

# Concrete BioSand Water Filter Construction Manual

## Book 1: Tools and Supplies

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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)

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1. Tool box to hold ALL of the tools. Tools should be selected to fit into box.

2. Steel carpenter hammer.



3. Rubber mallet.



4. Hand drill.



5. Steel drill bits for use in hand drill.  
3 mm (3/8 inch) purchase several as these break.  
6 mm (1/4 inch)



7. Hacksaw.



8. Blades for hacksaw.



9. Wood cross-cut saw – to fit tool box.



10. Small steel carpenter's square.



11. Tape measure.



12. Fine sand paper.



13. Inexpensive brush for use with vegetable oil.



14. Small and large screwdrivers.



15. Tin snips for cutting screening material.



16. Wire brush for cleaning steel mold.



17. Carpenter's level.



18. Trowel.

19. Shovel.

20. Shovel.

21. Steel wheelbarrow.





22. Bucket that fits into top of concrete filter and on top of the ledge inside filter.



23. Bucket for handling water, sand, gravel and concrete.



24. Small bucket for measuring water, sand and gravel when making concrete.



25. Large plastic container for saving water used for washing sand and gravel. Water can be recycled.



26. Steel nail 75 mm.

27. Steel nail 50 mm.

28. Small staple.



29. Plastic sheeting for protection of work area.

30. Wood for construction of frames for sieves. (See 33 and 34.)



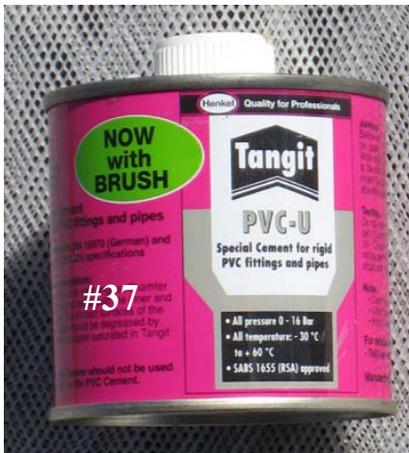


35. 12.5 mm (1/2 inch) PVC plastic pipe or equivalent.

36. 90 degree 12.5 mm (1/2 inch) PVC plastic elbows to fit PVC pipe.



37. PVC cement for use with PVC pipe and elbows.



38. Use of PVC pipe and elbows.





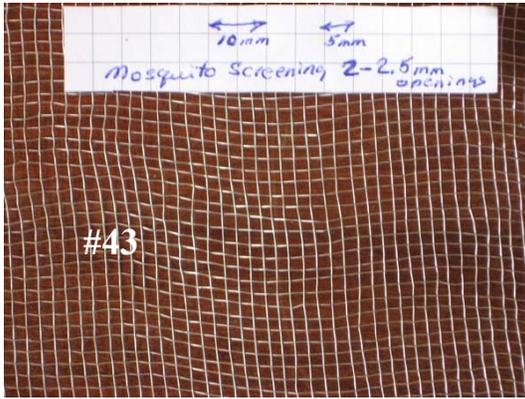
41. Wrenches (spanners) for use with bolts on steel mold as shown in #41.





42. Large wrench (spanner) for use with steel mold as shown below.





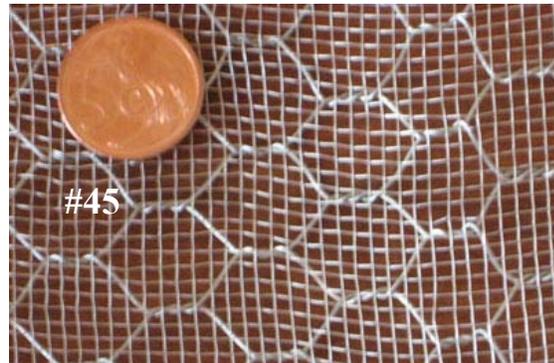
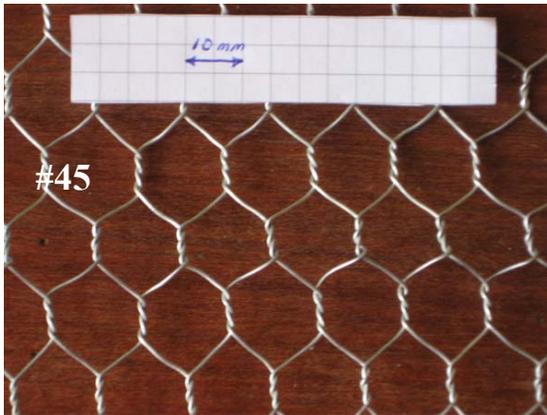
43. Mosquito screening – metal (must be strong).

