AMERICAN WOOD-PRESERVERS' ASSOCIATION STANDARD
F3-78 STANDARD VOLUMES OF ROUND FOREST PRODUCTS

Note: Standard F3-78 consists of six pages dated as follows: 1-2, 1978; 3-4 1961; 5-6, 1978.

The volume in cubic feet of all round forest products shall be calculated by one of the following methods:

Method 1. Standard Method*

a. Determine the nominal length of the piece, and its circumference, to the nearest quarter inch, at midpoint. Read the volume direct from Table 1.

b. If the nominal length is not covered in Table 1, refer to Table 2 and multiply the factor corresponding to the midpoint diameter, to the nearest quarter inch, by the length in feet.

Method 2. Alternate Method*

Find the average diameter of the butt and of the top, to the nearest half inch. Multiply the factor in Table 3 corresponding to these average diameters by the length of the piece in feet to obtain the volume. Multiply the total volumes thus obtained by the correction factor indicated below.

Correction Factors

Oak Piles	0.82
Southern pine piles	0.93
Southern pine and red pine poles	0.95

*Method 1 is the official method and must be used in all cases of dispute, except that for Douglas fir piles and poles either Method 1 or 2 may be used as the official method.

TABLE 1

Formula: $V = 3L \left(\frac{Cm}{3.1416} \right)^2 \times 0.001818$

Where V = total volume, cubic feet;
L = length, feet;
Cm = midpoint circumference, inches

Volume – Cubic Feet

Midpoint circumference	Length											
	16	18	20	22	25	30	35	40	45	50	55	60
14.0	1.8	2.0	2.2	2.4	2.8	3.3	---	---	---	---	---	---
1/4	1.8	2.0	2.2	2.4	2.8	3.3	---	---	---	---	---	---
1/2	1.8	2.1	2.3	2.5	2.9	3.5	---	---	---	---	---	---
3/4	1.9	2.2	2.4	2.6	3.0	3.6	---	---	---	---	---	---
15.0	2.0	2.3	2.5	2.8	3.2	3.8	---	---	---	---	---	---
1/4	2.0	2.3	2.5	2.8	3.2	3.8	---	---	---	---	---	---
1/2	2.1	2.4	2.6	2.9	3.3	3.9	---	---	---	---	---	---
3/4	2.2	2.4	2.7	3.0	3.4	4.1	---	---	---	---	---	---
16.0	2.3	2.6	2.8	3.1	3.5	4.3	---	---	---	---	---	---
1/4	2.4	2.7	2.9	3.2	3.7	4.4	---	---	---	---	---	---
1/2	2.5	2.8	3.1	3.4	3.8	4.6	---	---	---	---	---	---
3/4	2.5	2.8	3.1	3.4	3.8	4.6	---	---	---	---	---	---
17.0	2.5	2.9	3.2	3.5	4.0	4.8	---	---	---	---	---	---
1/4	2.6	3.0	3.3	3.6	4.1	4.9	---	---	---	---	---	---
1/2	2.7	3.1	3.4	3.8	4.3	5.1	---	---	---	---	---	---
3/4	2.8	3.2	3.5	3.9	4.4	5.3	---	---	---	---	---	---
18.0	2.8	3.2	3.5	3.9	4.4	5.3	6.2	---	---	---	---	---
1/4	2.9	3.3	3.7	4.0	4.6	5.5	6.4	---	---	---	---	---
1/2	3.0	3.4	3.8	4.2	4.7	5.7	6.6	---	---	---	---	---
3/4	3.1	3.5	3.9	4.3	4.9	5.9	6.9	---	---	---	---	---
19.0	3.1	3.5	3.9	4.3	4.9	5.9	6.9	---	---	---	---	---
1/4	3.2	3.6	4.0	4.5	5.1	6.1	7.1	---	---	---	---	---
1/2	3.4	3.8	4.2	4.6	5.2	6.3	7.3	---	---	---	---	---
3/4	3.5	3.9	4.3	4.8	5.4	6.5	7.6	---	---	---	---	---
20.0	3.6	4.0	4.5	4.9	5.6	6.7	7.8	8.9	---	---	---	---
1/4	3.6	4.0	4.5	4.9	5.6	6.7	7.8	8.9	---	---	---	---
1/2	3.7	4.1	4.6	5.1	5.8	6.9	8.1	9.2	---	---	---	---
3/4	3.8	4.3	4.8	5.2	5.9	7.1	8.3	9.5	---	---	---	---
21.0	3.9	4.4	4.9	5.4	6.1	7.3	8.6	9.8	---	---	---	---
1/4	3.9	4.4	4.9	5.4	6.1	7.3	8.6	9.8	---	---	---	---
1/2	4.0	4.5	5.0	5.5	6.3	7.6	8.8	10.1	---	---	---	---
3/4	4.2	4.7	5.2	5.7	6.5	7.8	9.1	10.4	---	---	---	---

