

Supplementary Data

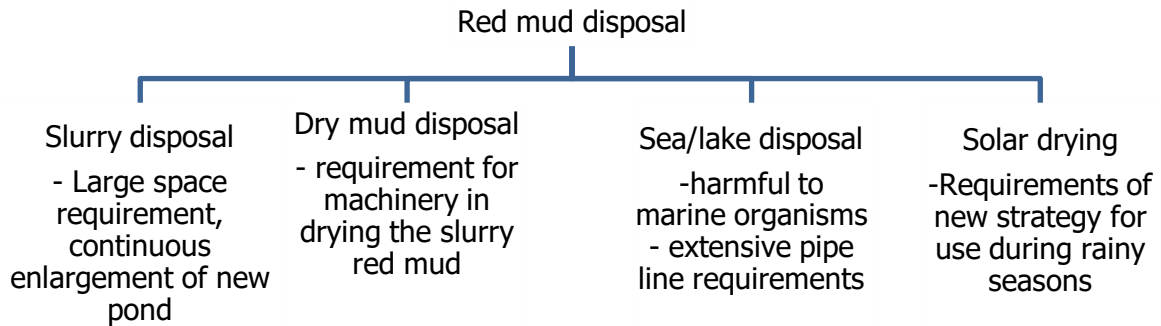


Fig. S1. Current practices for the disposal of red mud [5,6,13].

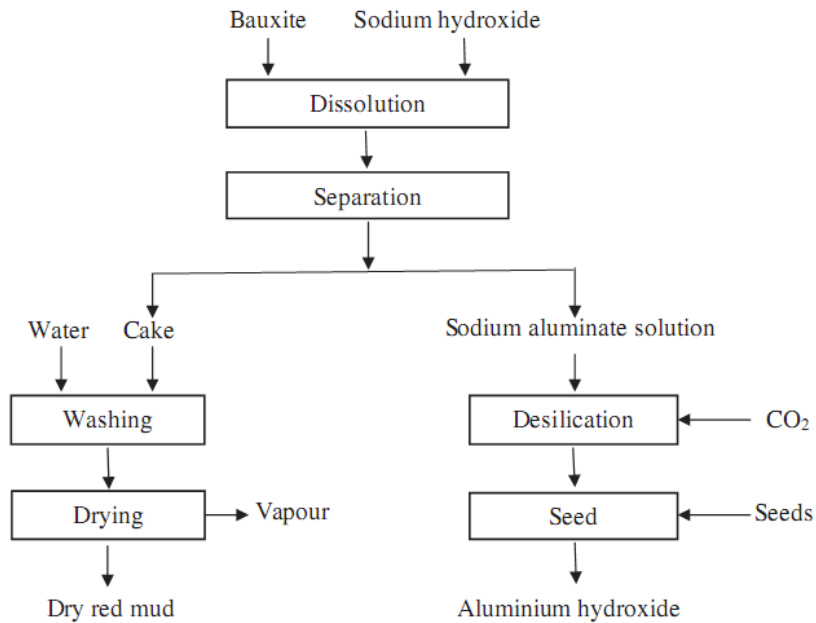


Fig. S2. Flowsheet of traditional Bayer process [15]. Reprinted from Minerals Engineering, Volume 22, Issues 9–10, Shu-hua Ma, Zong-guo Wen, Ji-ning Chen, Shi-li Zheng, An environmentally friendly design for low-grade diasporic-bauxite processing, 793–798., 2009, with permission from Elsevier.

