

A B S T R A C T

The efficiency of dehydrogenation and that of hydrogenation are improved. A hydrogen generator for generating hydrogen by dehydrogenation of organic hydrides in the presence of a catalyst is characterized by comprising a reactor vessel (10) of a multi-tubular structure having a region (12) for supplying fuel to generate heat necessary for dehydrogenation, the region containing a combustion catalyst for combusting fuel, and a region (11) containing a dehydrogenation catalyst necessary for dehydrogenation, the regions being arranged radially side by side with a wall separating them. A hydrogenation apparatus which synthesizes organic hydrides by way of hydrogenation of unsaturated hydrocarbons in the presence of a catalyst is characterized by comprising a reactor vessel (10) of a multi-tubular structure having a region (12) for removing the heat generated by hydrogenation and a region (11) containing a hydrogenation catalyst necessary for hydrogenation, the regions being arranged radially side by side with a wall separating them.



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