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- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

[Continued on next page]

(54) Title: HYDROALKYLATION PROCESSES

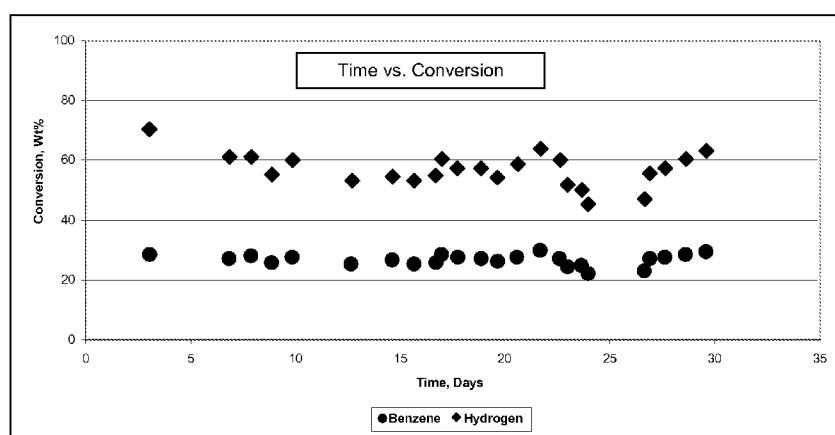


Figure 1

(57) **Abstract:** The invention relates to hydroalkylation processes. In the processes, a hydrogen stream comprising hydrogen and an impurity is treated to reduce the amount of the impurity in the hydrogen stream. The hydrogen is then hydroalkylated with benzene to form at least some cyclohexylbenzene. The processes also relate to treating a benzene stream comprising benzene and an impurity with an adsorbent to reduce the amount of the impurity in the benzene stream. The hydroalkylation processes described herein may be used as part of a process to make phenol.



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