Material Test Center Report



Continuous Weighing and Feeding of Bulk Materials since 1949 (855) - 7THAYER WWW.THAYERSCALE.COM

Thank you for visiting Thayer Scale's Material Test Center. We are pleased to present the following test report summarizing the results achieved during one of our many tests.

Automated Sampling System Operation

Thayer Scale uses an automated sampling system to demonstrate our gravimetric feeder's accuracy and performance to our clients. The methodology used for sampling is 20 – 30 precisely timed consecutively caught samples directly from the discharge of the gravimetric feeder. Our automated sampler eliminates human errors to collect its representative samples and test equipment configurations.

Our system consists of the gravimetric feeder under test, an accurately sized static scale and a computer based application program. All three devices are connected to a dedicated LAN and all vital testing data is digitally collected for sampling analysis and detailed test report generation. Collected data includes mechanical and electrical configurations of the feeder and static scale including the feeders' controller setup and tuning parameters along with testing environmental conditions. The digital data is saved off to a file and then imported into a detailed test report numerically and graphically showing the results of the test.



Test Equipment

MATERIAL TEST SAMPLING SYSTEM



MATERIAL TEST RUN



LIW Gravimetric Feeder Test Report



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MATERIAL TEST RESULTS FOR 30 CONSECUTIVELY CAUGHT 30 SECOND SAMPLES AT A RUNNING RATE OF 3 LBS / MIN.

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| | | Material Informa | tion; | | | |
|----------------|--|-------------------------|---|---|--|--|
| Name: | Millet Seed | | | | | |
| Density: | 49 | Lbs/cu-Ft | | | | |
| Particle Size: | 0.03 | Inches | | | | |
| Notes: | Small spherical shape seeds, uniform in size. Tray collar set to 0.5 inches. Abort | | | | | |
| | fill timer used, | set to 4 seconds instea | d of start/stop refill points. Free flowing | 3 | | |
| | material, refill v | alve reaction time not | quick enough. | | | |

Customer Information:

| Notes: | Model #: LSF-SC-V TEst Center | | | | | |
|-----------|-------------------------------|---------------------|----------------|---------------|--|--|
| | | | | | | |
| Feeder: | Vibratory Trav | | | | | |
| | Eriez 15A , 4" W | Dimensions | | | | |
| | VAC | Motor Type | Vib 1 Amp | Motor Size | | |
| Agitator: | Vertical | Туре | Adjustable | Speed Control | | |
| | VAC | Motor Type | 0.25 HP | Motor Size | | |
| Hopper: | Conical | Туре | | Extensions | | |
| | 1.9 Liquid | Combined Volume | in Cubic Feet | | | |
| Scale: | Cable | Туре | LC-174 | Weight Sensor | | |
| | 50 | Capacity in Lbs | 60.00 | Utilization % | | |
| System: | 3 | Design Flow rate in | Pounds Per Min | ute | | |
| Run Time: | 10.00 | Minutes at 100% D | esign Rate | | | |

| Controls Information: | | | | | | | |
|-----------------------|-------------|-------------|------------|-------------|--|--|--|
| Instrument: | S52c | | | | | | |
| Scale Unit: | Universal | Load Board | | Programming | | | |
| | Ring /Accel | Speed Board | | | | | |
| Feeder Drive: | PCA-VIB-120 | Туре | | Programming | | | |
| Agitator Drive: | AC Drive | Type | Adjustable | Sneed | | | |

| Instrument Programming Information: | | | | | | |
|---|------------|-----------|--|--|--|--|
| Description | Value | Units | | | | |
| Rate (Design): | 3 | LBS / MIN | | | | |
| Capacity (Design): | 30 | POUNDS | | | | |
| Refill Start: | 15 | PERCENT | | | | |
| Refill Stop: | 20 | PERCENT | | | | |
| Refill Settle Time: | 10 | SECONDS | | | | |
| Tachometer 100% Frequency: | 218 | HERTZ | | | | |
| Enable Vibratory Compensation: | (Disabled) | SELECTION | | | | |
| Vibratory Feeder Zero Compensation Factor: | 0.7577 | CONSTANT | | | | |
| Vibratory Feeder Span Compensation Factor: | 1.4286 | CONSTANT | | | | |
| K Factor: | 1.00000 | CONSTANT | | | | |
| Proportional Band (% of Designed Rate): | 3000 | PERCENT | | | | |
| Integral Reset Time (Seconds/Repeat): | 0.25 | SECONDS | | | | |
| Density Time: | 10 | SECONDS | | | | |
| Measurement Limit 1 (% of Design Rate): | 60 | PERCENT | | | | |
| Measurement Limit 2 (% of Design Rate): | 125 | PERCENT | | | | |
| Enable Vibratory Signal Out of Range (SOR): | (Disabled) | SELECTION | | | | |
| Signal Out of Range Limit (% of Design Rate): | 250 | PERCENT | | | | |
| Rate/Load Damping: | 16 | SAMPLES | | | | |
| Application Software: | LWF | TYPE | | | | |
| Application Software: | Rev. C | REVISION | | | | |

