

APPENDICES

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APPENDIX A

Tablet Porosity

Table A1 Porosity of DC and WG blank tablet of all tested CF

Blank tablet	Compression force (kg)	Porosity (%)
DC blank tablet	1000	21.42
	1400	19.47
	1800	17.87
WG blank tablet	1000	16.35
	1400	13.03
	1800	11.29

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APPENDIX B**Disintegration test****Table B1** Disintegration time of DC and WG blank tablet of all tested CF

Tablet number	Disintegration time (sec)					
	DC blank tablet			WG blank tablet		
	1000 kg	1400 kg	1800 kg	1000 kg	1400 kg	1800 kg
1	5	8	8	108	133	207
2	5	9	9	106	127	215
3	5	7	9	94	136	186
4	4	8	9	93	138	226
5	6	9	9	99	157	196
6	7	9	10	94	159	208
Mean	5.33	8.33	9.00	99.00	141.67	206.33

APPENDIX C

Dissolution study

Table C1 Average percent dissolved of CPM from DSDT prepared from DC blank tablet of 1000 kg CF following 0, 2, 4 and 6 times of dropping solvent

Time (min)	% drug dissolved of 6 tablets							
	0 time		2 times		4 times		6 times	
	average	SE	average	SE	average	SE	average	SE
1	20.35	4.87	49.30	3.05	26.74	2.19	16.41	1.60
3	72.64	10.12	71.88	2.78	44.17	2.49	32.64	4.72
5	91.38	10.00	84.31	1.13	64.28	2.11	56.48	5.81
7	95.98	7.23	92.88	1.21	73.06	2.71	67.87	7.31
9	99.53	5.57	101.90	2.37	80.84	3.31	76.22	7.16
15	103.08	3.85	115.39	1.94	91.59	2.51	86.67	5.05
20	106.59	3.82	123.84	2.39	98.05	2.46	93.94	4.17
25	106.67	2.86	126.07	1.94	101.87	2.18	98.77	2.40
30	108.03	2.37	126.66	1.82	105.52	1.98	102.29	1.72

Table C2 Average percent dissolved of CPM from DSDT prepared from WG blank tablet of 1000 kg CF following 0, 2, 4 and 6 times of dropping solvent

Time (min)	% drug dissolved of 6 tablets							
	0 time		2 times		4 times		6 times	
	average	SE	average	SE	average	SE	average	SE
1	13.23	1.71	9.04	1.48	0.10	0.10	0.69	0.55
3	20.84	4.08	16.85	2.08	2.24	1.57	6.76	2.48
5	36.49	5.17	32.23	3.32	8.32	2.39	14.91	3.29
7	49.97	4.61	42.66	4.48	12.86	0.99	21.91	3.63
9	62.17	4.23	49.93	4.81	20.31	2.54	28.50	5.07
15	81.38	4.67	64.59	3.84	35.23	3.75	40.28	4.96
20	92.84	3.75	72.87	4.64	48.60	3.66	51.88	4.93
25	98.50	2.48	84.48	4.29	61.91	4.38	59.01	4.97
30	102.13	2.27	92.83	3.87	71.33	4.54	65.05	4.24

Table C3 Average percent dissolved of DZP from DSDT prepared from DC blank tablet of 1000 kg CF following 0, 2, 4 and 6 times of dropping solvent

Time (min)	% drug dissolved of 6 tablets							
	0 time		2 times		4 times		6 times	
	average	SE	average	SE	average	SE	average	SE
1	20.09	0.85	19.07	0.93	14.19	1.06	16.01	0.94
3	48.27	1.06	39.07	1.36	35.11	1.35	36.38	1.96
5	62.49	1.62	51.98	2.30	48.19	1.69	45.88	1.13
7	72.67	2.01	60.61	2.71	56.32	1.68	53.75	1.40
9	80.54	2.08	67.05	2.95	62.31	1.74	60.67	1.49
15	94.90	2.23	83.48	3.43	76.26	2.05	77.02	2.07
20	100.67	1.52	92.03	3.52	85.72	2.39	88.51	2.33
25	103.82	0.97	97.98	3.43	92.77	2.56	96.13	2.02
30	103.77	0.83	101.42	2.32	97.92	1.97	99.78	1.17

