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Editorial

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Products of Sewage Sludge Treatment in Supercritical Water by the Effect of Oxidation Coefficient

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Editorial

For the disposal of sewage sludge, supercritical water treatment is a potential approach. Systematically investigated were the effects of temperature and oxidation coefficient on the end products of sewage sludge treatment in supercritical water. The findings demonstrate that increasing OC or temperature had a clear positive impact on CO 2 output. Oxidant assisted in converting molecules containing N into N 2. H2 yield was boosted by oxidant in small doses, but decreased in large doses [1]. Had a considerable impact on COD and liquid product concentration [2]. The majority of organic molecules vanished when the temperature changed, and the main component that remained in the liquid phase was diethyl phthalate. When compared to dry basis, the amount of some components in solid residue was nearly two fold [3]. Due to the high concentration of heavy metals, organic pollutants, pathogens, and other microbiological contaminants in SS, SS disposal is a significant issue for the development of the water treatment sector. The main techniques for disposing of SS include conventional land use, landfilling, and incineration, among others [4]. Using the unique features of supercritical water can swiftly and completely breakdown harmful organic components of MSS into non-toxic molecules. However, those methods face significant obstacles like secondary pollution, low efficiency, and incomplete disposal. Supercritical water gasification, supercritical water partial oxidation, and supercritical water oxidation technologies with growing oxidants concentration are some of the SCW treatment approaches. By using an oxidant with a lower oxygen demand than theoretical, supercritical water gasification or supercritical water partial oxidation technology can produce combustible gases. The effects of the oxidation coefficient on the gas-liquid-solid products of the SS treatment in SCW were carefully explored in this work. To find the best treatment strategy and conditions, SS treatment in SCW under quick preheating and reaction times was investigated. This knowledge is important for setting operating settings. Enhancement of SS disposal in SCW the main techniques for disposing of SS include conventional land use, landfilling, and incineration, among others. However, those methods face significant difficulties like secondary pollution, poor economy, and incomplete disposal. Toxic organic compounds of MSS can be completely and quickly broken down into non-toxic chemicals by utilising the unique capabilities of supercritical water. Supercritical water gasification, supercritical water partial oxidation, and supercritical water oxidation with oxidants are examples of SCW treatment techniques. The effects of the oxidation coefficient on the gas-liquid-solid products of the SS treatment in SCW were carefully explored in this work. To find the best treatment strategy and conditions, SS treatment in SCW under quick preheating and reaction times was investigated. This knowledge is important for setting operating settings. Enhancement of SS disposal in SCW Baoguang Gas Co. Ltd. provided the high purity oxygen used as the oxidant and the helium utilised as the internal standard gas. The Beishiqiao wastewater treatment facility is where SS was taken. For the purposes of the studies, the concentration of SS was diluted with deionized water to 8 weight percent because this content can guarantee continuous flow in the future application. In Table 1, its physicochemical characteristics are listed. For the trials, we employed a 4.4 ml mini-batch reactor with a high-pressure valve. Shanghai Mian on Hay Hydraulic Equipment Co., Ltd. sold the reactor. To maintain the same reaction pressure at various reaction temperatures, a specific quantity of wet SS was put into the reactor. There was a list of the wet SS loadings in

A vacuum pump was used to empty the reactor into a state of negative pressure, which was followed by helium filling. To verify that the reactor was completely filled with helium, this cycle was performed three times. Helium was used as an internal standard gas at 0.1 MPa absolute pressure. Finally, the reactor was loaded with oxygen, which is also listed in Table 2. As stated in the definition of OC. A fluidized sand bath, which has excellent thermal homogeneity and highly accurate temperature control, was used to heat the reactor. Within three minutes, the reactor's internal components had reached the necessary temperature. We took the reactor out of the sand bath after the designated residence time had passed in order to stop the reaction [5]. A pipette was used to transfer the aqueous phase into a sample vial, and the solid phase was subsequently dried at 105 C for 4 hours.

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Conflict of Interest

None

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