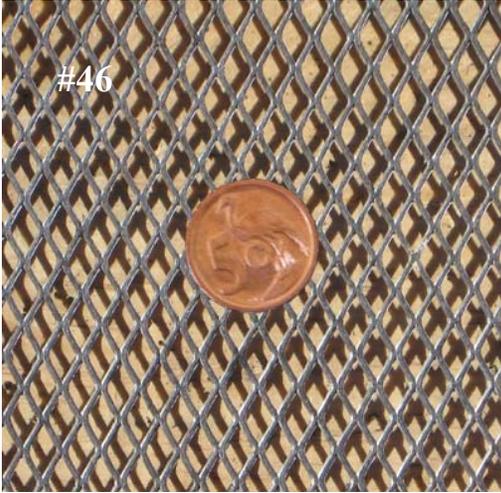


44. Plastic screening that is the same size openings as mosquito netting – must be strong.



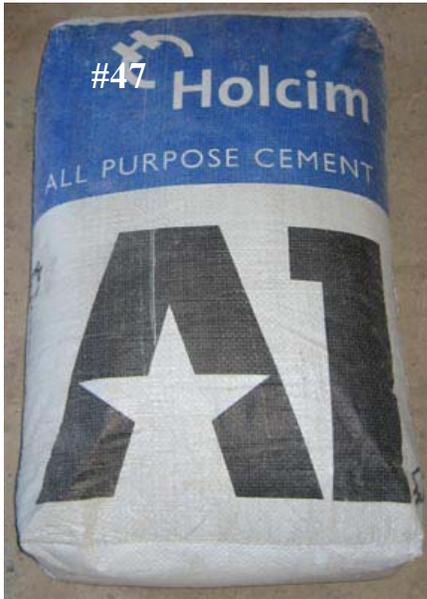
45. Chicken wire.





46. Expanded metal screening with 6mm opening.  
Available in sheets as shown below.





#47



#47

47. Portland cement – All Purpose Cement as shown.



#48

48. Crushed rock for use as gravel aggregate when making concrete.



#49

49. Clean construction sand for use when making concrete. May need to be screened to remove large particles, clay and organic material before use.



50. Quarry for crushed rock used for filter media.

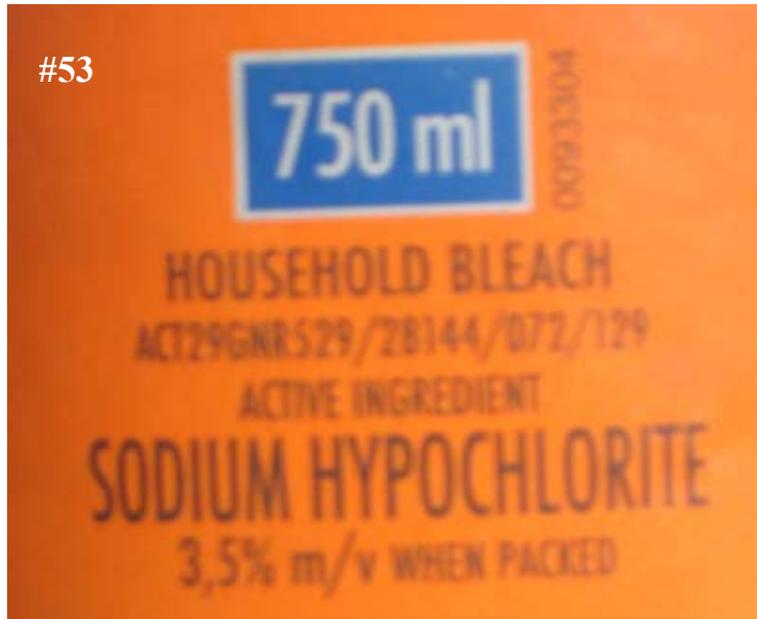


51. Fine crushed rock for use in filter.



52. 6mm to 12.5 mm crushed rock for use in filter.





53. Chlorine bleach – JIK.



55. Vegetable oil for use with steel mold.



#55

55. Steel rods approximately 16 mm in diameter and 1.5 meters long for working concrete.

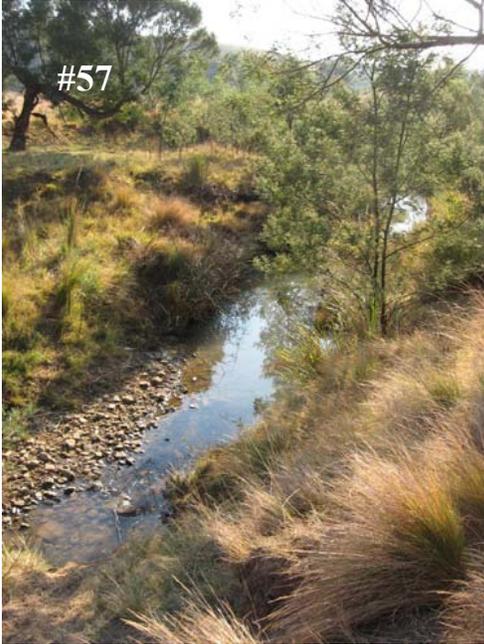


#56

56. Wood for 'measuring stick'.

Long piece about 1.5 m long – 12.5 mm in diameter.  
Short cross-piece .5 m long – 12.5 mm in diameter.

(Note that the diameters are minimum – diameter can be up to 75 mm and still work well.)



57. Water supply.



- 58. Permanent felt marking pen.
- 59. Box of rags for working with vegetable oil and steel mold.
- 60. Work gloves.