Table C4 Average percent dissolved of DZP from DSDT prepared from WG blank tablet of 1000 kg CF following 0, 2, 4 and 6 times of dropping solvent

Time (min)	% drug dissolved of 6 tablets							
	0 time		2 times		4 times		6 times	
	average	SE	average	SE	average	SE	Average	SE
1	14.50	2.82	18.71	2.76	12.30	0.83	16.83	0.99
3	70.78	6.11	64.16	4.97	46.59	0.90	58.77	3.52
5	100.66	3.03	95.98	2.99	85.34	5.90	94.27	4.92
7	107.00	1.15	103.34	2.45	102.16	4.09	108.54	3.32
9	107.81	0.50	103.89	2.08	107.41	1.35	113.66	1.11
15	107.38	0.44	103.14	1.97	107.36	1.17	113.72	0.58
20	107.12	0.51	102.52	2.04	106.83	1.15	112.82	0.85
25	106.41	0.52	101.85	1.96	106.78	1.29	112.26	0.76
30	105.52	0.61	101.49	1.95	107.08	1.00	111.54	0.76

Table C5 Average percent dissolved of CPM from DSDT prepared from DC blank tablet of all tested CF and the commercial CPM tablet

Time (min)	% drug dissolved of 6 tablets							
	1000 kg CF		1400 kg CF		1800 kg CF		Commercial tablet	
	average	SE	average	SE	average	SE	average	SE
1	20.35	4.87	25.97	4.35	24.58	3.33	5.41	0.74
3	72.64	10.12	58.31	4.98	49.07	5.45	12.92	0.83
5	91.38	10.00	71.04	5.56	66.89	5.43	23.61	1.64
7	95.98	7.23	80.15	4.52	75.89	5.61	34.43	2.08
9	99.53	5.57	88.63	5.84	86.14	3.04	47.77	2.14
15	103.08	3.85	98.65	4.91	95.77	2.39	70.52	2.91
20	106.59	3.82	101.64	4.11	100.42	2.39	86.74	3.56
25	106.67	2.86	105.99	1.40	103.42	2.02	96.72	1.98
30	108.03	2.37	106.87	1.22	105.63	1.37	101.95	1.01

Table C6 Average percent dissolved of CPM DC tablet of all tested CF and the commercial CPM tablet

Time (min)	% drug dissolved of 6 tablets							
	1000 kg CF		1400 kg CF		1800 kg CF		Commercial tablet	
	average	SE	average	SE	average	SE	average	SE
1	11.54	1.73	17.16	1.67	15.09	2.91	5.41	0.74
3	32.92	5.64	61.12	9.78	40.01	10.58	12.92	0.83
5	70.21	9.48	83.50	6.53	72.00	10.15	23.61	1.64
7	93.99	2.29	87.39	6.38	85.95	7.28	34.43	2.08
9	98.40	0.95	89.30	5.72	90.25	5.82	47.77	2.14
15	100.57	0.80	92.31	4.61	97.02	2.45	70.52	2.91
20	100.93	0.84	96.69	2.41	98.17	1.23	86.74	3.56
25	101.13	0.86	97.17	2.35	98.66	1.32	96.72	1.98
30	101.53	0.83	97.03	2.51	99.57	1.42	101.95	1.01

Table C7 Average percent dissolved of CPM from DSDT prepared from WG blank tablet of all tested CF and the commercial CPM tablet

Time (min)	% drug dissolved of 6 tablets							
	1000 kg CF		1400 kg CF		1800 kg CF		Commercial tablet	
	average	SE	average	SE	average	SE	average	SE
1	13.23	1.71	21.73	3.72	28.9	2.83	5.41	0.74
3	20.84	4.08	30.44	5.18	45.00	1.04	12.92	0.83
5	36.49	5.17	39.44	6.52	57.88	1.17	23.61	1.64
7	49.97	4.61	54.48	8.37	66.53	2.20	34.43	2.08
9	62.17	4.23	64.67	9.58	79.76	2.76	47.77	2.14
15	81.38	4.67	80.71	10.08	92.56	1.29	70.52	2.91
20	92.84	3.75	91.15	9.52	102.11	2.03	86.74	3.56
25	98.5	2.48	96.10	8.82	106.83	2.27	96.72	1.98
30	102.13	2.27	105.03	2.26	109.57	2.40	101.95	1.01

