

# PCL Quality Control (QC) Lab

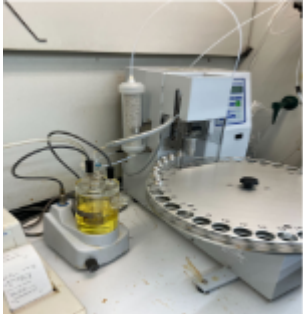
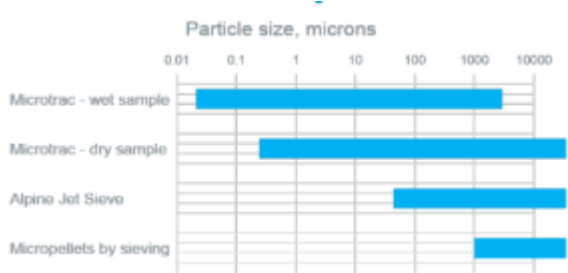
## Principle

Quality

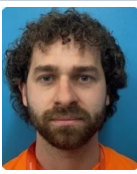
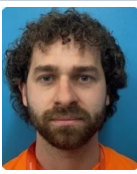
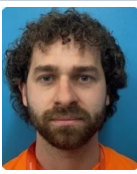
## Capabilities

- Ash, Color and Moisture Analysis
- Particle and Pellet Size Analysis
- Ash, Moisture, Color, Particle Size, Pellet Quality, BET

## Equipment

|                                                                                     | Equipment Type                    | Information                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | Ash Test By Microwave Furnace     | <ul style="list-style-type: none"><li>Standards: ASTM D5630, ISO 3451</li><li>AP-RD-ASH-ASTM (700°C, 800°C, 850°C or 900°C)</li><li>AP-RD-ASH-ISO (600°C, 700°C, 750°C, 850°C or 950°C)</li></ul>                                                                                                                                         |
|   | Color Measurement                 | <p>X-Rite Ci7800 and Ci7 Spectrophotometers</p> <ul style="list-style-type: none"><li>Color CIE L*a*b, CIE XYZ opaque samples: plaques (preferred), pellets and powder</li><li>Haze ASTM D1003 films or plaques</li><li>Gloss (calculated)</li><li>Transmittance ASTM D1003 films or plaques</li><li>Yellowness Index ASTM E313</li></ul> |
|  | Moisture Content By Karl Fischer  | <ul style="list-style-type: none"><li>Standards: ASTM D6869 and ISO 15512B</li><li>Pellets, powder, parts</li><li>From low PPM to 100% of water</li></ul>                                                                                                                                                                                 |
|  | Particle and Pellet Size Analysis |                                                                                                                                                                                                                                                                                                                                           |

|                                                                                   |                                 |                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Microtrac S3500                 | <ul style="list-style-type: none"> <li>• Laser Diffraction Particle Size Analyzer</li> <li>• Wet and Dry Sample</li> </ul>                                                                                                                                    |
|                                                                                   | Alpine Jet Sieve                | <ul style="list-style-type: none"> <li>• Quick and effective</li> <li>• Minimal static effect</li> <li>• Sieve sizes: 100, 120, 140, 170, 200, 270, and 325 mesh</li> </ul>                                                                                   |
|                                                                                   | Sieve Analysis for Micropellets | <ul style="list-style-type: none"> <li>• Sieves with pore sizes: 1.6, 1.4, 1.2, 1.0 mm</li> </ul>                                                                                                                                                             |
|                                                                                   | Pellet Quality                  | <ul style="list-style-type: none"> <li>• 250 ml Test Method for small black speck contamination.</li> <li>• 2000 ml Pellet Quality Test Method for all pellet quality items</li> <li>• Fines Inspection to quantify the weight % fines in a sample</li> </ul> |

| Mission                                                                             | Quality Control is our mission.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |              |        |  |         |     |        |                                                                                     |                                        |              |       |                                                                                     |                                                                                |  |       |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------|--|---------|-----|--------|-------------------------------------------------------------------------------------|----------------------------------------|--------------|-------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|--|-------|
| Techniques                                                                          | <b>Quality Control</b> <ul style="list-style-type: none"> <li>•</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |              |        |  |         |     |        |                                                                                     |                                        |              |       |                                                                                     |                                                                                |  |       |
| Team                                                                                | <b>Quality Control Lab - E1006</b> <table border="1" data-bbox="318 1318 1027 1728"> <thead> <tr> <th data-bbox="326 1325 475 1350"></th><th data-bbox="480 1325 846 1350">Contact</th><th data-bbox="850 1325 963 1350">Ext</th><th data-bbox="967 1325 1027 1350">Office</th></tr> </thead> <tbody> <tr> <td data-bbox="326 1356 475 1528">  </td><td data-bbox="480 1356 846 1528">           Jacob McClain<br/>           QC Coordinator QC Lab         </td><td data-bbox="850 1356 963 1528">770-772-8349</td><td data-bbox="967 1356 1027 1528">E1006</td></tr> <tr> <td data-bbox="326 1535 475 1728">  </td><td data-bbox="480 1535 846 1728">           Katia del Risco Hernandez<br/>           QC Testing, Ash, Moisture, Particle Size Analysis         </td><td data-bbox="850 1535 963 1728"></td><td data-bbox="967 1535 1027 1728">E1006</td></tr> </tbody> </table> |              |        |  | Contact | Ext | Office |  | Jacob McClain<br>QC Coordinator QC Lab | 770-772-8349 | E1006 |  | Katia del Risco Hernandez<br>QC Testing, Ash, Moisture, Particle Size Analysis |  | E1006 |
|                                                                                     | Contact                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Ext          | Office |  |         |     |        |                                                                                     |                                        |              |       |                                                                                     |                                                                                |  |       |
|  | Jacob McClain<br>QC Coordinator QC Lab                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 770-772-8349 | E1006  |  |         |     |        |                                                                                     |                                        |              |       |                                                                                     |                                                                                |  |       |
|  | Katia del Risco Hernandez<br>QC Testing, Ash, Moisture, Particle Size Analysis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |              | E1006  |  |         |     |        |                                                                                     |                                        |              |       |                                                                                     |                                                                                |  |       |