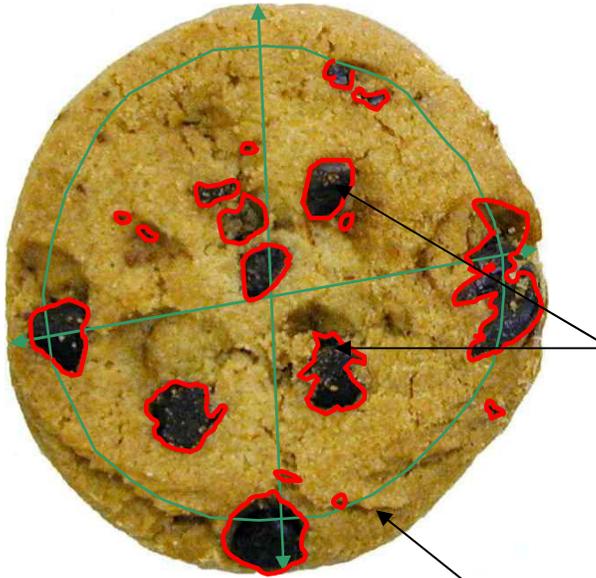# Montrose Technologies Inc.

CHOCOLATE CHIP COOKIE MEASUREMENT

Top Measurements

Maximum Thickness: The thickness of the biscuit at the thickest point, measured relative to the belt on which the biscuit sits. If the biscuit base is flat, this will be the thickest area on the biscuit. If the biscuit base is curved, this will be the highest point above the belt on the biscuit top surface. If it has a bump of sufficient size to interfere with the stacking process, the thickness at this bump will be reported as the maximum thickness.

Top Color: The average bake color of the top surface of the biscuit. The smaller the color value, the darker the biscuit. Bake color is calculated from the area inside a 10 mm wide guard band. Dark chip areas are ignored when calculating color. Thus the number of visible chips does not affect color measurement.

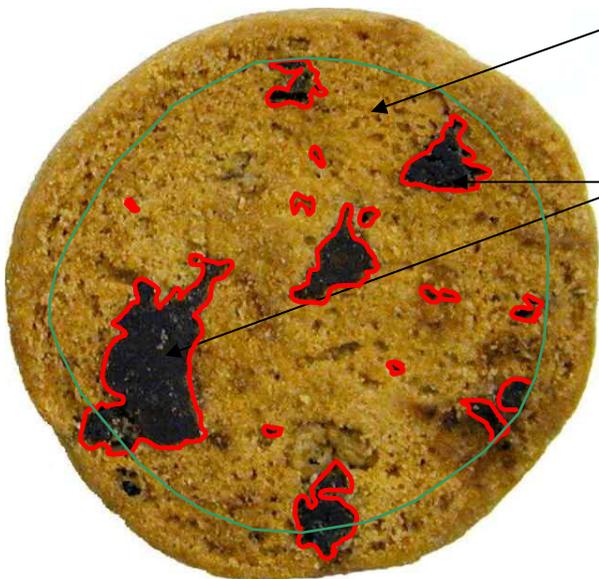**Chip Area %:** The percentage of the top surface covered by visible chocolate chips.

Average Diameter: The average of 45 evenly spaced diameters.

Roundness: The longest diameter minus the shortest diameter. A perfectly round biscuit will have a roundness of zero. A large value for roundness indicates an out-of-round biscuit.

Volume, Weight and Density: Biscuit volume is calculated directly. Weight can be input from an optional computer readable scale. From these two measurements, biscuit density can be calculated.

Guard Band: An area around the perimeter of the biscuit, defined by the guard band perimeter is not used in the calculation of bake color. The width of the guard band is configurable for both top and bottom measurement.

Bottom Measurements

Bottom Color: The average bake color of the portion of the bottom surface of the biscuit that is not covered with chips, excluding the guard band around the perimeter of the biscuit. Dark chip areas are ignored when calculating bottom color. Thus the number of visible chips does not affect the color measurement.

Chip Area %: The areas covered by visible chips or very dark occlusions are not used in bottom color calculation.

External Devices

Average Weight: Average weight of a sample of customer specified number of chocolate chip, read from an external scale.

Moisture: Product moisture, as read from a customer supplied moisture measurement device.