TABLE 1 (Continued)
Volume – Cubic Feet

Midpoint	Length											
circumference	16	18	20	22	25	30	35	40	45	50	55	60
22.0	4.3	4.8	5.3	5.9	6.7	8.0	9.4	10.7	---	---	---	---
1/4	4.4	4.9	5.5	6.0	6.9	8.2	9.6	11.0	---	---	---	---
1/2	4.5	5.1	5.7	6.2	7.1	8.5	9.9	11.3	---	---	---	---
3/4	4.5	5.1	5.7	6.2	7.1	8.5	9.9	11.3	---	---	---	---
23.0	4.7	5.2	5.8	6.4	7.3	8.7	10.2	11.6	13.1	---	---	---
1/4	4.8	5.4	6.0	6.6	7.5	9.0	10.5	11.9	13.4	---	---	---
1/2	4.9	5.5	6.1	6.7	7.7	9.2	10.7	12.3	13.8	---	---	---
3/4	5.0	5.7	6.3	6.9	7.9	9.5	11.0	12.6	14.2	---	---	---
24.0	---	5.7	6.3	6.9	7.9	9.5	11.0	12.6	14.2	15.8	---	---
1/4	---	5.8	6.5	7.1	8.1	9.7	11.3	12.9	14.6	16.2	---	---
1/2	---	6.0	6.6	7.3	8.3	10.0	11.6	13.2	14.9	16.6	---	---
3/4	---	6.1	6.8	7.5	8.5	10.2	11.9	13.6	15.3	17.0	---	---
25.0	---	6.3	7.0	7.7	8.7	10.5	12.2	14.0	15.7	17.5	---	---
1/4	---	6.3	7.0	7.7	8.7	10.5	12.2	14.0	15.7	17.5	---	---
1/2	---	6.4	7.2	7.9	8.9	10.7	12.5	14.0	16.1	17.9	---	---
3/4	---	6.6	7.3	8.1	9.2	11.0	12.8	14.7	16.5	18.3	---	---
Midpoint	Length											
circumference	18	20	22	25	30	35	40	45	50	55	60	65
26.0	6.8	7.5	8.3	9.4	11.3	13.2	15.0	16.9	18.8	---	---	---
1/4	6.8	7.5	8.3	9.4	11.3	13.2	15.0	16.9	18.8	---	---	---
1/2	6.9	7.7	8.5	9.6	11.5	13.5	15.4	17.3	19.2	---	---	---
3/4	7.1	7.9	8.7	9.9	11.8	13.8	15.8	17.7	19.7	---	---	---
27.0	7.3	8.1	8.9	10.1	12.1	14.1	16.1	18.2	20.2	22.2	---	---
1/4	7.4	8.3	9.1	10.3	12.4	14.4	16.5	18.6	20.6	22.7	---	---
1/2	7.4	8.3	9.1	10.3	12.4	14.4	16.5	18.6	20.6	22.7	---	---
3/4	7.6	8.4	9.3	10.6	12.7	14.8	16.9	19.0	21.1	28.2	---	---
28.0	7.8	8.6	9.5	10.8	13.0	15.1	17.3	19.4	21.6	23.8	---	---
1/4	8.0	8.8	9.7	11.0	13.3	15.5	17.7	19.9	22.1	24.3	---	---
1/2	8.1	9.0	9.9	11.3	13.5	15.8	18.1	20.3	22.6	24.8	---	---
3/4	8.1	9.0	9.9	11.3	13.5	15.8	18.1	20.3	22.6	24.8	---	---
29.0	8.3	9.2	10.2	11.5	13.8	16.2	18.5	20.8	23.1	25.4	---	---
1/4	8.5	9.4	10.4	11.8	14.2	16.5	18.9	21.2	23.6	25.9	---	---
1/2	8.7	9.6	10.6	12.0	14.5	16.9	19.3	21.7	24.1	26.5	---	---
3/4	8.9	9.8	10.8	12.8	14.8	17.2	19.7	22.1	24.6	27.1	---	---
30.0	---	9.8	10.8	12.3	14.8	17.2	19.7	22.1	24.6	27.1	29.5	---
1/4	---	10.1	11.1	12.6	15.1	17.6	20.1	22.6	25.1	27.6	30.2	---
1/2	---	10.3	11.3	12.8	15.4	18.0	20.5	23.1	25.7	28.2	30.8	---
3/4	---	10.5	11.5	13.1	15.7	18.3	21.0	23.6	26.2	28.8	31.4	---
31.0	---	10.7	11.8	13.4	16.0	18.7	21.4	24.1	26.7	29.4	32.1	---
1/4	---	10.7	11.8	13.4	16.0	18.7	21.4	24.1	26.7	29.4	32.1	---
1/2	---	10.9	12.0	13.6	16.4	19.1	21.8	24.5	27.8	30.0	32.7	---
3/4	---	11.1	12.2	13.9	16.7	19.5	22.3	25.0	27.8	30.6	33.4	---
32.0	---	11.3	12.5	14.2	17.0	19.9	22.7	25.5	28.4	31.2	34.0	---
1/4	---	11.6	12.7	14.5	17.4	20.3	23.1	26.0	28.9	31.8	34.7	---
1/2	---	11.6	12.7	14.5	17.4	20.3	23.1	26.0	28.9	31.8	34.7	---
3/4	---	11.8	13.0	14.7	17.7	20.6	23.6	26.5	29.5	32.4	35.4	---
33.0	---	12.0	13.2	15.0	18.0	21.0	24.1	27.1	30.1	33.1	36.1	39.1
1/4	---	12.3	13.5	15.3	18.4	21.4	24.5	27.6	30.6	33.7	36.8	39.8
1/2	---	12.5	13.7	15.6	18.7	21.9	25.0	28.1	31.2	34.3	37.5	40.6
3/4	---	12.7	14.0	15.9	19.1	22.3	25.4	28.6	31.8	35.0	38.2	41.3

