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本国际公布:

— 包括国际检索报告(条约第 21 条(3))。

(54) Title: PRODUCTION PROCESS FOR PREPARING CYCLOHEXANOL AND CYCLOHEXANONE BY CYCLOHEXANE OXIDATION

(54) 发明名称: 一种环己烷氧化制备环己醇和环己酮的生产工艺

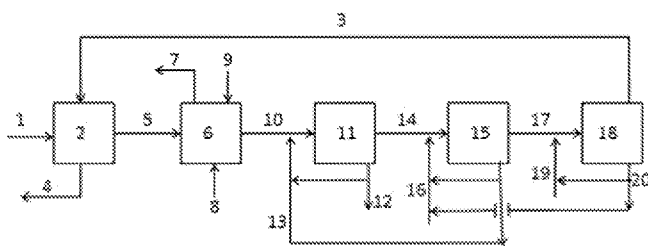


图 1 / Fig. 1

(57) Abstract: A production process for preparing cyclohexanol and cyclohexanone by cyclohexane oxidation. First, uncatalyzed oxidation is performed on cyclohexane by using molecular oxygen, and an oxidized mixture with cyclohexyl hydrogen peroxide serving as a primary product is generated; then, the cyclohexyl hydrogen peroxide is decomposed to produce cyclohexanol and cyclohexanone; and then rectification is performed to obtain a cyclohexanol product and a cyclohexanone product. The cyclohexyl hydrogen peroxide is decomposed by a three-step decomposition process combining a homogeneous catalytic decomposition process of chromic acid tert-butyl ester with a heterogeneous catalytic decomposition process of sodium hydroxide alkaline aqueous solution, comprising: a first step: performing the homogeneous catalytic decomposition by using the chromic acid tert-butyl ester as a catalyst; a second step: performing the heterogeneous catalytic decomposition of the sodium hydroxide alkaline aqueous solution under low alkalinity; and a third step: performing the heterogeneous catalytic decomposition of the sodium hydroxide alkaline aqueous solution under high alkalinity. The production process is characterized by a high total yield, a long continuous production cycle, a low consumption, and a low production cost.

(57) 摘要:

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一种环己烷氧化制备环己醇和环己酮的生产工艺，先将环己烷用分子氧进行无催化氧化，生成含环己基过氧化氢为主要产物的氧化混合物，然后进行环己基过氧化氢的分解，使之生成环己醇和环己酮，再通过精馏得到环己醇和环己酮产品，环己基过氧化氢进行分解时，采用铬酸叔丁酯均相催化分解工艺和氢氧化钠碱性水溶液非均相催化分解工艺相结合的三步分解工艺：第一步，采用铬酸叔丁酯为催化剂进行均相催化分解；第二步，进行低碱度条件下的氢氧化钠水溶液非均相催化分解；第三步，进行高碱度条件下的氢氧化钠碱性水溶液非均相催化分解。该生产工艺总收率较高，连续生产周期较长，消耗和生产成本低。