

## Axial Compression Packing

- Fast
- Simple
- Reproducible
- Ideal for frequent packs
- Works well with non-compressible media

## Axial Compression Packing

- Gel: Source 15Q
  - Desired bed height  $L=10\text{cm}$
  - $d_{50} = 15\ \mu\text{m}$
- Column: FineLine™ 100
  - Equipped with  $2\ \mu\text{m}$  screens ( $< 1/3\ d_{50}$ )
  - I.D. = 10 cm
  - $A_c = 78.5\ \text{ml/cm}$
  - $L_{\text{max}} = 35\ \text{cm}$
  - $V_{c\ \text{max}} = 35\ \text{cm} \times 78.5\ \text{ml/cm} = 2.75\ \text{L}$



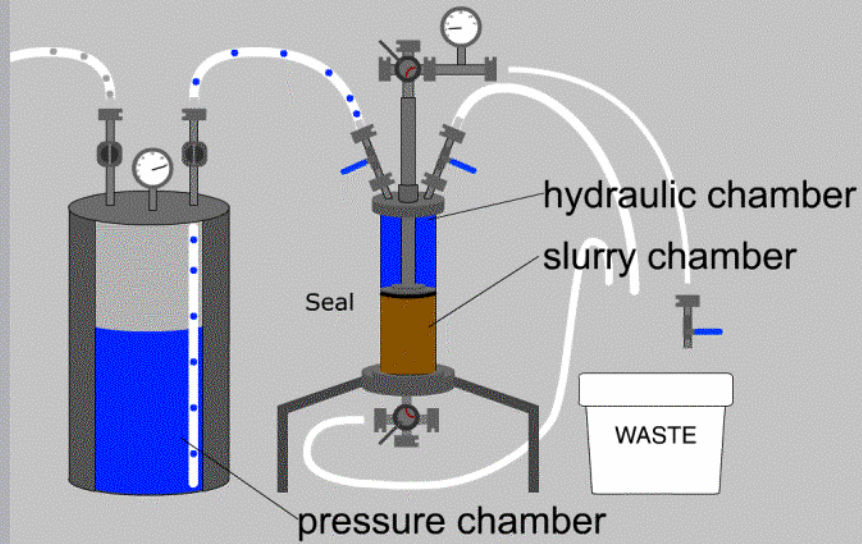
## Axial Compression Packing

- Slurry calculations
  - Desired bed height  $L=10\text{cm}$
  - Packed column volume =  $L \times A_c$
  - Packed column volume
    - $V_c = 10 \text{ cm} \times 78.5 \text{ ml/cm} = 785 \text{ ml}$
  - Settled gel volume required
    - $V_{gs} = V_c \times CF = 785 \times 1.04 = 816 \text{ ml}$

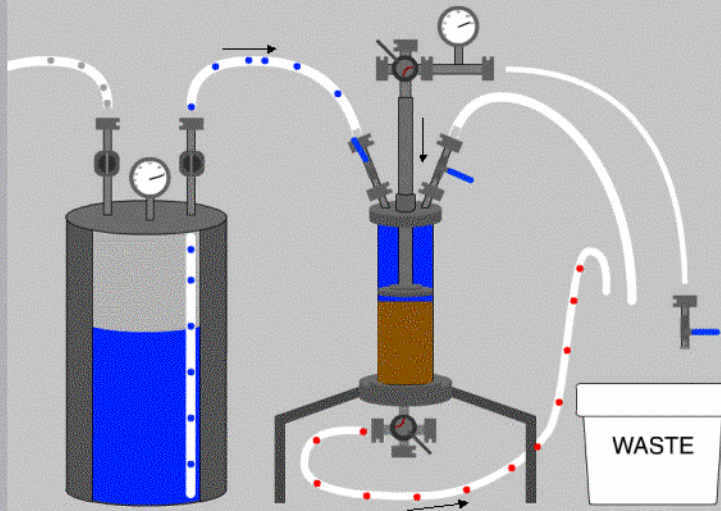
## Axial Compression Packing

- Notes:
  - $V_c \text{ max} = 2748 \text{ ml}$
  - $V_{gs} = 816 \text{ ml}$
  - Slurry % = 30%
  - Slurry Volume =  $V_{gs} / \text{Slurry \%} = 816 \text{ ml} / 0.30 = 2,720 \text{ ml}$
- Notes:
  - $V_c \text{ max}$  will accommodate entire slurry volume at 30% slurry.
  - SOURCE 15Q is prepared as a slurry in 20% Ethanol to prevent the beads from clumping
  - Prepare at least  $5 \times V_c$  20% Ethanol for packing  
(  $5 \times 816 \text{ ml} \sim 5 \text{ L}$  )

