

# MUD BALANCE

## MUD WEIGHT MEASUREMENT TOOL

### DESCRIPTION

A mud balance is an instrument generally used to determine mud weight that will permit accurate measurement within 1/10 lb/gal or 1/2 lb/ft<sup>3</sup>. Mud weight can be expressed in lb/gal, lb/ft<sup>3</sup>, psi/1,000 ft of depth or specific gravity (S.G.).

The mud balance should be calibrated frequently with freshwater at 70°F which will give a reading of 8.33 lbs/gal or 62.3 lbs/ft<sup>3</sup>.

### PROCEDURE

1. Fill the cup with mud to be weighed.
2. Place the lid on the cup and seat it firmly but slowly with a twisting motion. Be sure some mud runs out of the hole in the cap.
3. With the hole in the cap covered with one finger, wash or wipe all mud from the outside of the cup and arm.
4. Set the knife on the fulcrum and move the sliding weight along the graduated arm until the cup and arm are balanced.
5. Read the density of the mud at the left-hand edge of the sliding weight.
6. Report the result to the nearest scale division in lb/gal, lb/ft<sup>3</sup>, S.G., or psi/1,000 ft of depth.
7. Wash the mud from the cup immediately after wash use. It is absolutely essential that all parts of the mud balance be kept clean if accurate results are to be obtained.
8. Table 1 conversion data available for reference.

lb/gal	lb/ft <sup>3</sup>	Specific Gravity	Gradient, psi/100 ft of depth	lb/gal	lb/ft <sup>3</sup>	Specific Gravity	Gradient, psi/100 ft of depth
6.5	48.6	0.78	338	16.0	119.7	1.92	831
7.0	52.4	0.84	364	16.5	123.4	1.98	857
7.5	56.2	0.90	390	17.0	127.2	2.04	883
8.0	59.8	0.96	416	17.5	130.9	2.10	909
8.3	62.3	1.00	433	18.0	134.6	2.16	935
8.5	63.6	1.02	442	18.5	138.4	2.22	961
9.0	67.3	1.08	468	19.0	142.1	2.28	987
9.5	71.1	1.14	494	19.5	145.9	2.34	1013
10.0	74.8	1.20	519	20.0	149.6	2.40	1039
10.5	78.5	1.26	545	20.5	153.3	2.46	1065
11.0	82.3	1.32	571	21.0	157.1	2.52	1091
11.5	86.0	1.38	597	21.5	160.8	2.58	1117
12.0	89.8	1.44	623	22.0	164.6	2.64	1143
12.5	93.5	1.50	649	22.5	168.3	2.70	1169
13.0	97.2	1.56	675	23.0	172.1	2.76	1195
13.5	101.0	1.62	701	23.5	175.8	2.82	1221
14.0	104.7	1.68	727	24.0	179.5	2.88	1247
14.5	108.5	1.74	753	(Mud gradient in psi/M ft) (0.09124) = mud density in lb/gal			
15.0	112.2	1.80	779	(Mud gradient in psi/M ft) (0.144) = mud density in lb/ft <sup>3</sup>			
15.5	115.9	1.86	805	(Mud gradient in psi/M ft) (0.023) = specific gravity			

North America: 847.851.1800 | 800.527.9948 | www.CETCO.com

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