

Concrete  
**BioSand Water Filter**  
Construction Manual  
**Book 6: Preparation of**  
**Filter Media**

May 2008

Dr. David H. Manz, P. Eng., P. Ag.



Manz Engineering Ltd.  
2703 Cannon Rd. NW  
Calgary, Alberta, Canada  
T2L 1C5

[www.manzwaterinfo.ca](http://www.manzwaterinfo.ca)

Copyright claimed by Dr. David H. Manz, P. Eng., P. Ag., May 12, 2008

1. Two piles of raw material that will be used to produce filter media.  
The raw material is obtained from a quarry.



2. Sieving.

3. Large material that is not used.



4. Piles of sieved material on clean surface.



5. Sieving into a wheelbarrow.



6 – 10. Washing underdrain and separating media to clean.

**Note that there MUST be sufficient water to wash media. Used water can be recycled.**



11. Pile of washed and safely stored underdrain media.



12. Sieve set.



13 – 19. Process of washing the filtering media. Note that filtering media may not be washed to completely clean as was the underdrain and separating media.

18. First wash.

19. Final wash.



### Washing Procedure

Washing must be performed systematically using the following steps:

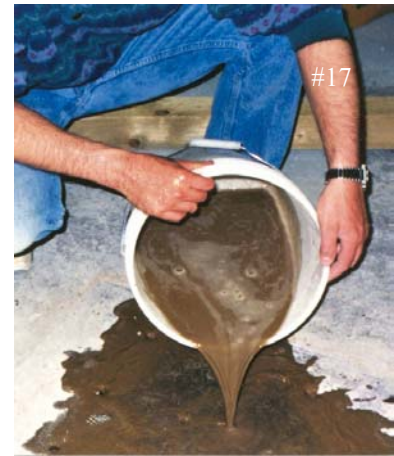
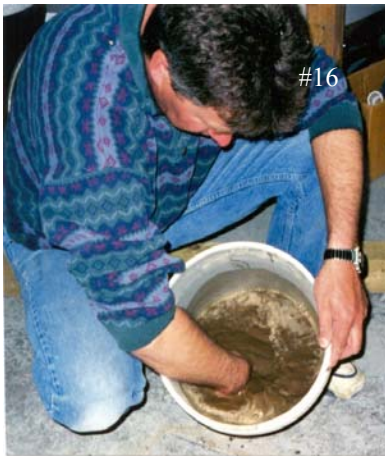
1. A clean bucket is filled approximately 1/8 full of material to be washed.
2. The bucket is filled approximately 1/3 full with clean water.
3. The hand is used for washing by touching the bottom of the bucket and rotating 20 times – always touching the bottom and circulating around the outside always touching the outside.
4. The dirty water is poured from the bucket.

Steps 1 to 4 make up one 'wash'.

Several washes may be required to produce a filtering media that will produce the exact flow rate required – 600 L/H/ square metre of filter surface. The number of washes required will depend on the nature of the raw material being processed.

### Hint

Raw material that has been soaked for at least 24 hours is much easier to process.



Once washed the media should be allowed to drain and dry if possible. The washed media should be stored in an area protected from contamination.

Media can be put into bags that hold the amounts used in each installation. Bags should be clean and strong.