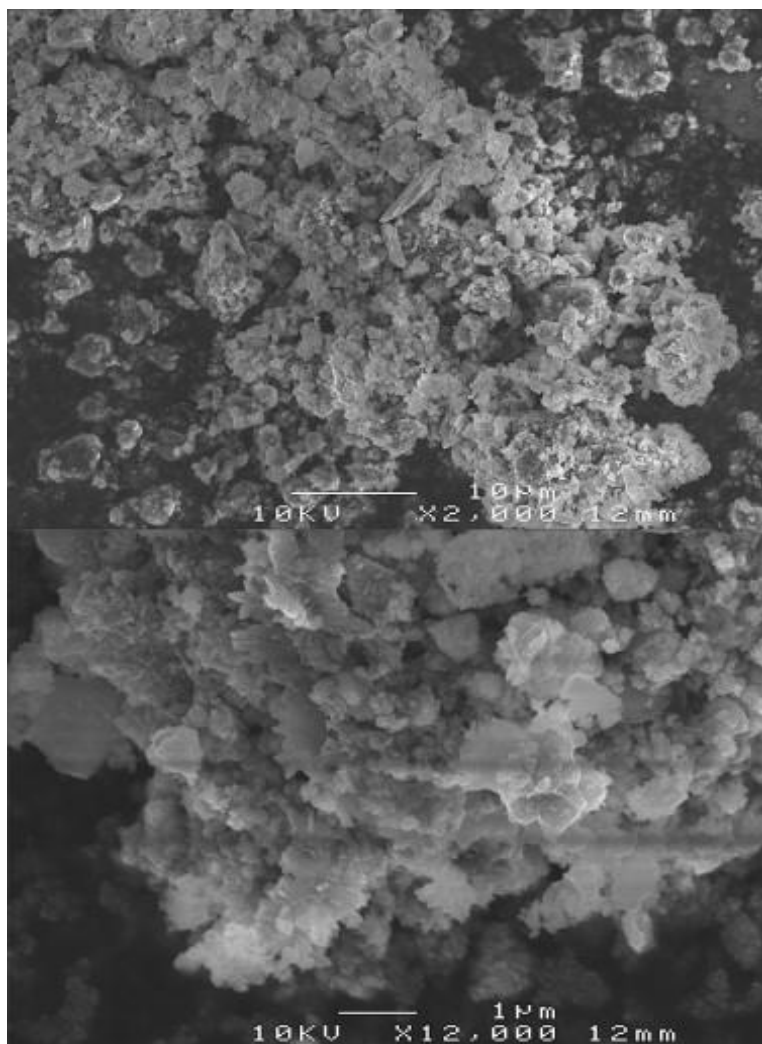


Fig. S3. SEM images of red mud [13]. Reprinted from Chemosphere, Volume 72, Issue 11, Shaobin Wang, H.M. Ang, M.O. Tadé, Novel applications of red mud as coagulant, adsorbent and catalyst for environmentally benign processes, 1621–1635., 2008, with permission from Elsevier