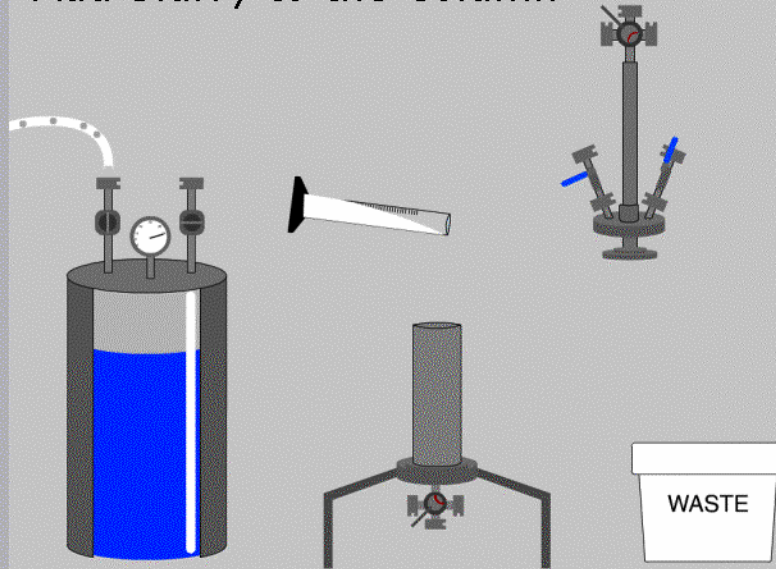
## Column Design & Set Up



## Packing Flow

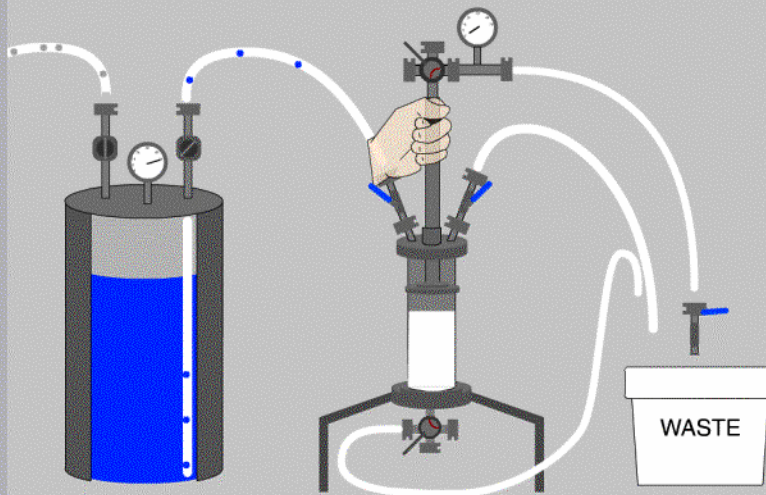


## Add Slurry to the Column

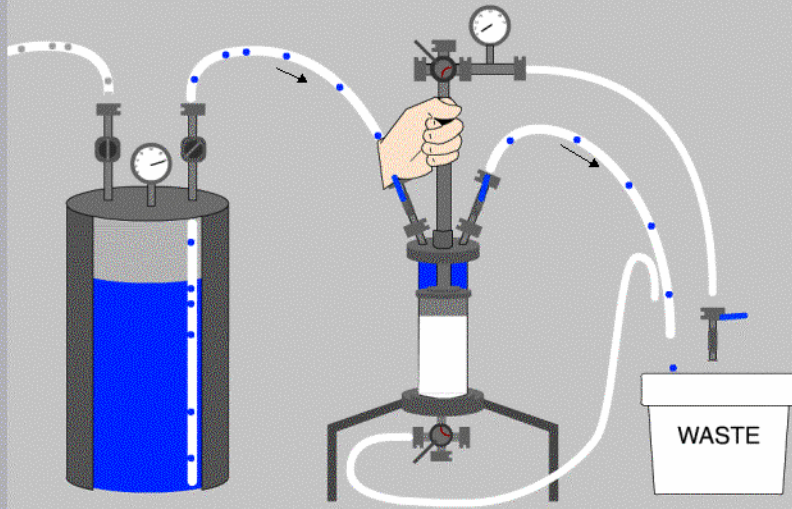


## Purge the Hydraulic Chamber: Step 1

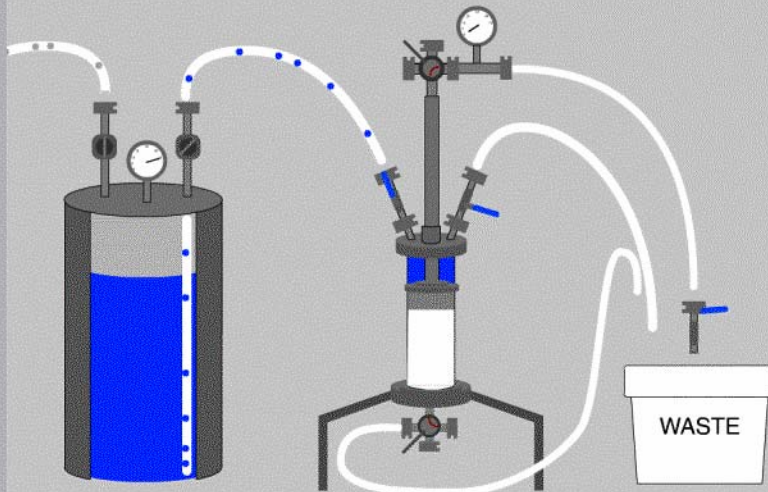
Partially Open Tank Feed  
Press Down on Adaptor Shaft



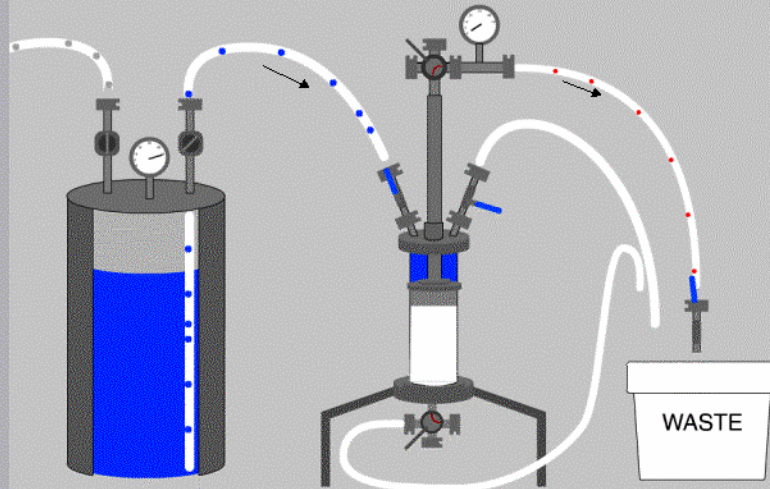
**Purge the Hydraulic Chamber: Step 2**  
Continue until liquid emerges to waste



