

Fractional distillation must be used in order to separate the components well by repeated vaporization–condensation cycles within a packed fractionating column. This separation, by successive distillations, is also referred to as rectification. Fractional Distillation (Multistage Batch Distillation) As the solution to be purified is heated, its vapors rise to the fractionating column. As it rises, it cools, condensing on the condenser walls and the surfaces of the packing material. Here, the condensate continues to be heated by the rising hot vapors; it vaporizes once more. Distillation Columns are classified by the manner in which they are operated: 1. Batch columns process in which the feed to the column is introduced batch-wise. The column is charged with a 'batch' and then the distillation process is carried out. When the desired task is achieved, a next batch of feed is introduced. {Moonshine} 2. Continuous columns process a continuous feed stream. No interruptions occur unless there is a problem with the column or surrounding process units. They are capable of handling high throughputs and are the most common of the two types. ● tray column – trays of various designs used to hold up the liquid to provide better contact between vapour and liquid; ● packed column – packings are used to enhance vapour–liquid contact. Distillation Columns are classified by the manner in which they are operated: ● Column internal trays/plates and/or packings which are used to enhance component separations. ● A reboiler to provide the necessary vaporization for the distillation process. ● A condenser to cool and condense the vapour leaving the top of the column. ● A reflux drum to hold the condensed vapour from the top of the column .so that liquid (reflux) can be recycled back to the column