

Drilling Fluid Technical Handbook

China Petroleum Drilling Fluid,
A Branch of GWDC, CNPC

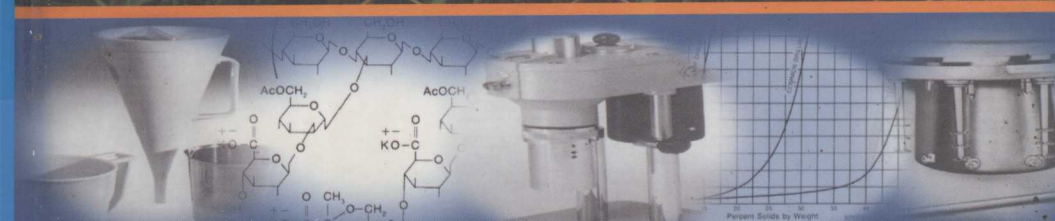
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钻井液技术手册



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前 言

这本中英文双语“钻井液技术手册”是根据中油长城钻井有限责任公司和钻井液分公司领导同志的安排，为适应中油长城钻井有限责任公司钻井液分公司工程技术服务和技术交流迅速扩大的需求而编写的。此手册编写的目的是为我公司工程技术人员提供一种中英文对照的技术工具，有助于他们用英语开展工作和进行技术交流，使国外有关单位了解中油长城钻井有限责任公司钻井液分公司的技术和产品，并且还还可作为我公司专业技术人员提高自身专业技术和英语水平以及对外籍雇员进行技术培训的学习和参考材料。

本书侧重于实际应用，力求精简。全书为中英文双语，由于一些技术内容国外应用方式和习惯不同，个别地方中英文文本略有差异。手册中同时使用了公制和英制单位，在附录中列出了较详尽的公英制单位换算表，以有助于在各种公英制的应用环境中方便地使用。

20世纪80年代以来，钻井液技术发展很快，新技术、新工艺不断涌现。限于编者知识和能力，加之手边参考文献和资料不多，匆匆编写以应急需，书中定有许多缺陷和错误，切望广大读者和同仁坦率直言，不吝指正。

随着我国石油工业的发展，必将涌现出一批批基础理论扎实、现场经验丰富、中英文文笔流畅的年富力强的技术人员，期望这些同志能在不久的将来编写出内容丰富、资料详实和及时反映现代新技术、新工艺的新的钻井液中英文双语技术手册。如本书对此有所助益，编者将无限欣慰。

杜德林同志对全书进行了细致的初校，陈世才同志录入了前三章的英文部分，鄢小琳、骆小虎同志完成了前六章中文稿的录入，许多同志给予了热情的关心和帮助，提供了大量的技术资料，提出了许多宝贵意见和建议，在此一并致以诚挚的谢意。



二〇〇五年三月十五日

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中油长城钻井有限责任公司钻井液分公司

石油工业出版社
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1 水基钻井液的测试程序

1.1 密度

1.1.1 钻井液密度计标定程序

向密度计杯中注满清水，读值应为 8.33 lb/gal 或 1.0 g/cm^3 。如果不是，增减刻度杆另一端的铅粒，使之等于正确读值。

1.1.2 测量程序

- 1) 放好密度计支架使之处于水平位置。
- 2) 将待测钻井液注入清洁干燥的密度计杯中。
- 3) 将杯盖缓慢旋入杯中并盖紧，使少量钻井液从盖子的小孔溢出。
- 4) 用手指堵住盖孔，洗净溢出的钻井液和杯盖以及液杯。
- 5) 将密度计的刀口放在支架的刀口架上，轻轻移动密度计杆上的游码，使密度计杆上的水平管中的气泡处于二刻度线之间并使密度计杆处于水平位置。
- 6) 读取游码左侧线指示的密度值（精确到 $0.05 \sim 0.10 \text{ lb/gal}$ 或 0.01 g/cm^3 ）。

1 TESTING PROCEDURE OF WATER BASE DRILLING FLUIDS

1.1 DENSITY

1.1.1 Mud Scale Calibration Procedure

Fill mud scale cup with fresh water. A reading equals to 8.33 lb/gal or 1.0 g/cm^3 should be given. If not, adjust lead shot at the other end of graduated arm until get a right reading.

1.1.2 Measuring Procedure

- 1) Set up the scale support so that it is level.
- 2) Fill the clean, dry cup of the scale with the mud to be weighted till the mud level is $1/4 \text{ in}$ (6.35 mm) lower than the top edge of the cup.
- 3) Place the lid of the cup and seat it firmly but slowly with a twist motion. Be sure surplus of the mud comes out of the hole of the lid.
- 4) Put a finger on the hole of the lid, wash the mud from outside of the lid and cup.
- 5) Set the knife of the scale on the fulcrum of the support and move the sliding weight along the graduated arm slightly until the air bubble of the level tube on the arm above the knife reaches between the two lines and the arm of the scale reaches a horizontal position.
- 6) Read the mud density at the left-hand edge of the sliding weight (at a precision of $0.05 \sim 0.10 \text{ lb/gal}$ or 0.01 g/cm^3).