TABLE 1 (Continued)
Volume – Cubic Feet

Midpoint	Length											
circumference	25	30	35	40	45	50	55	60	65	70	75	80
34.0	15.9	19.1	22.3	25.4	28.6	31.8	35.0	38.2	41.3	44.5	---	---
1/4	16.2	19.4	22.7	25.9	29.2	32.4	35.6	38.9	42.1	45.4	---	---
1/2	16.5	19.8	23.1	26.4	29.7	33.0	36.3	39.6	42.9	46.2	---	---
3/4	16.8	20.2	23.5	26.9	30.2	33.6	37.0	40.3	43.7	47.0	---	---
35.0	16.8	20.2	23.5	26.9	30.2	33.6	37.0	40.3	43.7	47.0	---	---
1/4	17.1	20.5	23.9	27.4	30.8	34.2	37.6	41.0	44.5	47.9	---	---
1/2	17.4	20.9	24.4	27.9	31.3	34.8	38.3	41.8	45.3	48.7	---	---
3/4	17.7	21.3	24.8	28.4	31.9	35.4	39.0	42.5	46.1	49.6	---	---
36.0	18.0	21.6	25.2	28.9	32.5	36.1	39.7	43.3	46.9	50.5	---	---
1/4	18.0	21.6	25.2	28.9	32.5	36.1	39.7	43.3	46.9	50.5	---	---
1/2	18.3	22.0	25.7	29.4	33.0	36.7	40.4	44.0	47.7	51.4	---	---
3/4	18.7	22.4	26.1	30.0	33.6	37.8	41.1	44.8	48.5	52.3	---	---
37.0	19.0	22.8	26.6	30.4	34.2	38.0	41.8	45.6	49.4	53.2	---	---
1/4	19.3	23.2	27.0	30.9	34.8	38.6	42.5	46.3	50.2	54.1	---	---
1/2	19.3	23.2	27.0	30.9	34.8	38.6	42.5	46.3	50.2	54.1	---	---
3/4	19.6	23.6	27.5	31.4	35.8	39.3	43.2	47.1	51.0	55.0	---	---
38.0	---	24.0	27.9	31.9	35.9	39.9	43.9	47.9	51.9	55.9	59.9	---
1/4	---	24.4	28.4	32.5	36.5	40.6	44.6	48.7	52.8	56.8	60.9	---
1/2	---	24.8	28.9	33.0	37.1	41.3	45.4	49.5	53.6	57.8	61.9	---
3/4	---	24.8	28.9	33.0	37.1	41.3	45.4	49.5	53.6	57.8	61.9	---
39.0	---	25.2	29.4	33.5	37.7	41.9	46.1	50.3	54.5	58.7	62.9	---
1/4	---	25.6	29.8	34.1	38.3	42.6	46.9	51.1	55.4	59.7	63.9	---
1/2	---	26.0	30.3	34.6	39.0	43.3	47.6	52.0	56.3	60.6	64.9	---
3/4	---	26.4	30.8	35.3	39.6	44.0	48.4	52.8	57.2	61.6	66.0	---
40.0	---	26.4	30.8	35.2	39.6	44.0	48.4	52.8	57.2	61.6	66.0	70.4
1/4	---	26.8	31.2	35.7	40.2	44.7	49.1	53.6	58.1	62.6	67.0	71.5
1/2	---	27.2	31.8	36.3	40.8	45.4	49.9	54.5	59.0	63.5	68.1	72.6
3/4	---	27.7	32.3	36.9	41.5	46.1	50.7	55.3	59.9	64.5	69.1	73.7
41.0	---	---	---	37.4	42.1	46.8	51.5	56.2	60.8	65.5	70.2	74.9
1/4	---	---	---	37.4	42.1	46.8	51.5	56.2	60.8	65.5	70.2	74.9
1/2	---	---	---	38.0	42.8	47.5	52.3	57.0	61.8	66.5	71.3	76.0
3/4	---	---	---	38.6	43.4	48.2	53.1	57.9	62.7	67.5	72.4	77.2
42.0	---	---	---	39.2	44.1	49.0	53.9	58.8	63.7	68.6	73.4	78.3
1/4	---	---	---	39.2	44.1	49.0	53.9	58.8	63.7	68.6	73.4	78.3
1/2	---	---	---	39.8	44.7	49.7	54.7	59.6	64.6	69.6	74.5	79.5
3/4	---	---	---	40.4	45.4	50.4	55.5	60.5	65.6	70.6	75.7	80.7
43.0	---	---	---	41.0	46.1	51.2	56.3	61.4	66.6	71.7	76.8	81.9
1/4	---	---	---	41.5	46.7	51.9	57.1	62.3	67.5	72.7	77.9	83.1
1/2	---	---	---	41.5	46.7	51.9	57.1	62.3	67.5	72.7	77.9	83.1
3/4	---	---	---	42.2	47.4	52.7	58.0	63.2	68.5	73.8	79.0	84.3

