

Biax Experiment (rev. 6 August 2018)

Exp. Name: P5156503MIN7

Date/Time: 10-6-18

Operator: Bolton

Example name: PXXXXBttMatNN

Sample Block Thickness w/ no gouge:

___ Steel 5x5 cm, _____ mm

___ Vessel (Small Single Direct)-Frits: _____

___ Titanium 5x5 cm, _____ mm

___ Vessel (Large Single Direct)

Steel 10x10 cm, 69.50 mm

___ Vessel (5x5 Grooved)-Frits: _____

___ Titanium 10x10 cm, _____ mm

Vessel Side Blocks: _____ Empty Block + frits: _____

For Current Calibrations see: ~barre/s0/data/calibrations/MasterCalibrationsFile.xlsx

Vertical Load Cell:

___ 62mm hollow (19.7298 mV/kN)

Horizontal Load Cell:

___ 62mm hollow (Low Gain: 18.561 mV/kN; High Gain: 172.099 mV/kN)

44mm solid "V" (11.3519 mV/kN)

44mm solid "H" (Low Gain: 11.626 mV/kN; High Gain: 105.9 mV/kN)

___ 22mm Vert. (0.7321 V/kN)

___ 22mm Horiz. (0.7736 V/kN)

Example conversion to stress (e.g., 62 mm Horizontal Cell, Low Gain, 5cm x 5cm sample)

$(18.722 \text{ mV/kN}) * (1000 \text{ kN/MN}) * (1 \text{ V}/1000 \text{ mV}) = (1/18.722 \text{ V/MN}) / (2.5 \text{ e-}3 \text{ m}^2) = 21.365238 \text{ MPa/V}$ or 0.046805 V/MPa

Layer Thickness (total on bench): 75.50 mm Under Load: _____ mm@sample

Material (Qtz, Granite, ?): Min-U-sil 40

Particle Size, Size Distribution: 10.5 μm

Vert. Load Initial Voltage -4.787

Horz. Load Initial Voltage -4.773

DPM readouts (kN)

Normal Stress(es): 7 (MPa)

Vertical @ Zero Load: 113

Voltage(s) at load: 2.64

Horizontal @ Zero Load: 0.26

Calibration (V/MPa): 1.059 V/MPa

Vessel Pressure: Pore Fluid: _____

*(0.1461 V/MPa) Pore Pressure A: _____ Initial Voltage: _____ Voltage at load: _____

High gain: 1.4702 V/MPa

Gain: High/Low

*(0.1460 V/MPa) Pore Pressure B: _____ Initial Voltage: _____ Voltage at load: _____

High gain: 1.4743 V/MPa

Gain: High/Low

(0.1471 V/MPa) Confining Pressure: _____ Initial Voltage: _____ Voltage at load: _____

*Calibration reflects current location of pressure transducer (A is on B and vice versa)

(0.412 V/kPa) Differential Press: _____ Initial Voltage: _____ Voltage at load: _____

Data Logger Used: Q-CH

MANUAL Control File

Horz. DCDT: Long rod ___ Short rod Vert. DCDT: ___ TTI "Transtek 2" Gain: High/Med/Low

Purpose/Description: reproduce P5147 w/ 36-CH Blocks

Acoustics blocks used 10.6.A & 10.6.B

Temperature (°C): 23.8 Relative Humidity (%): 62.2

@ Hyd. Power Supply

Tank Temp (°C): _____

Temp In (°F): _____

Pres. In (psi): _____

Temp Out (°F): _____

Pres. Out (psi): _____

Flow (lpm): _____

@ Chiller

Panel Temp (°F): _____ Temp In (°F): _____

Panel Pres. (psi): _____ Pres. In (psi): _____

Near Pres. In (psi): _____ Out Temp (°F): _____

Near Pres. Out (psi): _____ Out Pres. (psi): _____

- # 355 @ 7 MPa J_g
- # 3078 ↑ to 1 kHz
- # 65086 start shearing @ 10 mm/s
- # 1106086 start Acoustics
- # reset v_{crack} #2427086
- # 2587086 start shearing @ 17 mm/s
- # 3428086 ↓ to 5 mm/s
- # 4347086 ↓ to 3 mm/s
- # 4856086 exp over

10.6. B & Block 3

<u>PZT #</u>	<u>CH</u>
12	1
14	2

10.6. A & Block 3

<u>PZT #</u>	<u>CH</u>
15	61
12	62
5	63

<u>V</u>	<u>Disp.</u>
10	~ 24 mm ~ 16 min
17	~ 13 mm ~ 13 min
5	~ 4 mm ~ 13 min
3	~ 2.5 mm ~ 14 min

$\frac{.88 \text{ MPa}}{v} \times .02 \sim .02 \text{ MPa}$