

Feeding Study Pilot Test and Phase 2 Initial Alkaloids  
March 17, 2008

Phase 2	Test Part Means			Comparisons		
	2S3	Test Blend	Test Extract	2S3 vs. Test Blend	2S3 vs. Test Extract	Test Blend vs. Test Extract
As Received						
Total Alkaloids, %	<1.55	2.77	2.42	2S3 < Blend	2S3 < Extr	Extr < Blend
2nd Total Alkaloids, %	<0.038	0.15	0.12	2S3 < Blend	2S3 < Extr	Extr < Blend
Nicotine, %	1.51	2.63	2.30	2S3 < Blend	2S3 < Extr	Extr < Blend
Nornicotine, %	<0.010	0.068	0.057	2S3 < Blend	2S3 < Extr	Extr < Blend
Myosmine, %	0.0010	0.0015	0.0010	na	na	na
Anabesine, %	0.003	0.010	0.009	2S3 < Blend	2S3 < Extr	Extr < Blend
Anatabine, %	0.024	0.065	0.056	2S3 < Blend	2S3 < Extr	Extr < Blend
Nicotine, mg/g	15.1	26.3	23.0	2S3 < Blend	2S3 < Extr	Extr < Blend

P-values comparing all three samples were adjusted to control for multiple comparisons using the Bonferroni method, with  $p < 0.05$  required for statistical significance.  
Small differences are significant in some cases because of small variation among replicates.  
"na" is indicated for myosmine because all reps were identical for each sample; thus the test blend is distinct from the other two with 0.0015 compared to 0.0010 for all reps.

#### Nicotine Summary

	2S3	Test Blend	Test Extract
Mean	1.51	2.63	2.30
Std. Dev.	0.022	0.063	0.028
Min	1.48	2.54	2.26
Max	1.53	2.69	2.33

The Test Blend has a greater range than the other samples (0.15) and greater standard deviation (0.063).  
The 6 replicate values were 2.54, 2.55, 2.65, 2.66, 2.67, and 2.69, indicating values were grouped.  
Still, the relative standard deviation is less than 3%, suggesting that this is not unreasonable variation.

#### Compare to Pilot Test

Pilot Test	Test Part Means			Phase 2 % Change		
	2S3	Test Blend	Test Extract	2S3	Test Blend	Test Extract
As Received						
Total Alkaloids, %	<1.52	3.13	2.38	2.2%	-11.3%	2.0%
2nd Total Alkaloids, %	<0.054	0.18	0.12	-29.3%	-19.9%	0.0%
Nicotine, %	1.46	2.94	2.25	3.4%	-10.7%	2.1%
Nornicotine, %	0.018	0.078	0.054	-41.9%	-12.6%	6.3%
Myosmine, %	<0.001	0.002	0.001	0.0%	-21.7%	-3.2%
Anabesine, %	0.006	0.013	0.009	-53.7%	-22.5%	-2.4%
Anatabine, %	0.029	0.088	0.059	-17.8%	-25.9%	-5.2%
Nicotine, mg/g	14.6	29.4	22.5	3.4%	-10.7%	2.1%

For 2S3, nornicotine and anabesine are more than 40% lower in Phase 2 than the Pilot Test.  
For Test Blend, yields of all components are at least 10% less in Phase 2 than the Pilot Test.  
For Test Extract, yields of all components are about the same in Phase 2 as for the Pilot Test.