

ABSTRACT

A process for producing para-xylene and ethylbenzene from C₈ aromatics containing ethylbenzene, comprising sending C₈ aromatics containing ethylbenzene to an ethylbenzene liquid-phase adsorption separation device, wherein a suction liquid containing ethylbenzene and a suction residual liquid are obtained after the adsorption separation, and the desorbents in the suction liquid and the suction residual liquid are removed to obtain ethylbenzene and a suction residual oil; sending the suction residual oil to a para-xylene adsorption separation device, and unadsorbed components are discharged as a raffinate from the adsorbent bed; the adsorbent bed is rinsed with a desorbent to desorb the para-xylene therein and obtain an extract; the desorbents in the extract and the raffinate are respectively removed to obtain para-xylene and a raffinate oil; sending the raffinate oil to a xylene isomerization device to carry out xylene isomerization, and the isomerization product is fractionated; the C₇-aromatics obtained by fractionation are discharged from the device; and the remaining aromatics are used as raw material for the adsorption separation device in step (2). The process can effectively improve the adsorption separation efficiency of para-xylene, increase the yield of para-xylene, and produce high-purity ethylbenzene as a by-product.

Fig. 2