieves a high log reduction but that does not increase operational costs excessively. |
| **Do you have a preference to deliver a poster or a presentation?**  | Presentation  |
| **Are you willing to submit a paper to the BLA for later publication in a formal proceedings?** | Yes  |
| **Further Communication** | Yes  |