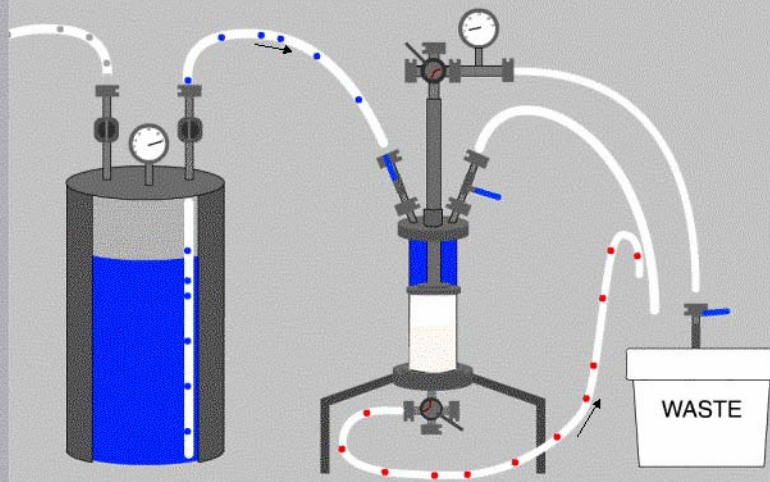
**Purge the Hydraulic Chamber: Step 3**  
Close outlet to hydraulic chamber



