Method ~~Process~~ for preparing a deperoxidation catalyst

The present invention relates to a process for preparing a deperoxidation catalyst comprising chromium as the main catalytic element.

It relates more particularly to a process for preparing an organic solution of a chromic acid ester, this solution being used as a catalyst in the step of deperoxidation of an alkyl peroxide, especially in the step of deperoxidation of cyclohexyl hydroperoxide, in the process for manufacturing cyclohexanol/cyclohexanone by oxidation of cyclohexane. The cyclohexanol and/or cyclohexanone are, in particular, intermediate products used in the manufacture of adipic acid or of epsilon-caprolactam, which are monomers for the production de polyamides.

Certain processes for the synthesis of oxidized compounds such as acids, diacids, alcohols and ketones, use peroxidized compounds as raw materials or as intermediate compounds. These compounds must be deperoxidized or decomposed in a specific step in order to obtain one or more oxidized products such as alcohols, ketones, acids or aldehydes.

One of the major industrial processes belonging to this group is the process for manufacturing diacids, more particularly adipic acid, by oxidation of cyclohexane to cyclohexyl hydroperoxide then decomposition, by deperoxidation, of this peroxide to alcohol and/or ketone. The latter oxidized compounds are then converted to diacids, mainly adipic acid, via oxidation by nitric acid.

The oxidation of cyclohexane to cyclohexyl hydroperoxide is carried out in a liquid medium by an oxygen-containing gas and in the absence of catalyst. This step is described, in particular, in patents GB 777087, GB 1112837, GB 964869, GB 1191573, US 3479394 and US 4877903.

After optionally removing the unreacted cyclohexane and washing the reaction medium with water in order to recover and extract certain by-products formed, the cyclohexyl hydroperoxide is decomposed by deperoxidation to cyclohexanone and cyclohexanol, in the presence of a catalyst comprising, as the main catalytic element, chromium, preferably in the form of chromium compounds of 6+ valency such as, for example, a chromic acid ester. This step is described, in particular, in French patent 1580206.