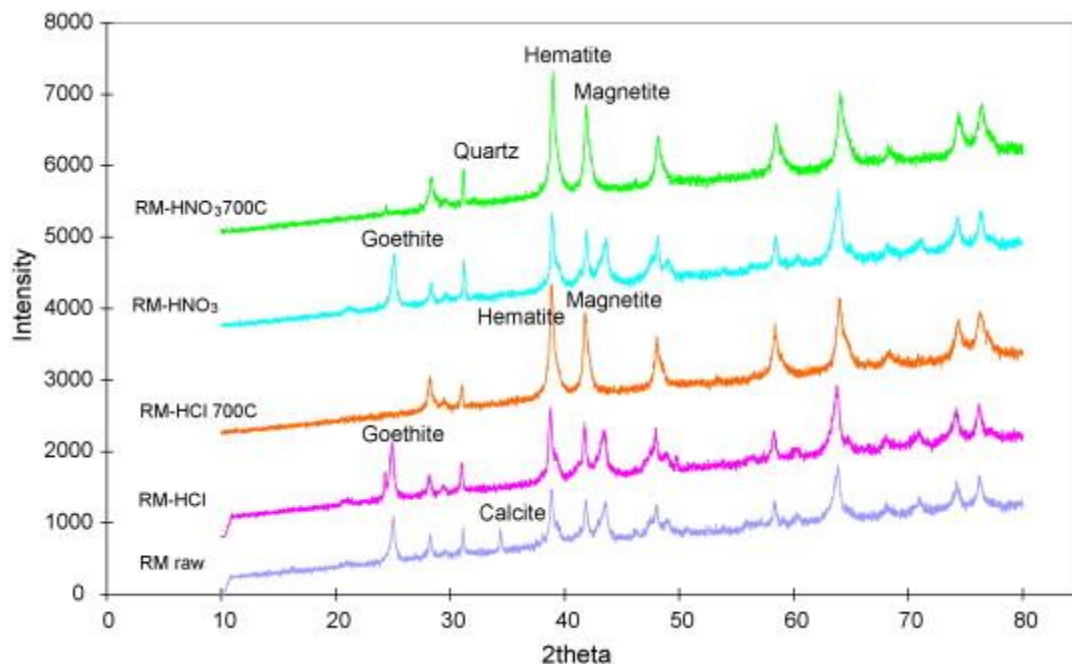


Fig. S4. XRD patterns of red mud by different treatments [28]. Reprinted from Journal of Hazardous Materials, Weiwei Huang, Shaobin Wang, Zhonghua Zhu, Li Li, Xiangdong Yao, Victor Rudolph, Fouad Haghseresht, Volume 158, Issue 1, Phosphate removal from wastewater using red mud, 35–42, 2008, with permission from Elsevier.

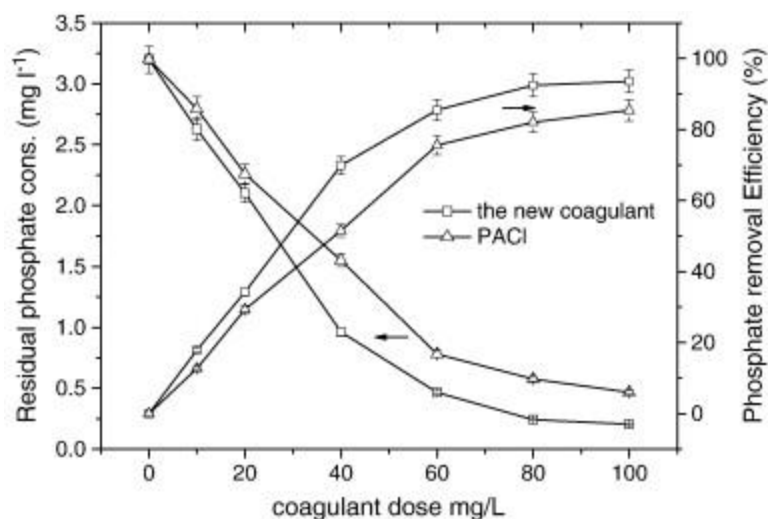


Fig. S5. Comparison of dose of coagulant on phosphate removal on municipal sewage [53]. Reprinted from Desalination, Volume 273, Issues 2-3, Ying Zhao, Lie-yu Zhang, Fan Ni, Beidou Xi, Xunfeng Xia,

Xianjia Peng, Zhaokun Luan, Evaluation of a novel composite inorganic coagulant prepared by red mud for phosphate removal, 414-420., 2011, with permission from Elsevier.

