**Poster Presentation**

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## *Stabilising peroxyacids in niche microenvironments*

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There has been dramatic evolution in the formulation of household cleaning products over the last decade, this is mainly due to the influence of social change, regulatory pressure and the need for new less toxic, safer formulations with increased performance. Due to their high chemical reactivity, peroxides are found in a wide range of bleaching agents, they are known for their instability which is a direct consequence of their high reactivity (in turn essential for function). Stabilising such materials for implementation in a range of product types is a significant target within the domestic products industry. Supramolecular approaches are already being explored to try stabilise other chemically reactive species such as explosives [1,2] thus illustrating the feasibility of this research. The work to be presented will deal with peroxyacids that include small model compounds such as m-chloroperbenzoic acid as well as a commericially relevant bleaching agent and their inclusion in both crystalline and amorphous hosting systems. Single crystal X-ray diffraction methods are used to elucidate the ordered crystalline structures and to confirm whether or not the peroxo group is still intact within the crystalline host environments. Simple reactivity tests are used to demonstrate whether or not the amorphous host-guest complexes contain the active peroxy acid within their host cavity. Other complementary analytical techniques such as powder X-ray diffraction, differential scanning calorimetry and thermogravimetry have also been used to characterise the newly-hosted peroxyacid materials. By hosting these molecules in microenvironments it is possible to prepare formulations that are less pH sensitive, thus making their storage safer while allowing their reactivity to be controlled and tuned.

***[1]*** *T. Lee, J. W. Chen, H. L. Lee, et al., Chem. Eng. J., 2013, 225, 809-817,* ***[2]*** *D. I. A. Millar, H. E. Maynard-Casely, D. R. Allan, et al., CrystEngComm, 2012, 14, 3742-3749*

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