## عنوان مقاله:

Spent Caustic Treatment (SCT) in Thermal Cracking Olefin Plant

## محل انتشار:

ششمین کنفرانس بین المللی پژوهش های کاربردی در علوم و مهندسی (سال: 1401)

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## خلاصه مقاله:

In an olefin plant, hydrocarbon feed stocks are cracked to manufacture products including ethylene and propylene. The cracked gas from the cracking furnace is scrubbed in a caustic wash tower to remove carbon dioxide, hydrogen sulfide, and mercaptans prior to further processing in the plant s cold section. The spent caustic is purged from the wash tower and is laden with sulfidic constituents plus organics such as condensed oils and benzene. This spent caustic scrubbing liquor (spent caustic) is commonly the most problematic waste stream generated by an olefin plant. Spent caustic discharge into environment is prohibited due to the presence of compounds like organic and toxic substances, sulfide salts, mercaptans as well as high chemical oxygen demand (COD), emphasizing the need to treat such effluents. The spent caustic effluent needs to be discharged to the environment by choosing a suitable treatment process. Multiple methods are available for the treatment of spent caustic effluent, including incineration, biological approaches, classical oxidation, advanced chemical oxidation process (AOP), and wet air oxidation (WAO), each of which can be employed individually or concurrently. This paper describes the different spent caustic treatment systems and the spent caustic parameters that affects on its operations. the main characteristics of this methods are described. The advantages and disadvantages of the different treatment methods are highlighted. We established some criteria to set out when assessing the application of each one of these treatments is considered. The main focus of this comprehensive review is to expose different techniques released and mentioned in the literature, to process the SC. The first approach is a brief description of its characteristics that explain the environmental problems caused by SC. Following, the main body of this paper has a series of processes that help neutralize sodas and allow their .subsequent biological treatment

## کلمات کلیدی:

spent caustic (SC), Advanced oxidation processes (AOP), wet air oxidation (WAO), Fenton’s reagent