Table C8 Average percent dissolved of CPM WG tablet of all tested CF and the commercial CPM tablet

Time (min)	% drug dissolved of 6 tablets							
	1000 kg CF		1400 kg CF		1800 kg CF		Commercial tablet	
	average	SE	average	SE	average	SE	average	SE
1	18.02	1.60	9.06	0.97	15.16	2.52	5.41	0.74
3	50.53	4.83	31.62	3.94	32.06	3.75	12.92	0.83
5	67.27	8.27	55.25	3.09	54.75	5.27	23.61	1.64
7	76.13	8.33	67.74	3.16	67.86	4.46	34.43	2.08
9	86.21	7.36	83.26	1.83	81.31	2.98	47.77	2.14
15	99.69	5.07	98.42	1.84	96.72	1.45	70.52	2.91
20	106.81	3.22	103.31	1.10	102.26	0.88	86.74	3.56
25	108.57	2.55	104.83	0.42	104.72	0.38	96.72	1.98
30	111.01	1.94	104.99	0.35	104.9	0.80	101.95	1.01

Table C9 Average percent dissolved of DZP from DSDT prepared from DC blank tablet of all tested CF and the commercial DZP tablet

Time (min)	% drug dissolved of 6 tablets							
	1000 kg CF		1400 kg CF		1800 kg CF		Commercial tablet	
	average	SE	average	SE	average	SE	average	SE
1	20.09	0.85	3.10	0.46	9.39	1.31	19.03	2.06
3	48.27	1.06	19.29	1.79	42.34	1.26	89.10	4.25
5	62.49	1.62	37.15	2.75	57.68	1.90	104.36	1.54
7	72.67	2.01	49.87	3.32	68.02	2.41	106.61	0.79
9	80.54	2.08	59.38	3.66	75.75	2.71	107.01	0.66
15	94.9	2.23	77.79	3.72	91.97	2.44	106.45	0.66
20	100.67	1.52	87.16	3.35	101.35	2.60	105.69	0.54
25	103.82	0.97	93.10	2.73	106.31	2.18	104.74	0.65
30	103.77	0.83	97.32	1.89	108.32	1.26	103.94	0.61

Table C10 Average percent dissolved of DZP DC tablet of all tested CF and the commercial DZP tablet

Time (min)	% drug dissolved of 6 tablets							
	1000 kg CF		1400 kg CF		1800 kg CF		Commercial tablet	
	average	SE	average	SE	average	SE	average	SE
1	18.16	0.63	20.03	1.35	14.39	1.06	19.03	2.06
3	35.77	1.29	38.06	1.36	32.66	0.51	89.10	4.25
5	51.87	1.86	53.86	1.68	52.11	0.96	104.36	1.54
7	65.96	1.94	69.54	2.04	67.10	1.53	106.61	0.79
9	77.49	2.00	83.60	2.15	80.84	2.09	107.01	0.66
15	95.75	2.33	102.65	2.17	93.62	2.21	106.45	0.66
20	102.18	2.76	106.42	2.10	98.90	1.28	105.69	0.54
25	104.16	3.07	106.42	1.92	99.01	1.18	104.74	0.65
30	104.00	3.32	105.87	1.85	99.38	1.41	103.94	0.61

Table C11 Average percent dissolved of DZP from DSDT prepared from WG blank tablet of all tested CF and the commercial DZP tablet

Time (min)	% drug dissolved of 6 tablets							
	1000 kg CF		1400 kg CF		1800 kg CF		Commercial tablet	
	average	SE	average	SE	average	SE	average	SE
1	14.50	2.82	20.23	0.47	17.97	0.88	19.03	2.06
3	70.78	6.11	47.23	3.65	34.26	2.70	89.10	4.25
5	100.66	3.03	86.79	4.31	52.96	4.31	104.36	1.54
7	107.00	1.15	112.17	0.67	73.71	5.52	106.61	0.79
9	107.81	0.50	113.72	0.92	94.33	5.21	107.01	0.66
15	107.38	0.44	113.23	0.98	107.98	0.97	106.45	0.66
20	107.12	0.51	112.54	0.89	108.17	1.06	105.69	0.54
25	106.41	0.52	112.56	0.82	107.51	0.98	104.74	0.65
30	105.52	0.61	111.33	0.85	107.13	1.02	103.94	0.61

