



MUD BALANCE

DENSITY

Equipment:

The mud weight may be determined using any instrument that will permit accurate measurement within 1/10 lb/gal or 1/2 lb/cu. ft. The mud balance is the instrument generally used. Mud weight can be expressed in lb/gal, lb/cu. ft., psi/1000 ft. of depth or specific gravity (S.G.).



Mud Weight Conversion Table			
Lb per Gal	Lb per Cu Ft	Specific Gravity	Gradient, psi per 1000 Ft of Depth
6.5	48.6	0.78	338
7.0	52.4	0.84	364
7.5	56.1	0.90	390
8.0	59.8	0.96	416
8.3	62.3	1.00	433
8.5	63.6	1.02	442
9.0	67.3	1.08	468
9.5	71.1	1.14	494
10.0	74.8	1.20	519
10.5	78.5	1.26	545
11.0	82.3	1.32	571
11.5	86.0	1.38	597
12.0	89.8	1.44	623
12.5	93.5	1.50	649
13.0	97.2	1.56	675
13.5	101.0	1.62	701
14.0	104.7	1.68	727
14.5	108.5	1.74	753
15.0	112.2	1.80	779
15.5	115.9	1.86	805
16.0	119.7	1.92	831
16.5	123.4	1.98	857
17.0	127.2	2.04	883
17.5	130.9	2.10	909
18.0	134.6	2.16	935
18.5	138.4	2.22	961
19.0	142.1	2.28	987
19.5	145.9	2.34	1013
20.0	149.6	2.40	1039
20.5	153.3	2.46	1065
21.0	157.1	2.52	1091
21.5	160.8	2.58	1117
22.0	164.6	2.64	1143
22.5	168.3	2.70	1169
23.0	172.1	2.76	1195
23.5	175.8	2.82	1221
24.0	179.5	2.88	1247
(Mud gradient in psi/M ft) (0.09124) = mud density in lb/gal			
(Mud gradient in psi/M ft) (0.144) = mud density in lb/cu ft			
(Mud gradient in psi/M ft) (0.023) = specific gravity			

Procedure:

1. Fill the cup with the 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 a 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/cu ft, S.G., or psi/1000 ft of depth.
7. Wash the mud from the cup immediately after each use. It is absolutely essential that all parts of the mud balance be kept clean if accurate results are to be obtained.
8. Refer to Table 1 for conversion data if not available on balance.

Calibration:

The mud balance should be calibrated frequently with fresh water. Fresh water at 70° F will give a reading of 8.33 lb/gal or 62.3 lbs/cu ft.

To adjust the mud balance to the proper reading, add or remove lead shot from end of balance arm or adjust set screw at the end of the balance arm.