

Using the SPECTester to evaluate a mixture of MORE than six components

The SPECTester is designed to easily and quickly evaluate and quantify the segregation occurring in a product containing up to six unique components. However, by utilizing a few simple additional steps, the tester can analyze mixtures containing more than six ingredients.

Standard operation of the tester requires the User to fill the trays with pure components – one component per tray. Generally, a mixture will have one or two primary ingredients and several additional ingredients which comprise much smaller percentages of the whole. This evaluation can be completed in one test round which will take between 10 and 30 minutes – depending on specific parameters specified by the User. Operating the tester to evaluate a mixture of more than six ingredients requires multiple test rounds.

Tray 1 = ingredient 1
 Tray 2 = ingredient 2
 Tray 3 = ingredient 3
 Tray 4 = ingredient 4
 Tray 5 = ingredient 5
 Tray 6 = ingredient 6



Let's consider a mixture of 9 components with ingredients at concentrations as shown in the table:

Ingredient	% Concentration
C1	48.5
C2	21.3
C3	12.1
C4	7.2
C5	4.2
C6	2.1
C7	1.8
C8	1.5
C9	1.3
Total	100

For the first test round, fill the component trays such that Tray 1 contains a mixture of C1/C7/C8/C9. This combined mixture now constitutes 53.1% of the total, and is considered as ingredient 1 in the top tray. The actual breakdown of this new ingredient 1 should retain the relative concentration values of the initial four pure ingredients. Run the SPECTester segregation evaluation as usual to acquire the individual segregation intensity numbers for ingredients C2, C3, C4, C5 and C6.

For the second test round, fill the component trays such that Tray 1 contains a mixture of C1/C4/C5/C6. This combined mixture constitutes 62% of the total, and is considered as ingredient 1 in the top tray. The actual breakdown of this new ingredient 1 should retain the relative concentration values of the initial four pure components. Run the SPECTester segregation evaluation as usual to acquire the individual segregation intensity numbers for ingredients C2, C3, C7, C8, and C9.

Decades of experience have shown that the primary ingredient, C1, will show very little propensity to segregate. However, there is a third test round that can be run to gather that data should it be required.

VERY IMPORTANT NOTE

The SPECTester will ACCURATELY evaluate the segregation intensity values for any ingredient which constitutes 1% or greater of the mixture. The SPECTester will somewhat accurately evaluate segregation intensity value for an ingredient constituting between 0.5% and 1% of a mixture. The SPECTester does not evaluate with accuracy the segregation potential of an ingredient which constitutes less than 0.5% of a mixture.