Table C12 Average percent dissolved of DZP WG tablet of all tested CF and the commercial DZP tablet

Time (min)	% drug dissolved of 6 tablets							
	1000 kg CF		1400 kg CF		1800 kg CF		Commercial tablet	
	average	SE	average	SE	average	SE	average	SE
1	28.76	2.07	23.69	1.82	19.48	1.04	19.03	2.06
3	93.59	2.49	89.86	3.71	84.99	2.01	89.10	4.25
5	108.54	0.61	105.00	0.74	105.88	0.71	104.36	1.54
7	109.97	0.98	106.98	0.66	107.71	1.02	106.61	0.79
9	108.41	0.77	106.82	0.95	107.43	0.55	107.01	0.66
15	107.05	0.92	106.25	0.59	106.23	0.77	106.45	0.66
20	105.89	0.98	104.77	0.55	106.30	0.58	105.69	0.54
25	105.13	1.01	104.15	0.57	105.36	0.84	104.74	0.65
30	105.13	1.11	103.26	0.42	104.83	0.60	103.94	0.61

Table C13 Average percent dissolved of CPM from DSDT prepared from DC blank tablet of 1000 kg CF at the beginning (0), 1, 2 and 3 months storage

Time (min)	% drug dissolved of 6 tablets							
	0 month		1 month		2 months		3 months	
	average	SE	average	SE	average	SE	average	SE
1	20.35	4.87	29.52	2.66	23.55	4.45	44.34	3.15
3	72.64	10.12	48.83	5.33	43.19	7.11	64.01	3.19
5	91.38	10.00	66.44	7.46	58.88	10.05	83.06	2.83
7	95.98	7.23	80.86	10.64	67.16	10.50	94.95	3.53
9	99.53	5.57	92.30	11.00	72.50	10.11	101.96	3.87
15	103.08	3.85	99.89	9.90	87.29	6.71	109.78	2.15
20	106.59	3.82	105.93	6.31	93.30	6.18	111.91	2.03
25	106.67	2.86	108.78	5.22	97.57	4.75	112.83	2.01
30	108.03	2.37	110.09	4.46	102.18	2.65	114.03	1.83

Table C14 Average percent dissolved of CPM from DSDT prepared from DC blank tablet of 1400 kg CF at the beginning (0), 1, 2 and 3 months storage

Time (min)	% drug dissolved of 6 tablets							
	0 month		1 month		2 months		3 months	
	average	SE	average	SE	average	SE	average	SE
1	25.97	4.35	31.46	2.36	20.12	2.28	29.47	4.27
3	58.31	4.98	77.99	4.52	57.13	3.85	62.13	3.84
5	71.04	5.56	94.70	3.79	76.85	2.64	78.78	2.04
7	80.15	4.52	101.09	2.56	87.20	2.59	86.76	1.26
9	88.63	5.84	104.62	2.09	93.75	2.78	92.02	1.00
15	98.65	4.91	109.44	2.00	97.38	2.71	98.68	1.36
20	101.64	4.11	110.71	1.89	100.61	3.02	102.92	1.51
25	105.99	1.40	112.33	1.91	101.80	1.81	104.67	1.61
30	106.87	1.22	113.52	2.04	103.39	0.74	106.31	1.57

Table C15 Average percent dissolved of CPM from DSDT prepared from DC blank tablet of 1800 kg CF at the beginning (0), 1, 2 and 3 months storage

Time (min)	% drug dissolved of 6 tablets							
	0 month		1 month		2 months		3 months	
	average	SE	average	SE	average	SE	average	SE
1	24.58	3.33	29.19	3.72	29.99	2.19	20.22	1.82
3	49.07	5.45	55.39	9.45	83.88	6.90	70.09	3.60
5	66.89	5.43	70.84	11.08	93.78	1.24	87.92	3.93
7	75.89	5.61	79.04	10.95	93.98	1.11	95.24	3.46
9	86.14	3.04	85.83	9.02	97.55	1.15	99.56	2.97
15	95.77	2.39	94.04	8.42	99.92	1.42	103.73	2.78
20	100.42	2.39	97.98	7.86	100.74	1.83	106.52	2.49
25	103.42	2.02	99.05	6.39	102.01	2.03	108.12	2.17
30	105.63	1.37	105.05	2.96	104.01	1.79	109.39	2.14

