

PROCESS AND DEVICE FOR PREPARING CYCLOHEXANOL AND CYCLOHEXANONE BY CYCLOHEXANE OXIDATION

ABSTRACT

A process for preparing cyclohexanol and cyclohexanone by cyclohexane oxidation includes steps of: non-catalytically oxidizing cyclohexane with molecular oxygen in the air to obtain an oxidation mixture containing CHHP as a main product; performing a homogeneous catalytic decomposition of the CHHP to obtain cyclohexanol and cyclohexanone; and rectifying to obtain products of the cyclohexanol and the cyclohexanone, wherein the step of performing the homogeneous catalytic decomposition involves a homogeneous catalytic decomposition reaction and distillation vessel which removes water via azeotropic rectification to reduce a water content of a decomposition liquid to be below 100ppm. A device therefor includes the homogeneous catalytic decomposition reaction and distillation vessel for performing the homogeneous catalytic decomposition of the CHHP. The homogeneous catalytic decomposition reaction and distillation vessel and pipelines thereof are free from scale formation, which elongates a production cycle to be over one year.

FIG. 1