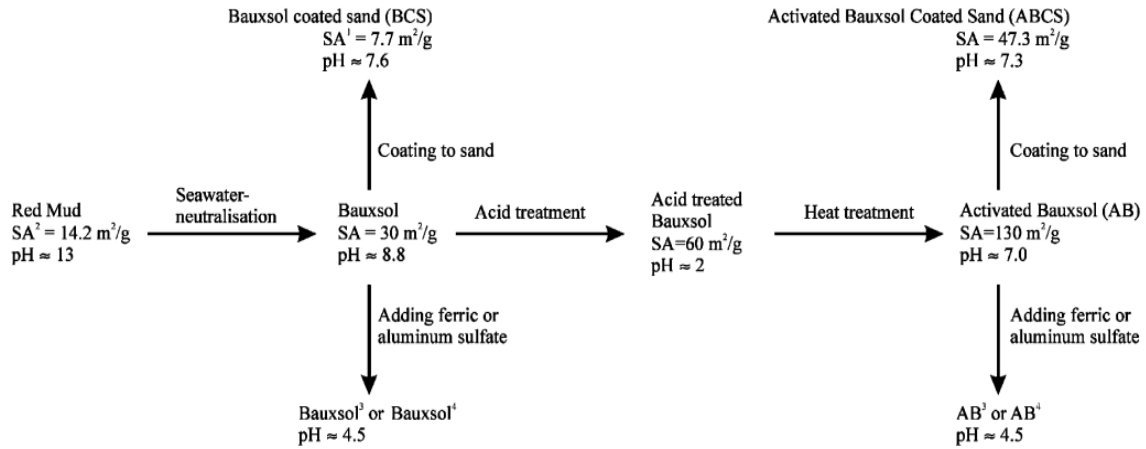


Fig. S6. Preparation of seawater-neutralised red mud (Bauxsol), acid treated Bauxsol (ATB), AB, BCS, ABCS, and ferric or aluminum sulphate added Bauxsol and AB after [8]. Reprinted from Water Research, Volume 39, Issue 13, Hülya Genç-Fuhrman, Henrik Bregnhøj, David McConchie, Arsenate removal from water using sand–red mud columns, 2944–2954., 2005, with permission from Elsevier.

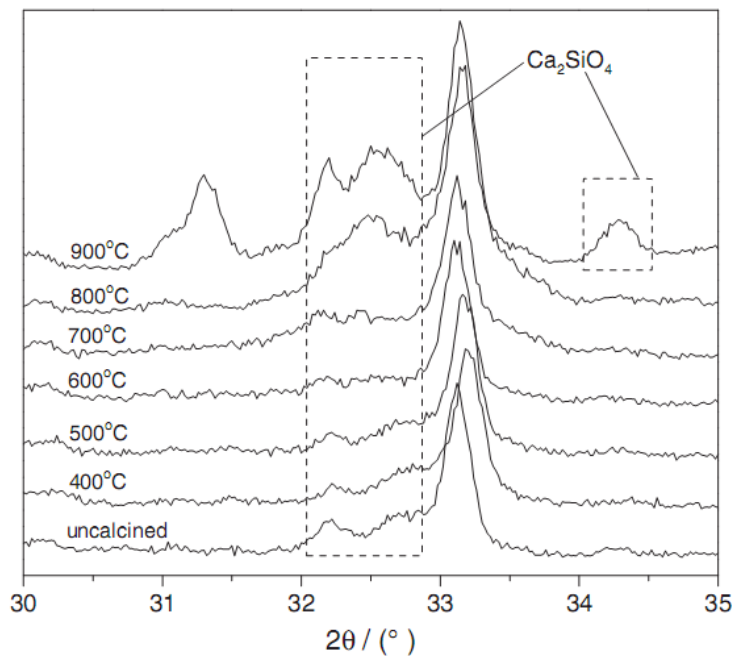


Fig. S7. XRD patterns of Ca_2SiO_4 in calcined and uncalcined red mud at temperatures ranging from 400°C to 900°C [80]. Reprinted from Cement and Concrete Research, Volume 41, Issue 8, Xiaoming Liu, Na Zhang, Henghu Sun, Jixiu Zhang, Longtu Li, Structural investigation relating to the cementitious activity of bauxite residue —Red mud, 847-853., 2011, with permission from Elsevier.



Fig. S8. Photograph of paving blocks (I shape) [83]. Reprinted from Construction and Building Materials, Volume 38, Anuj Kumar, Sanjay Kumar, Development of paving blocks from synergistic use of red mud and fly ash using geopolymerization, 865–871, 2013, with permission from Elsevier.