

## **PROCESS FOR PREPARING CYCLOHEXANOL AND CYCLOHEXANONE BY CYCLOHEXANE OXIDATION**

### **ABSTRACT**

A process for preparing cyclohexanol and cyclohexanone by cyclohexane oxidation, includes steps of: firstly processing uncatalyzed oxidation on cyclohexane by molecular oxygen, in such a manner that an oxidized mixture with cyclohexyl hydrogen peroxide serving as a primary product is generated; then decomposing the cyclohexyl hydrogen peroxide to produce cyclohexanol and cyclohexanone; and then distilling to obtain a cyclohexanol product and a cyclohexanone product, wherein the step decomposing the cyclohexyl hydrogen peroxide utilizes a three-step decomposition process combining a homogeneous catalytic decomposition process of bis(tert-butyl) chromate with a heterogeneous catalytic decomposition process of sodium hydroxide alkaline aqueous solution, including steps of: (1) performing the homogeneous catalytic decomposition by utilizing the bis(tert-butyl) chromate as a catalyst; (2) performing the heterogeneous catalytic decomposition in the sodium hydroxide alkaline aqueous solution under low alkalinity; and (3) performing the heterogeneous catalytic decomposition in the sodium hydroxide alkaline aqueous solution under high alkalinity. The process has a high total yield, a long continuous production cycle, a low consumption and a low production cost.

Fig. 1