Appendices

Appendix 1 Standards for Computing Log and Segregation Volumes

Step	Operations	Units	Decimal	Maximum Value	Source	Example
1	Top radius X Top radius = Top radius squared	cm cm	0 0	199 199 39 601	Tally Calculated	008 008 00 064
2	Top radius squared X Pi = Top area	 Constant cm^2	 6 6	39 601 3.141592 0 124 410.184 792	 Regulation Calculated	00 064 3.141592 0 000 201.061 888
3	Top area/ 10 000 = Top area in m^2	cm^2 Constant m^2	6 0 10	0 124 410.184 792 10 000 012.441 018 479 2	Step 2 Regulation	0 000 201.061 888 10000 000.020 106 188 8
4	Butt Area X Butt radius = Butt radius squared	cm cm	0 0 0	199 199 39 601	Tally Calculated	009 009 000 081
5	Butt radius squared X Pi = Butt area	 Constant cm^2	0 6 6	039 601 3.141 592 0 124 410.184 792	Step 4 Regulation	000 081 3.141 592 0 000 254.468 952
6	Butt area/ 10 000 = Butt area in m^2	cm^2 Constant m^2	6 0 10	0 124 410.184 792 10 000 012.441 018 479 2	Step 5 Regulation Calculated	0 000 254.468 952 10 000 000.025 446 895 2
7	Top area + Butt area = Sum	m^2 m^2 m^2	10 10 10	012.441 018 479 2 012.441 018 479 2 024.882 036 958 4	Step 3 Step 6 Regulation	000.020 106 188 8 000.025 446 895 2 000.045 553 084 0
8	Sum / 2 =Length in meters	 Constant m	10 0 *10	024.882 036 958 4 2 012.441 018 479 2	Step 7 Regulation Calculated	000.045 553 084 0 2 000.022 776 542 0
9	Length / 10 =Length in meters	dm Constant m	0 0 1	999 10 99.9	Tally Regulation Calculated	045 10 04.5
10	Average area* X length = Log volume	m^2 m m^3	10 1 11	012.441 018 479 2 99.9 01 242.857 746 072 06	Step 8 Regulation Calculated	000.022 776 542 0 04.5 00 000.102 494 439 00
11	Log volume Log volume rounded	m^3 m^3	11 **3	01 242.857 746 072 06 01 242.858	Step 10 *Scaling Manual*	00 000.102 494 439 00 00 000.102
12 (e.g.)	Log Volume + 0.0005 X 1000 Strip Decimal /1000	m^3 Constant Constant dm^3 m^3	11 11 8 0 3	1 242.857 746 072 06 1242.858 246 072 06 1 242 858.246 072 06 124 285 8 1242.858	Step 11 *Scaling Manual* *Scaling Manual* Function *Scaling Manual*	00 000.102 494 439 00 00 000.102 994 439 00 102.994 439 00 102 0.102

* Truncation allowed because top areas are always even numbers, thus Sum divided by 2 is never odd.

** See Rounding Rule from the *Scaling Manual*.

Rounding

1. If the remainder beyond the last digit to be reported is < 5, drop the last digit.

2. If the remainder beyond the last digit is > 5, increase the final digit by 1.

3. To prevent rounding bias, where the remainder is exactly 5 scalers will round the last digit to the closest even number. Thus, the number 3.55 rounded to one decimal place would be 3.6 (rounding up) and the number 6.450 rounded to one decimal place would be 6.4 (rounding down). However, current programming language may not provide this (even) function and will adopt the convention of rounding up on the exact half.

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