ceca ARKEMA GROUP

ON SPEC
The Adsorption Gazette

Siliporite® molecular sieves BY CECA S.A.

October 2009

STANDARD VESSEL LAYOUT

To ensure an efficient and successful operation of your adsorption unit, vessel layout plays a very important part in extending the lifetime of the installation, even if sometimes this question is but quickly tackled. CECA's experience and know-how have highlighted the following key points to keep in mind when designing vessel layout.

First at all, before determining the vessel layout we have to consider what will be treated; For example, treatment of a gas will impose a top to bottom layout in order to avoid the eventual lifting during operation, whereas a liquid will require a bottom to top disposition.
Continuing with the example of a gas treatment and a top to bottom layout we can now see that we must keep in mind the following factors:

1- Inert bed support and ballast material

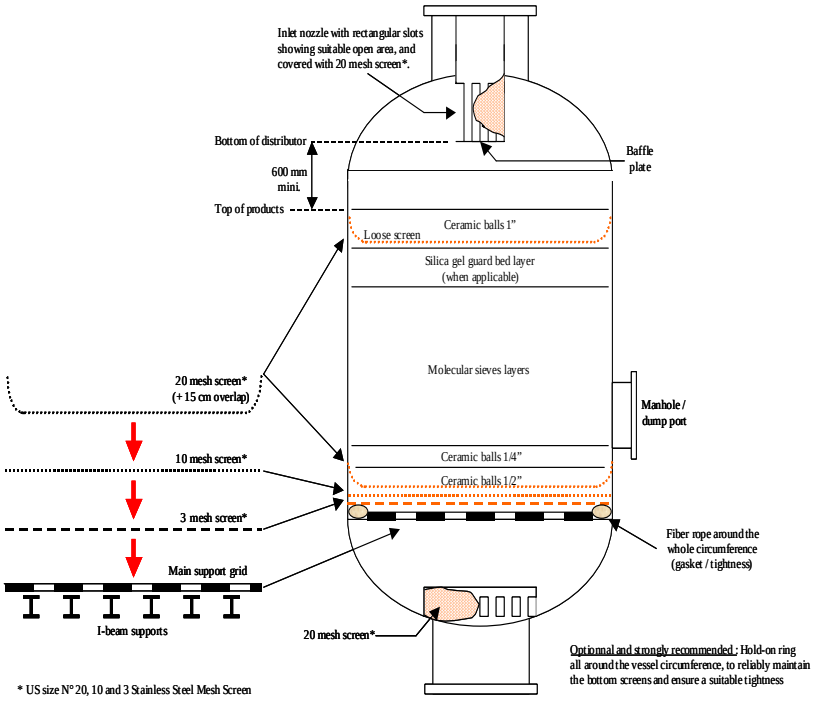
Inert bed support and ballast material has to be installed to assist gas distribution through the bed :

- ✓ *Approximately 150 mm layer of inert alumina or ceramic balls of 19 mm in diameter or larger are installed on the top of the bed for a better distribution and as ballast material, and*
- ✓ *150 mm of inert alumina or ceramic balls are installed at the bottom as a bed support.*

The inert alumina or ceramic balls should be separated from the top of the molecular sieves bed by a screen of non-corroding, floating wire mesh of about US. Screen Size No. 20 (“20 mesh”), or equal.

2- Guard Bed

To ensure the best protection for the molecular sieves beds, Ceca recommended 300 mm guard bed layer of Silica Gel specially for Natural Gas in saturated conditions.
The silica gel can avoid the pollution with condensate liquids or entrainment of liquids from previous operations.



3- Molecular Sieves

In order to optimize the adsorption capacity inside of vessel, we can find 2 types of Molecular sieves in dehydrations units :

- ✓ *Molecular sieves of 3.2 mm for the Equilibrium Zone, and*
- ✓ *Molecular sieves of 1.6 mm for the Mass Transfer Zone.*

Finally, another important factor to keep in mind is to keep a good distance between top of the product and bottom of the distributor

If you want to have more precisions about your vessel layout , do not hesitate to contact one of our specialists.

Stay with us ! Next issue will detail CECA Molecular Sieves involvement in Molecular Sieves Contaminants