

Multiple Analysis Cement System - MACS II®

Description

The Multiple Analysis Cement System (MACS II®) is an instrument that performs static gel strength (SGS) tests on cement slurry samples. Rapid static gel development (short transition time) indicates good gas migration control. The MACS II® conducts these tests under simulated down-hole pressure and temperature conditions to determine the Zero Gel Time/Transition Time (SGS/Time).

Complies with ANSI/API RECOMMENDED PRACTICE 10B-6.

Application

The MACS II® accepts a sample of cement slurry and applies a controlled set of temperature, agitation, and pressure parameters that simulate the down-hole conditions of a well. During testing, it monitors, controls, and records these parameters to form a data set. This data can then be analyzed to assist in predicting the performance of cement slurry in a well.

If a situation exists that a well presents particular problems or special conditions of temperature and/or pressure, the MACS II® can assist to minimize possible problems by providing a safe and controlled environment in which to test different cement slurries for the drilling process.

Zero Gel Time

The time from end of conditioning to reach 100 SGS, is the Zero Gel Time.

Transition Time

Transition time is determined by the measuring the static gel strength of cement slurry. Transition time is the elapsed time from the occurrence of static gel strength of 100 lb/100 ft² to the occurrence of static gel strength of 500 lb/100ft². This test determines the gel strength development of cement slurry after it has been placed in a well and allowed to remain static. Rapid static gel development (short transition time) indicates good gas migration control.

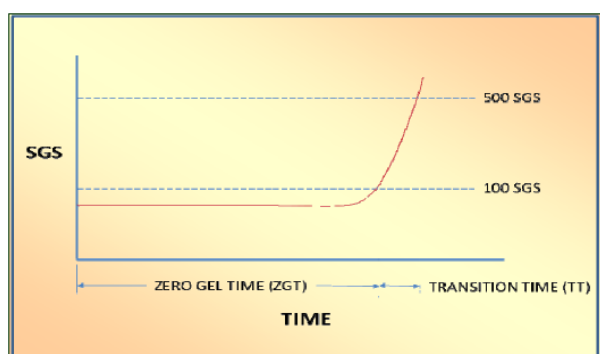


Advantages

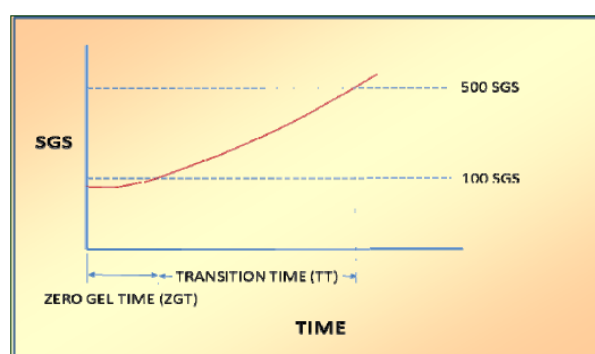
- Maximum Temperature 600°F
- Maximum Pressure 30,000 psig
- Pressurizes with water
- Slurry cup has an isolation volume chamber in the top to reduce risk of contamination
- Uses a conventional-style slurry cup
- Integrated Heating/Cooling Band
- Variable speed rotation which allows for more meaningful testing of thixotropic slurries and gels with long delay times
- No time limit on the test duration; time is dictated by set time of the cement
- Plumbing allows for chilled water circulation for low-temp testing
- Magnetic-Drive system mounted to the top out of the path of routine operations
- Drive system is completely isolated from the test chamber
- Not required to remove/replace the measurement system for each test
- The pressure vessel is on a hydraulic lift and it lowers away from the head and moves forward for inserting/removing the slurry cup
- Slurry cup volume is same as that for a HTHP Consistometer
- Completely computer controlled with fully automated start-up, conditioning, gel strength testing, and shutdown

Scenario Observation

The MACS II® Analyzer allows the characterization of cement slurries not possible until now. It is completely feasible to observe the Zero Gel Time behavior of long ZGT slurries as well as it is possible to see the trends of Short ZGT/Long TT slurry behavior.



Long ZGT/Short TT



Short ZGT/Long TT

Computer Requirements

NOTE: Fann does not include a computer with the MACS II system for running the software provided on the DVD-ROM. The computer is the sole responsibility of the user and must be purchased separately.

The MACS II® system includes state-of-the-art software that runs on a Microsoft Windows-based computer connected via USB. The software can also receive updates via the internet. Provided with the MACS II® is a DVD-ROM containing the software to install on the computer.

Following are the minimum computer system requirements for the MACS II® system.

Component	Specification
Operating System	Microsoft Windows® XP or Windows® 7
Processor	Single or dual core, 1.6 MHz clock speed, Intel or AMD
Memory	2GB RAM
Graphics	WSXGA (1200x800) resolution or higher
Hard Drive	5 GB available
Optical Drive	DVD
Input Devices	Keyboard and mouse
Internet Access	1.5 Mbits/s data transmission rate (Tier 1 broadband)

Data Manager Software

The Data Manager software is available to view, analyze, and print data after the test is complete. This software also allows manipulation of test data for different units, and to customize the report as necessary. It also allows printing and exporting of data to .txt and .csv formats for import into spreadsheet programs.

Interpreting the data is easy because the individual graphs for Temperature, Pressure, and SGS, are color coded to respective scales. The software plots all of the data with respect to these parameters.

Ordering Information

Contact Fann Instrument Company below regarding the MACS II®, Part No. 101677665

Fann Instrument Company offers a complete line of equipment, materials, and supplies for analyzing various drilling fluids and oil well cements in accordance with API Specifications and API Recommended Practices. ANSI/API RECOMMENDED PRACTICE 10B-6, API Specification 10A, ANSI/API 10A/ISO 10426-1-2001