

MAL-11A

**American Society of Brewing Chemists**  
**MALT CHECK SERVICE**

11/30/2016

| <i>Sub #</i> | <i>Moisture (%)</i> | <i>% Extract - Fine Ground (D.B.)</i> | <i>% Extract - Coarse Ground (D.B.)</i> | <i>% Fine - Coarse Difference</i> | <i>Conversion Time (min)</i> | <i>Clarity of Wort (visual)</i> | <i>Color of Wort, 1/2" cell (ASBC)</i> | <i>Diastatic Power, Salt Ext. (Deg.)</i> | <i>Alpha-amylase, Salt Ext.</i> | <i>Soluble Protein</i> | <i>Total Malt Protein</i> | <i>Soluble/Total Protein (D.B.)</i> |
|--------------|---------------------|---------------------------------------|-----------------------------------------|-----------------------------------|------------------------------|---------------------------------|----------------------------------------|------------------------------------------|---------------------------------|------------------------|---------------------------|-------------------------------------|
| B 18         | 4.1                 | 80.3                                  | 79.4                                    | 0.9                               |                              |                                 | 6.48                                   | 81                                       |                                 | 5.85                   | 11.9                      | 50.0                                |
| B 22         | 4.3                 | 80.5                                  | 79.4                                    | 1.1                               | <5                           | CLEAR                           | 7.20                                   | 80                                       | 44.0                            | 5.81                   | 12.4                      | 46.9                                |
| B 25         | 4.4                 | 80.2                                  | 79.2                                    | 1.0                               |                              |                                 | 6.06                                   | 118                                      | 52.6                            | 6.17                   | 10.9                      | 56.8                                |
| B 27         | 3.8                 | 79.5                                  | 79.1                                    | 0.4                               |                              | CLEAR                           | 5.80                                   | 102                                      | 65.5                            | 5.47                   | 12.3                      | 44.6                                |
| B 30         | 3.9                 | 79.8                                  | 79.2                                    | 0.7                               |                              |                                 | 5.35                                   | 101                                      | 67.6                            | 6.68                   | 11.4                      | 58.7                                |
| B 31         | 4.1                 |                                       |                                         |                                   |                              | LIGHTLY HAZ                     | 6.52                                   |                                          |                                 | 6.45                   | 11.6                      | 55.6                                |
| B 32         | 4.2                 | 80.4                                  | 79.5                                    | 0.9                               |                              |                                 | 5.67                                   | 103                                      | 41.7                            | 6.00                   | 11.5                      | 52.3                                |
| B 42         | 4.0                 | * 82.6                                | 79.3                                    | * 3.3                             |                              |                                 | 6.06                                   | 89                                       | 53.6                            | 6.03                   | 11.7                      | 51.5                                |
| B 43         | 4.4                 | 79.9                                  | 78.8                                    | 1.1                               | 5                            | HAZY                            | 6.05                                   | 105                                      | 50.5                            | 5.66                   | 11.3                      | 50.1                                |
| B 54         | 4.5                 | 80.6                                  | 79.6                                    | 1.1                               | 5                            | HAZY                            | 5.98                                   | 110                                      | 53.9                            | 6.14                   | 11.4                      | 53.9                                |
| B 55         | 4.0                 | 80.6                                  | 79.6                                    | 1.1                               |                              |                                 | 6.72                                   | 91                                       | 51.5                            | 6.18                   | 11.4                      | 54.0                                |
| B 129        | 4.3                 | 79.9                                  | 79.1                                    | 0.9                               | 5                            | HAZY                            | 6.26                                   | 113                                      | 62.8                            | 6.00                   | 11.7                      | 51.0                                |
| B 152        | 4.1                 | 79.8                                  | 78.9                                    | 0.9                               |                              | HAZY                            | 6.57                                   | 99                                       | 45.9                            | 5.73                   | 11.7                      | 48.9                                |
| B 168        | 4.9                 | 80.7                                  | 80.6                                    | 0.1                               |                              |                                 |                                        |                                          |                                 |                        |                           |                                     |
| B 180        | 4.3                 | 80.2                                  | 79.2                                    | 1.0                               | 5                            | HAZY                            | 6.08                                   | 97                                       | 51.1                            | 5.81                   | 11.5                      | 50.5                                |
| B 189        | 4.2                 | 79.5                                  | 78.5                                    | 1.1                               | 5                            | HAZY                            | 6.07                                   | 97                                       | 53.0                            | 6.01                   | 12.2                      | 49.1                                |
| B 204        | 4.7                 | 81.3                                  | 80.8                                    | 0.5                               | <5                           | CLEAR                           | * 2.20                                 | 123                                      | 59.0                            | * 4.69                 | 12.2                      | * 28.4                              |
| B 213        | 4.1                 | 79.8                                  | 79.0                                    | 0.8                               |                              | HAZY                            | 7.25                                   | 98                                       | 49.5                            | 6.41                   | 11.7                      | 54.8                                |
| B 218        | 4.2                 | 79.9                                  | 79.3                                    | 0.6                               | 10                           | BRIGHT                          | * 11.00                                | 77                                       | 53.0                            | 5.86                   | 11.8                      | 50.0                                |
| <b>N</b>     | <b>19</b>           | <b>17</b>                             | <b>18</b>                               | <b>17</b>                         |                              |                                 | <b>16</b>                              | <b>17</b>                                | <b>16</b>                       | <b>17</b>              | <b>18</b>                 | <b>17</b>                           |
| <b>Mean</b>  | <b>4.2</b>          | <b>80.2</b>                           | <b>79.4</b>                             | <b>0.8</b>                        |                              |                                 | <b>6.26</b>                            | <b>99.0</b>                              | <b>53.4</b>                     | <b>6.02</b>            | <b>11.7</b>               | <b>51.7</b>                         |
| <b>Min</b>   | <b>3.8</b>          | <b>79.5</b>                           | <b>78.5</b>                             | <b>0.1</b>                        |                              |                                 | <b>5.35</b>                            | <b>77</b>                                | <b>41.7</b>                     | <b>5.47</b>            | <b>10.9</b>               | <b>44.6</b>                         |
| <b>Max</b>   | <b>4.9</b>          | <b>81.3</b>                           | <b>80.8</b>                             | <b>1.1</b>                        |                              |                                 | <b>7.25</b>                            | <b>123</b>                               | <b>67.6</b>                     | <b>6.68</b>            | <b>12.4</b>               | <b>58.7</b>                         |
| <b>Std</b>   | <b>0.3</b>          | <b>0.5</b>                            | <b>0.6</b>                              | <b>0.3</b>                        |                              |                                 | <b>0.51</b>                            | <b>12.8</b>                              | <b>7.2</b>                      | <b>0.31</b>            | <b>0.4</b>                | <b>3.6</b>                          |

