Abstract

The present invention relates to an integrated process for the synthesis of propylene oxide, which comprises at least the following steps:

(i) dehydrogenation of propane to give a substream T (0) comprising at least propane, propene and hydrogen;
(ii) fractionation of the substream T (0) to give at least one gaseous hydrogen-rich substream T (2) and a substream T (1) comprising at least propene and propane;
(iii) synthesis of hydrogen peroxide using the substream T (2), giving a substream T (4) which is rich in hydrogen peroxide and a gaseous substream T (6);
(iv) fractionation of the substream T (1) to give at least one propane-rich substream T (5) and at least one propene-rich substream T (3);
(v) reaction of the at least one substream T (3) with substream T (4) to give propylene oxide.