TABLE 1 (Continued)
Volume – Cubic Feet

Midpoint	Length											
circumference	40	45	50	55	60	65	70	75	80	85	90	95
44.0	42.8	48.1	53.5	58.8	64.1	69.5	74.8	80.2	85.5	90.9	---	---
1/4	43.4	48.8	54.2	59.6	65.1	70.5	75.9	81.3	86.7	92.2	---	---
1/2	44.0	49.5	55.0	60.5	66.0	71.5	77.0	82.5	88.0	93.5	---	---
3/4	44.0	49.3	55.0	60.5	66.0	71.5	77.0	82.5	88.0	93.5	---	---
45.0	---	---	55.8	61.3	66.9	72.5	78.1	83.6	89.2	94.8	100.4	---
1/4	---	---	56.5	62.2	67.9	73.5	79.2	84.8	90.5	96.1	101.8	---
1/2	---	---	57.3	63.1	68.8	74.5	80.3	86.0	91.7	97.5	103.2	---
3/4	---	---	58.1	63.9	69.8	75.6	81.4	87.2	93.0	98.9	104.6	---
46.0	---	---	58.1	63.9	69.8	75.6	81.4	87.2	93.0	98.9	104.6	110.5
1/4	---	---	58.9	64.8	70.7	76.6	82.5	88.4	94.3	100.2	106.1	112.0
1/2	---	---	59.7	65.7	71.7	77.6	83.6	89.6	95.6	101.5	107.5	113.5
3/4	---	---	60.5	66.6	72.6	78.7	84.8	90.8	96.9	102.9	109.0	115.0
47.0	---	---	---	---	73.6	79.8	85.9	92.0	98.2	104.3	110.4	116.6
1/4	---	---	---	---	74.6	80.8	87.1	93.3	99.5	105.7	111.9	118.1
1/2	---	---	---	---	74.6	80.8	87.1	93.3	99.5	105.7	111.9	118.1
3/4	---	---	---	---	75.6	81.9	88.2	94.5	100.8	107.1	113.4	119.7
48.0	---	---	---	---	76.6	83.0	89.4	95.8	102.1	108.5	114.9	121.3
1/4	---	---	---	---	77.6	84.4	90.5	97.0	103.5	109.9	116.4	122.9
1/2	---	---	---	---	77.6	84.1	90.5	97.0	103.5	109.9	116.4	122.9
3/4	---	---	---	---	78.6	85.2	91.7	98.3	104.8	111.4	117.9	124.5
49.0	---	---	---	---	79.6	86.3	92.9	99.5	106.2	112.8	119.5	126.1
1/4	---	---	---	---	80.7	87.4	94.1	100.8	107.6	114.3	121.0	127.7
1/2	---	---	---	---	81.7	88.5	95.3	102.1	108.9	115.7	122.5	129.3
3/4	---	---	---	---	81.7	88.5	95.3	102.1	108.9	115.7	122.5	129.3
50.0	---	---	---	---	82.7	89.6	96.5	103.4	110.3	117.2	124.1	131.0
1/4	---	---	---	---	83.8	90.8	97.7	104.7	111.7	118.7	125.7	132.6
1/2	---	---	---	---	84.8	91.9	99.0	106.0	113.1	120.2	127.2	134.3
3/4	---	---	---	---	85.9	93.0	100.2	107.3	114.5	121.7	128.8	136.0
51.0	---	---	---	---	---	---	100.2	107.3	114.5	121.7	128.8	136.0
1/4	---	---	---	---	---	---	101.4	108.7	115.9	123.2	130.4	137.7
