Technical Bulletin

To calculate the amount of annular space of borehole & / or casing for silica sand, hole plug (bentonite fill), vol-clay grout

First calculate the cubic area of the entire borehole:

\[
\text{Area} = 3.1416 \times \text{Diameter (expressed in feet)} \\times \text{Diameter (expressed in feet)} \div 4
\]

Then calculate the cubic area taken up by the screen &/ or casing:

\[
\text{Area} = 3.1416 \times \text{Diameter (expressed in feet)} \div 12 \times \text{Depth of the annular space to be filled}
\]

This yields the amount of cubic feet of annular space.

If the annular space is to be filled with Silica Sand…

1 Bag of 100 # = 1 cubic ft. of fill

If the annular space is to be filled with CETCO Vol-Clay Grout…

1 Bag of 50 # = 3.5 cubic ft. of fill

If the annular space is to be filled with Hole Plug…

If coarse chips (3/4” average) = 71 pounds per cubic ft. of fill
If medium chips (3/8” average) = 74 pounds per cubic ft. of fill

One example of this calculation is:

Size of borehole is 16” diameter
Size of Casing & Screen is 8” PVC (8.625” O.D.)
Depth of the well is 280’
This is 80’ of Screen and 200” of Casing

\[
\text{Area} = 3.1416 \times 1.33' \times 1.33' \times 200' = 1.389294 \text{ cu. ft.}
\]

Subtract .4057388 from 1.389294 = .9835552 Cu. Ft. Per Linear Foot.

Therefore to gravel pack 80’ of screen + 5’ above screen =
85 X .9835552 = 83.6022 cu. ft. of sand = 8,360.22 pounds = 84 of 100# bags

Remaining fill with bentonite or cement (cement not recommended with PVC) =
Approx. 200 X .983552 = 196.711 cu. ft. of fill