\* Not Included in Mean

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| Sub # | Growth of Acrospires |         |         |       |           | Screen Assortment |          |          |            | FAN<br>(ppm) | Absolute<br>Viscosity | Turbidity<br>(NTU) | Beta Glucan<br>wort (mg/L) |
|-------|----------------------|---------|---------|-------|-----------|-------------------|----------|----------|------------|--------------|-----------------------|--------------------|----------------------------|
|       | 0-1/4                | 1/4-1/2 | 1/2-3/4 | 3/4-1 | Overgrown | On 7/64"          | On 6/64" | On 5/64" | Thru 5/64" |              |                       |                    |                            |
| B 18  |                      |         |         |       |           |                   |          |          |            | 211.2        | 1.44                  | 12.1               |                            |
| B 22  |                      |         |         |       |           | 69.5              | 23.8     | 4.7      | 2.0        |              |                       | 10.4               |                            |
| B 25  | 0                    | 4       | 12      | 76    | 8         | 76.0              | 19.3     | 3.6      | 1.2        | 241.0        | 1.48                  | 14.0               | 72                         |
| B 27  |                      |         |         |       |           | 68.7              | 27.6     | 2.7      | 1.0        | 286.0        | 1.47                  | 13.4               | 87                         |
| B 30  | 2                    | 2       | 1       | 72    | 23        | 69.1              | 23.1     | 6.6      | 1.2        | 233.0        | 1.45                  | 13.7               | 85                         |
| B 31  |                      |         |         |       |           |                   |          |          |            |              |                       | 21.0               | 64                         |
| B 32  |                      |         |         |       |           | 64.4              | 28.8     | 6.1      | 0.6        | 224.0        |                       | 17.4               | 61                         |
| B 42  |                      |         |         |       |           |                   |          |          |            | 238.0        | 1.42                  |                    | 95                         |
| B 43  | 1                    | 1       | 6       | 82    | 10        | 74.8              | 21.0     | 3.5      | 0.7        | 236.0        | 1.45                  | 17.0               | 69                         |
| B 54  |                      |         |         |       |           | 69.9              | 24.0     | 5.1      | 1.0        | 252.0        | 1.44                  | 12.7               | 69                         |
| B 55  |                      |         |         |       |           |                   |          |          |            | 232.0        | 1.46                  |                    | 38                         |
| B 129 | 3                    | 4       | 6       | 80    | 7         | 72.9              | 22.4     | 3.8      | 0.9        | 260.5        | 1.41                  | 18.8               | 76                         |
| B 152 |                      |         |         |       |           | 72.0              | 23.6     | 4.1      | 0.3        | 214.0        |                       | 10.6               | 74                         |
| B 168 |                      |         |         |       |           |                   |          |          |            | 227.0        | 1.43                  | * 31.9             | 68                         |
| B 180 | 2                    | 7       | 9       | 57    | 25        | 68.5              | 24.5     | 4.9      | 2.1        | 264.0        | 1.44                  | 19.7               | 60                         |
| B 189 |                      |         |         |       |           | 71.5              | 22.0     | 4.0      | 2.5        | 227.0        | 1.46                  | 15.7               | 66                         |
| B 204 |                      |         |         |       |           | 77.9              | 17.6     | 3.7      | 0.8        |              |                       | 7.2                | 64                         |
| B 213 |                      |         |         |       |           | 72.0              | 23.6     | 4.1      | 0.3        | 221.0        |                       | 23.0               | 74                         |
| B 218 |                      |         |         |       |           |                   |          |          |            | 243.0        | 1.43                  | 11.3               | 66                         |
| N     | 5                    | 5       | 5       | 5     | 5         | 13                | 13       | 13       | 13         | 16           | 13                    | 16                 | 17                         |
| Mean  | 1.6                  | 3.6     | 6.8     | 73.4  | 14.6      | 71.3              | 23.2     | 4.4      | 1.1        | 238.1        | 1.44                  | 14.9               | 69.9                       |
| Min   | 0.0                  | 1.0     | 1.0     | 57.0  | 7.0       | 64.4              | 17.6     | 2.7      | 0.3        | 211.2        | 1.41                  | 7.2                | 38.0                       |
| Max   | 3.0                  | 7.0     | 12.0    | 82.0  | 25.0      | 77.9              | 28.8     | 6.6      | 2.5        | 286.0        | 1.48                  | 23.0               | 95.0                       |
| Std   | 1.1                  | 2.3     | 4.1     | 9.9   | 8.7       | 3.6               | 3.0      | 1.1      | 0.7        | 19.7         | 0.02                  | 4.3                | 12.5                       |

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