**Purge the Slurry Chamber**  
Open top valve to waste

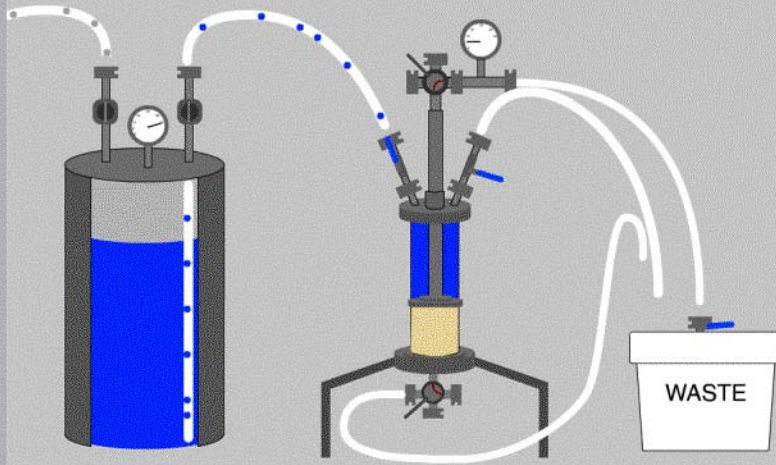


**Pack**  
Close top outlet valve when air is purged  
Fully open tank feed  
Open bottom valve

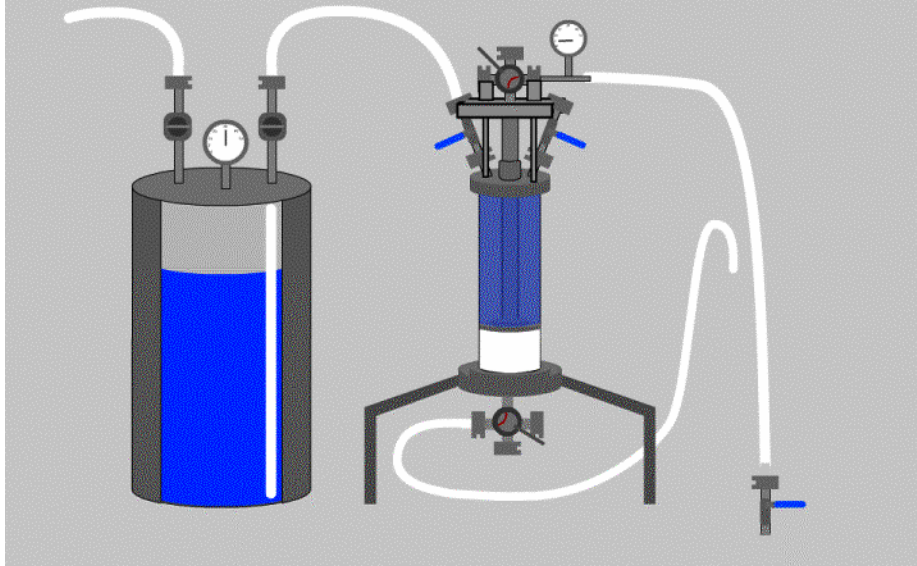


### Stop the Pack

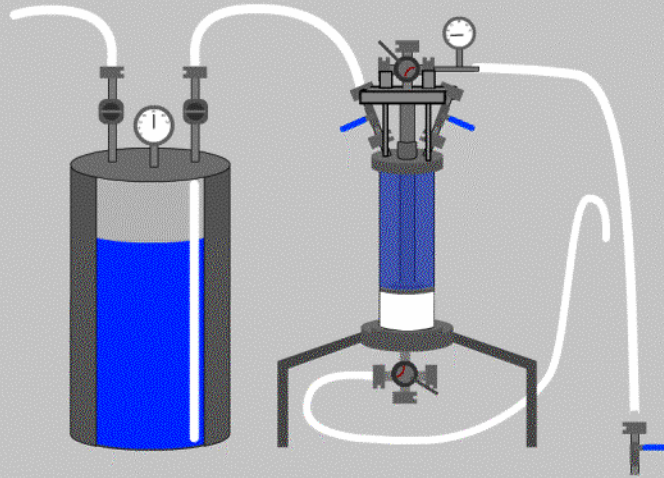
When pressure gauge drops to 5 psi  
Close bottom valve



Locking bar secures the adaptor and bed in position

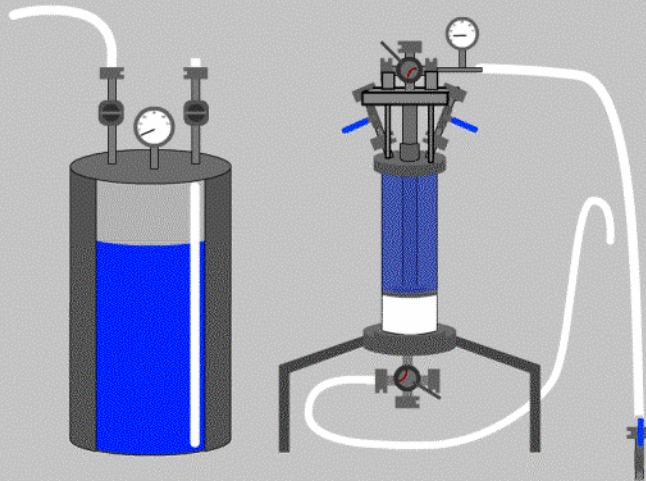


Hydraulic chamber may be left as is, vented,  
or filled with a storage solution



### Vent Pressure From Tank & Column

Shut off air feed and vent tank  
