| Description | Value | Units | Notes |
|---|---|---|---|
| Yellow cells are inputs by user, green cells are calculated. | | | |
| Dome inner diameter | 1040 | mm | |
| Dome thickness | 50 | mm | |
| Volume of Dome | 93.4 | Litres | This does not account for the transition t... not account for the missing portion of th... and with a shallow entry, the tw... |
| 10% Wastage Allowance | 102.7 | Litres | |
| Total Dry Volume of Materials Required | 146.7 | Litres | Refer Note 1 at bott... |
| Volume of dry loose sand required | 73.4 | Litres | |
| Volume of dry loose cement required | 24.5 | Litres | |
| Volume of dry loose clay required | 24.5 | Litres | |
| Volume of dry loose lime required | 24.5 | Litres | |
| Resultant total volume of dry mixed materials | 110.1 | Litres | |
| Approx. volume of water required | 32.6 | Litres | Refer Note 1 at bott... |
| Approx. total volume after water addition | 102.7 | Litres | |
| Weight of dry loose sand required (1525kg/m3) | 111.9 | kg | |
| Weight of dry loose cement required (1110kg/m3) | 27.1 | kg | |
| Weight of dry loose clay required (750kg/m3) | 18.3 | kg | Refer Note 2 at bott... |
| Weight of dry loose lime required (620kg/m3) | 15.2 | kg | |
| No. of 20kg bags of cement required | 2 | 20kg bags | |
| No. of 20kg bags of clay required | 1 | 20kg bags | |
| No. of 20kg bags of lime required | 1 | 20kg bags | |
| Total weight of dry loose materials | 172.5 | kg | |
| Percentage of SS Needles Required (2-4%) | 3 | % | |
| Weight of SS Needles Required | 5.2 | kg | Based on % of total of dry weigh... |
| Handfuls of burnout fibres required | 7 | handfuls | Based on 1 handful pe... |

Note 1:
Dry loose materials are not compacted and reduce in volume when packed down. In addition to this, the finer materials will fill the spaces between the coars... compaction occurs once you add water. This means that by volume the 3:1:1:1 mix will not result in a volume of 6.

The reduction factors used in the table above are based on the following test (avergae values from 3 tests used):
A. Mixing 900 ml of coarse sand with 300 ml hydrated lime, 300 ml portland cement, and 300 ml powdered fireclay, which is a total of 1800 ml, but when mix... ml.
B. On mixing with water to "ball up" consistency (by addition of approx 400ml water) average volume measures 1260 ml, a further reduction and weighs 241... of 1914 g/L (1914 Kg/m3)
C. After drying for 7 days (no more water loss after weighing each day) the average mass was 2162g, producing a dry/set density of 1716g/L (1716kg/m3)
D. Of the 400ml water. the loss upon drying was 250ml, ie 150ml used up chemically in the hydration process.  This figure could be higher if the samples had... week rather than dried quickly.
E. Final average sample volume assumed to be 1260ml, ie minor shrinkage immeasurable and non-critical for purposes of this test


Note 2:
The densities used in the table above to convert from litres to kg are based on a test of small volumes of certain products available to the tester at the time. ... slightly depending on the supplier, and along with all other information supplied in this table, should be checked and confirmed before relying upon.