MUD BALANCE

Metal - OFI PART No. 115-00-10
Plastic - OFI PART No. 100-00

The density or weight of a given volume of liquid is determined by using a mud balance. The arm is graduated and permits accurate measurements to within ±0.1 pounds per gallon. The balance is constructed so that the fixed volume cup at one end of the beam is balanced by a fixed counterweight at the opposite end, with a sliding weight rider free to move along the graduated scale. A level bubble mounted on the beam indicates when the system is in balance.

Mud weight may be read directly off the scales and expressed as:

Metal Mud Balance	**Plastic Mud Balance**
6.5 - 23 pounds per gallon (lb/gal)	8.0 - 25 pounds per gallon (lb/gal)
0.8 - 2.75 specific gravity	1000 - 3000 specific gravity (kilogram per cubic meters)
	60 - 185 pounds per cubic foot (lb/ft^3)
	450 - 1300 pounds per square inch per 1000 foot (psi/1000 ft)

Procedure:

1. Place the mud balance base (preferably in carrying case) on a flat level surface.
2. Measure the temperature of the fluid and record on the appropriate mud report form.
3. Fill the clean, dry cup to the top with the freshly obtained mud sample to be weighed.
4. Place the lid on the cup and set it with a gentle twisting motion. Be sure that some mud is expelled through the hole in the cap as this will ensure the cup is full and also will free any trapped air or gas.
5. Cover the hole in the lid with a finger and wash all mud from the outside of the cup and arm. Then thoroughly dry the entire balance.
6. Place the balance on the knife edge and move the rider along the outside of the arm until the cup and arm are balanced as indicated by the bubble.
7. Read mud weight at the edge of the rider toward the mud cup.
8. Clean and dry the mud balance after each use.

Results:

1. Report the mud weight to the nearest 0.1 pound per gallon, 0.5 pound per cubic foot, 0.01 gram per cubic centimeter or 10 kilograms per cubic meter.

Calibration:

1. The calibration of the instrument may be easily checked by measuring the density of fresh water.
2. Fill the cup with fresh water, and set the rider on the water line at 8.3 pounds per gallon or 1.0 specific gravity. Add or remove lead shot from the shotwell until the instrument is in balance.

DENSITY CONVERSIONS

Pounds Per Gallon (lb/gal.)	Pounds per Cubic Foot (lb/ft^3)	Specific Gravity [a](sg)	Kilograms per Meter^3 (kg/m^3)
6.5	48.6	0.78	780
7.0	52.4	0.84	840
7.5	56.1	0.90	900
8.0	59.8	0.96	960
8.3	62.3	1.00	1000
8.5	63.6	1.02	1020
9.0	67.3	1.08	1080
9.5	71.1	1.14	1140
10.0	74.8	1.20	1200
10.5	78.5	1.26	1260
11.0	82.3	1.32	1320
11.5	86.0	1.38	1380
12.0	89.8	1.44	1440
12.5	93.5	1.50	1500
13.0	97.2	1.56	1560
13.5	101.0	1.62	1620
14.0	104.7	1.68	1680
14.5	108.5	1.74	1740
15.0	112.5	1.80	1800
15.5	115.9	1.86	1860
16.0	119.7	1.92	1920
16.5	123.4	1.98	1980
17.0	127.2	2.04	2040
17.5	130.9	2.10	2100
18.0	134.6	2.16	2160
18.5	138.4	2.22	2220
19.0	142.1	2.28	2280
19.5	145.9	2.34	2340
20.0	149.6	2.40	2400
20.5	153.3	2.46	2460
21.0	157.1	2.52	2520
21.5	160.8	2.58	2580
22.0	164.6	2.64	2640
22.5	168.3	2.70	2700
23.0	172.1	2.76	2760
23.5	175.8	2.82	2820
24.0	179.5	2.88	2880

[a] Specific gravity same as Grams per Cubic Centimeter (g/cm^3)

REPLACEMENT PARTS for OFITE MUD BALANCES

MUD BALANCE, OFI, METAL, 2-SCALE

Components for Metal Mud Balances:

#100-25-1 Rider, for Metal Balance
#100-40 Case, Beige, for OFI Mud Balances
#100-56 Lead Shot, for calibrating Mud Balances
#115-06 Lid, stainless steel, for OFI Metal Balances
#115-14 Level Bubble Assembly, for Metal Balances
#115-16 Window, for Level Bubble Assembly
#115-22 Base, stainless steel, for Metal Balance
#115-32 Knife Edge, for metal balance
#115-34 Shotwell, for metal balance

MUD BALANCE, OFI, PLASTIC, 4-SCALE

Components for Plastic Mud Balances:

#100-10 Base, for plastic balance
#100-20 Lid, for plastic balance
#100-25 Rider, for plastic balance
#100-30 Level Bubble, for plastic balance
#100-40 Case, Beige, for OFI Mud Balances
#100-56 Lead Shot, for calibrating Mud Balances

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