Slowly open top valve to waste

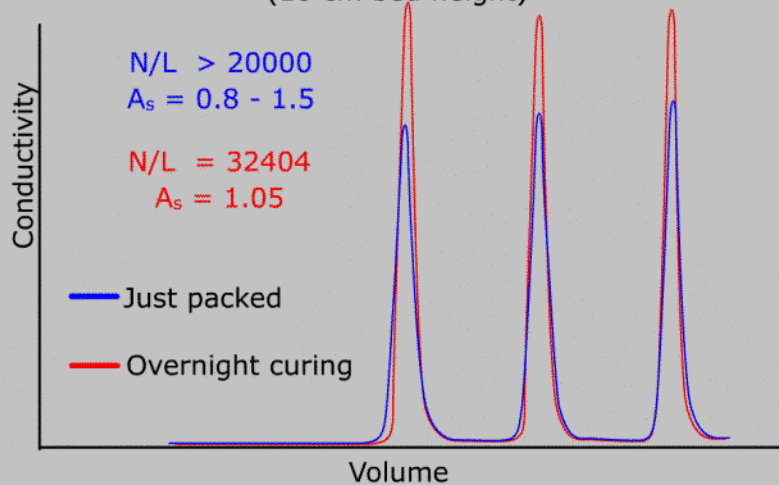




## After pack

- Release pressure
  - pressure vessel
  - column
- Upflow column
  - remove air
  - relax bed
- Test the column

### Curing source 15 Q beds in a Finline Column (10 cm bed height)



imagination at work

GE, imagination at work, and GE monogram are trademarks of General Electric Company.  
Finline and Source are trademarks of GE Healthcare companies.  
© 2011 General Electric Company - All rights reserved.  
GE Healthcare Bio-Sciences AB, Björkgatan 30, 751 84 Uppsala, Sweden.