1/2	---	---	---	---	---	---	102.7	110.0	117.4	124.7	132.0	139.4
3/4	---	---	---	---	---	---	103.9	111.4	118.8	126.2	133.6	141.1
52.0	---	---	---	---	---	---	105.2	112.7	120.2	127.7	135.3	142.8
1/4	---	---	---	---	---	---	105.2	112.7	120.2	127.7	135.3	142.8
1/2	---	---	---	---	---	---	106.5	114.1	121.7	129.8	136.9	144.5
3/4	---	---	---	---	---	---	107.8	115.4	123.1	130.8	138.5	146.2
53.0	---	---	---	---	---	---	109.0	116.8	124.6	132.4	140.2	148.0
1/4	---	---	---	---	---	---	109.0	116.8	124.6	132.4	140.2	148.0
1/2	---	---	---	---	---	---	110.3	118.2	126.1	134.0	141.9	149.7
3/4	---	---	---	---	---	---	111.6	119.6	127.6	135.6	143.5	151.5

STANDARD MONOTUBE WEIGHTS AND VOLUMES

Type	Length (Feet)	Nominal Diameter (Inches)	Theoretical Weights of Steel - Lbs.*					Est. Conc. Vol. Cu. Yds.
			11 Ga.	9 Ga.	7 Ga.	5 Ga.	3 Ga.	
F Taper .14 inch per foot	25	12	338	421	502	591	711	0.43
	30	12	388	484	579	681	820	0.55
	40	14	595	748	900	1059	1275	0.95
	60	16	--	1213	1465	1733	2093	1.68
	75	18	--	--	1962	2312	2792	2.59
J Taper .25 inch per foot	17	12	225	279	332	390	468	0.32
	25	14	364	457	549	645	777	0.58
	33	16	--	653	786	924	1112	0.95
	40	18	--	--	1038	1221	1469	1.37
Y Taper .40 inch per foot	10	12	139	171	202	239	285	0.18
	15	14	229	288	345	404	484	0.34
	20	16	--	412	494	579	696	0.56
	25	18	--	--	663	778	934	086
N 12	20	12	317	398	478	558	668	0.51
	25		394	495	593	694	831	0.64
	30		471	589	708	829	993	0.77
	35		547	687	825	967	1158	0.89
	40		625	784	942	1100	1317	1.02
N 14	20	14	392	490	587	689	823	0.70
	25		485	606	731	858	1025	0.87
	30		581	727	877	1023	1222	1.05
	35		679	849	1018	1194	1427	1.22
	40		773	967	1166	1368	1634	1.40
N 16	20	16	--	555	666	781	933	0.90
	25		--	687	829	971	1161	1.13
	30		--	824	988	1158	1384	1.35
	35		--	957	1153	1352	1615	1.58
	40		--	1095	1320	1539	1840	1.80
N 18	20	18	--	--	755	880	1052	1.16
	25		--	--	934	1095	1308	1.45
	30		--	--	1119	1311	1566	1.75
	35		--	--	1305	1522	1819	2.04
	40		--	--	1486	1741	2081	2.33

**The above weights should not be used for final determination of shipping costs.*