

### **Abstract**

Disclosed are a method and system for producing hydrogen peroxide, the method comprising : 1) carrying out a hydrogenation reaction on a working solution containing an alkylanthraquinone in the presence of hydrogenation catalyst particles and hydrogen,  
5 separating the resultant to obtain a circulating slurry and a hydrogenated solution, and recycling the circulating slurry; 2) dividing the hydrogenated solution into two streams, and regenerating the first stream of the hydrogenated solution to obtain a regenerated hydrogenated solution; 3) contacting the second stream of the hydrogenated solution and the regenerated hydrogenated solution with an oxygen-containing gas for oxidation  
10 reaction to obtain an oxidized solution; and 4) carrying out extraction separation on the oxidized solution to obtain an extract liquor containing hydrogen peroxide and a raffinate, and recycling the raffinate. The method can substantially eliminate the temperature difference of the reactor bed, effectively improve the hydrogenation selectivity, plant efficiency and hydrogenation efficiency, and prolong the service life of the hydrogenation  
15 catalyst.

Fig. 1