

A report on experiment (mud density test)

[Science](#), [Physics](#)



Introduction

The density or weight of a given volume of mud is determined by using a mud balance.

The mud balance consists of a constant volume sample cup with a lid connected to the balance arm. A level bubble which is built into the beam indicates when the system is balanced. The scale ranges of the 4-scale metal mud balance are;

- 6.5 – 23.0 lbs/gal (ppg)
- 0.79 – 2.72 specific gravity (s. g.)
- 49 – 179 lbs/ft³
- 340 – 1190 psi/1000ft

Apparatus

- 4 Scale mud balance
- Mixer
- Weigh balance
- Beaker
- Measuring cylinder
- 10ml of Syringe
- Bentonite
- Barite

Procedures

Sample 1:

- With a measuring cylinder, I measured 350ml of water.

- With a weighing balance, I measured 35g of Bentonite
- Then I added 35g of Bentonite to the measured 350ml of water. I mixed a mixer to get a homogenous mixture
- I poured the mixture into the mud balance until it was filled.
- I placed the lid on the cup to get rid of excess fluid and any trapped air.
- I covered the hole in the lid with a finger and gently cleaned all the mud from the outside of the cup and arm. Then I dried the balance entirely.
- I adjusted the balance until it was balanced and took the reading immediately
- I took the readings in ppg, S. G, lb/ft³, psi/100ft for M1.

Sample 2:

- Using the weigh balance, I measured 10g of barite.
- I added 10g of barite to the 35g of bentonite and 350ml of water
- I put it into mixer to mixed to get a homogenous mixture.
- I poured homogenous sample 2 into the cup until it was full.
- I replaced the lid on the cup and dried the mud on the lid
- I adjusted the balance until it was balanced and took the readings immediately.
- I took readings in ppg, S. G, lb/ft³, psi/100ft for M2.

Results

Readings

S. G

PPG

Lb/ft³

Psi/1000ft

Sample 1 (M1)

1. 48. 7 65. 05 450. 05 Sample 2 (M2) 1. 55 8. 8 65. 1

450

Precaution and Maintainance

Precaution

- I ensured the fans in the lab were switched off to prevent it from altering the weight of the mud
- I ensured my cup was properly clean before measuring a different mixture and also to prevent mixture on the cup to add extra weight.
- I ensured that the 4 scale mud balance was calibrated before I commenced measuring.

Maintainance

Clean and dry thoroughly after each use.

Conclusion and Recommendation

- The density of the different sample were determined in ppg, lb/ft³, S. G, psi/100ft.
- This was gotten using a 4 scale mud balance.

Recommendation

The density of mud must not be high so that it does not affect drilling rate.