

ROUNDING PROCEDURE

The following describes the rounding procedure which is to be used for rounding numbers to the required degree of accuracy:

1. Except as specified in Section 2 below, the following procedure will apply. This procedure correlates with the "built-in" rounding method normally utilized by calculators and computers.

1.1 When the figure next beyond the last figure or place to be retained is less than 5, the figure in the last place retained is left unchanged.

Examples: Rounding 2.6324 to the nearest thousandth is 2.632
Rounding 7843.343 to the nearest hundredth is 7843.34
Rounding 4928.22 to the nearest tenth is 4928.2
Rounding 7293.1 to the nearest whole number is 7293
Rounding 2042 to the nearest units of 10 is 2040
Rounding 3548 to the nearest units of 100 is 3500
Rounding 8436 to the nearest units of 1000 is 8000

1.2 When the figure next beyond the last figure or place to be retained is 5 or larger, the figure in the last place retained is increased by 1.

Examples: Rounding 4839.4575 to the nearest thousandth is 4839.458
Rounding 9347.215 to the nearest hundredth is 9347.22
Rounding 8420.35 to the nearest tenth is 8420.4
Rounding 1728.5 to the nearest whole number is 1729
Rounding 3685 to the nearest units of 10 is 3690
Rounding 6650 to the nearest units of 100 is 6700
Rounding 2500 to the nearest units of 1000 is 3000

Rounding 2.6326 to the nearest thousandth is 2.633
Rounding 7843.347 to the nearest hundredth is 7843.35
Rounding 4928.28 to the nearest tenth is 4928.3
Rounding 7293.9 to the nearest whole number is 7294
Rounding 2046 to the nearest units of 10 is 2050
Rounding 3572 to the nearest units of 100 is 3600
Rounding 8634 to the nearest units of 1000 is 9000

1.3 No result shall be rounded more than once.

Example: 3024.5 rounded to the nearest units of 10 will be 3020;

not

3024.5 rounded to 3025, and then rounded again to 3030.

2. The rounding procedure specified in Section 1 above shall be used for all calculations and recording of data in performing materials testing, except when a specific test method cites a method of rounding which differs from this procedure, for example, the sand equivalent test (AASHTO T 176 or Arizona Test Method 242).
3. Compliance will be based upon interpreting the reported results as though they are rounded to the terms (whole numbers, decimals, or fractions reduced to decimals) of the specifications. For example, a value reported as 8.4% shall be considered as having no deviation from specifications that require 4 – 8%. It would however be a deviation for specifications requiring 4.0 – 8.0%.
4. Computers and most electronic calculators automatically carry several decimal places beyond the point of desired accuracy. At times, results of calculations utilizing these values are different than that achieved when calculations are performed utilizing values that have been rounded to the desired degree of accuracy by the above rules. The user is cautioned that the use of a computer or electronic calculator without re-entry of values after rounding, and discarding any figures beyond those needed, may cause unacceptable variations in final results.