| Date: | 10///19 | Time: | 1:22:26 PM | Temperature: | 89.2625 F |
|-----------------|----------------------------|-----------------|--|---------------|-------------------------------|
| n | (- t t t) | | ······································ | | T |
| Rate (Setpoint) | | Time I | nterval | Size (Target) | |
| 3.0000 | LBS / MIN | 30 | SECONDS | 1.5000 | POUNDS |
| Check Scale Ca | pacity: | 200 | POUNDS | # of Samples: | 30 |
| Weigh Feeder St | arting / Ending We | ights: | 28.39 | 12.19 | POUNDS |
| Weigh Feeder R | un Time at Samplin | ng Rate: | 10 | 0.00 | Minutes |
| | Contraction of Contraction | The Date With | LA UNICA - DOUN | nc | · · · · · · · · · · · · · · · |
| 6 | Turner Weishe | oung Data, weig | u onus – room | <i>US</i> , | |
| 1 | 1 5000 | 1 5047 | 0.0047 | 0 21% | GPAV |
| 1 | 1.5000 | 1.3047 | 0.0047 | 0.31% | CRAV |
| 2 | 1.5000 | 1.4944 | -0.0056 | -0.37% | GRAV |
| 3 | 1.5000 | 1.5030 | 0.0030 | 0.20% | GRAV |
| 4 | 1.5000 | 1.3140 | 0.0140 | 0.93% | CRAV |
| 5 | 1.5000 | 1.4964 | -0.0010 | -0.11% | CRAV |
| 7 | 1.5000 | 1.5007 | 0.0087 | 0.58% | CRAV |
| 2 | 1.5000 | 1.5077 | 0.0007 | 0.03% | CRAV |
| 8 | 1.5000 | 1.50// | 0.0077 | 0.51% | GRAV |
| 9 | 1.5000 | 1.3110 | 0.0110 | 0.13% | GRAV |
| 10 | 1.5000 | 1.4980 | -0.0020 | -0.15% | GRAV |
| 11 | 1.5000 | 1.50/3 | 0.0073 | 0.49% | GRAV |
| 12 | 1.5000 | 1.5013 | 0.0013 | 0.09% | GRAV |
| 15 | 1.5000 | 1.5070 | 0.0070 | 0.4/% | GRAV |
| 14 | 1.5000 | 1.5057 | 0.0057 | 0.38% | GRAV |
| 15 | 1.5000 | 1.5000 | 0.0000 | 0.00% | GRAV |
| 10 | 1.5000 | 1.5023 | 0.0023 | 0.15% | GKAV |
| 17 | 1.5000 | 1.3023 | 0.0025 | 0.13% | CDAV |
| 18 | 1.5000 | 1.49/4 | -0.0026 | -0.17% | GRAV |
| 19 | 1.5000 | 1.4900 | -0.0040 | -0.27% | CRAV |
| 20 | 1.5000 | 1.5013 | 0.0013 | 0.09% | GRAV |
| 21 | 1.5000 | 1.5015 | 0.0015 | 0.09% | CRAV |
| 22 | 1.5000 | 1.5219 | 0.0219 | 0.42% | GRAV |
| 23 | 1.5000 | 1.3003 | 0.0003 | 0.02% | GRAV |
| 24 | 1.5000 | 1.4997 | -0.0005 | 1.04% | GRAV |
| 25 | 1.5000 | 1.5090 | 0.0150 | 0.60% | GRAV |
| 20 | 1.5000 | 1.5186 | 0.0186 | 1 24% | GRAV |
| 28 | 1.5000 | 1 5040 | 0.0040 | 0.27% | GRAV |
| 20 | 1.5000 | 1 5113 | 0.0113 | 0.75% | GRAV |
| 30 | 1.5000 | 1.5070 | 0.0070 | 0.47% | GRAV |
| 50 | 1.5000 | 1.5070 | 0.0070 | 0.4776 | UKA V |
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Testing Information:

| | | | | Sampling Data | i Test Results | | | |
|---------------|------------|--------------|---------------|---------------|-----------------------------|---------------|--------------|-----------------------------|
| Target Weight | Avg Weight | Weight Units | Average Error | 1 Sigma (68%) | 2 Sigma (95%) Avg + 2 Sigma | Avg - 2 Sigma | Weight Units | 2 Sigma Repeatability Error |
| 1.5000 | 1.5052 | POUNDS | 0.35 Percent | 0.0065 | 0.0130 1.5182 | 1.4922 | POUNDS | 0.86 Percent |

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LIW Gravimetric Feeder Test Report



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| Target Weight: | 1.5000 | POUNDS | Average +2 Sigma: | 1.5182 | POUNDS |
|-----------------|--------|---------|-----------------------------|--------|---------|
| Average Weight: | 1.5052 | POUNDS | Average -2 Sigma: | 1.4922 | POUNDS |
| Average Error: | 0.35 | PERCENT | Repeatability Error: | 0.86 | PERCENT |