## عنوان مقاله:

Hydroxynaphthalene formation and its application to resin preparation

## محل انتشار:

نخستین کنفرانس بین المللی نفت، گاز و پتروشیمی با رویکرد توسعه پایدار (ارتباط دانشگاه با صنعت) (سال: 1393)

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## خلاصه مقاله:

Polycyclic aromatic hydrocarbons (PAHs) are multi-ring compounds that are very common carcinogenic toxins in environment [1]. Major product of fossil fuel combustion and major component of crude oil contain PAHs. The most recycle able resources of poly aromatic hydrocarbons are creosote and burned oils. Creosote is a combination of 160 chemical ingredients, produce from coal tar distillation in high temperature operation and had been used many years for maintenance, preservation and enhancing durability of wood products against fungi, insects and marine borers. Creosote treated wood have been used in power transmission lines, rail way ties, post mines, and in construction duties; such as, wood bridges, structural elements, park convenience, fence, beach and harbor equipments and many other applications. The most containing of creosote components are naphthalene, flourene, phenanthrene anthracene and a little high molecular weight compounds like benzo a pyrene and benzo kflouranthene. These are environmental pollutant compounds and we are going to find their capabilities in recycling processes for the useful products. It seems these compounds can be enrolled in phenolic type resins. Resin production from phenol and formaldehyde has long been studied as a technique to utilize in petroleum based adhesives products. Phenol formaldehyde (PF) resin prices are closely related to the price of phenol, which is derived from petroleum, and its price has increased during the past decade. The increase in PF prices has led to research into alternative sources instead phenol as chemical feedstock. Formaldehyde did not react only with free phenol but also is liable to react with poly aromatic hydrocarbons having reactive sites of hydroxyl groups. Between methods to enrich poly aromatic hydrocarbons with the hydroxyl functional group, H2O2 is a commonly used hydroxyl radical precursor that can be broken down by various methods, thermolysis, photolysis, Fenton chemistry, etc. To generate hydroxyl radical, typically high temperatures or very intense UV radiation must be used [2]. As an alternative method for generating hydroxyl radical at low to moderate temperatures, azohydroperoxides have been in use since the early 20th century, and have a wide array of uses [3].Grant et al. in 1985 showed that hydroxyl radical can be formed in high yields using azohydroperoxide sources. In the presence of a radical trap, they have shown that up to 96% decomposition rate into hydroxyl radical is possible. ... The electrophilic nature of hydroxyl radical make it possible to react on aromatic

## کلمات کلیدی: