medium for heating or cooling the plurality of reaction tubes is introduced into a shell side in the reactor main body, and a heating medium outlet through which the heating medium is discharged from the shell side in the reactor main body,

means for supplying a temperature and humidity controlling gas, ~~in which the~~ which supplies a gas having a temperature ~~is adjusted to the range~~ of 15 °C to 28 °C and ~~the~~ a relative humidity ~~is adjusted to the range~~ of 40 % to 60 %~~,~~ into the reaction tube during a removing operation of the solid catalyst after use in the reaction tubes.