Table C16 Average percent dissolved of CPM from CPM DC tablet of 1000 kg CF at the beginning (0), 1, 2 and 3 months storage

Time (min)	% drug dissolved of 6 tablets							
	0 month		1 month		2 months		3 months	
	average	SE	average	SE	average	SE	average	SE
1	11.54	1.73	19.82	0.77	18.27	1.40	18.86	2.88
3	32.92	5.64	52.02	8.67	34.21	2.65	39.38	8.79
5	70.21	9.48	69.38	11.34	48.54	5.30	49.61	9.12
7	93.99	2.29	77.37	10.89	56.13	5.61	65.13	6.24
9	98.40	0.95	84.09	10.70	61.64	5.73	75.55	6.39
15	100.57	0.80	93.05	9.87	73.05	4.11	85.81	5.24
20	100.93	0.84	97.12	8.82	78.69	3.20	91.18	3.61
25	101.13	0.86	100.38	7.78	84.63	1.76	95.28	2.27
30	101.53	0.83	103.76	6.23	88.87	2.56	98.21	1.59

Table C17 Average percent dissolved of CPM from CPM DC tablet of 1400 kg CF at the beginning (0), 1, 2 and 3 months storage

Time (min)	% drug dissolved of 6 tablets							
	0 month		1 month		2 months		3 months	
	average	SE	average	SE	average	SE	average	SE
1	17.16	1.67	19.69	0.99	15.24	0.77	15.93	1.30
3	61.12	9.78	60.23	7.52	28.00	1.40	37.24	8.27
5	83.50	6.53	70.75	6.97	34.79	1.13	59.47	7.91
7	87.39	6.38	78.65	6.05	44.62	3.43	69.74	8.16
9	89.30	5.72	86.20	4.73	50.53	3.07	73.87	6.99
15	92.31	4.61	94.53	3.68	66.85	2.84	82.54	4.60
20	96.69	2.41	98.79	1.89	71.91	2.05	89.14	2.12
25	97.17	2.35	101.08	1.68	79.36	1.74	90.22	1.40
30	97.03	2.51	101.33	1.36	87.14	2.01	91.21	1.87

Table C18 Average percent dissolved of CPM from CPM DC tablet of 1800 kg CF at the beginning (0), 1, 2 and 3 months storage

Time (min)	% drug dissolved of 6 tablets							
	0 month		1 month		2 months		3 months	
	average	SE	average	SE	average	SE	average	SE
1	15.09	2.91	13.71	1.37	14.57	0.76	16.09	2.72
3	40.01	10.58	32.83	2.81	33.38	3.06	37.41	4.21
5	72.00	10.15	44.82	2.65	43.57	3.95	57.10	7.74
7	85.95	7.28	66.56	7.16	53.32	4.19	64.75	7.12
9	90.25	5.82	72.29	6.19	69.49	4.49	72.84	6.05
15	97.02	2.45	87.20	4.06	84.85	4.15	86.32	3.95
20	98.17	1.23	93.99	2.95	89.61	3.44	91.69	2.44
25	98.66	1.32	96.30	2.72	92.28	2.59	97.98	1.33
30	99.57	1.42	99.47	2.86	93.42	2.06	97.43	2.08

Table C19 Average percent dissolved of CPM from DSDT prepared from WG blank tablet of 1000 kg CF at the beginning (0), 1, 2 and 3 months storage

Time (min)	% drug dissolved of 6 tablets							
	0 month		1 month		2 months		3 months	
	average	SE	average	SE	average	SE	average	SE
1	13.23	1.71	33.37	1.39	24.13	2.29	17.50	1.57
3	20.84	4.08	42.24	4.15	32.59	2.72	37.97	2.96
5	36.49	5.17	57.86	6.18	53.02	2.23	55.89	3.83
7	49.97	4.61	69.70	7.20	65.84	2.37	67.45	4.74
9	62.17	4.23	79.30	7.26	74.56	3.07	75.74	4.42
15	81.38	4.67	93.87	7.27	90.01	3.63	86.53	5.53
20	92.84	3.75	104.25	6.74	98.48	3.71	96.37	4.22
25	98.5	2.48	110.98	5.59	103.64	2.93	102.61	3.69
30	102.13	2.27	116.37	4.43	108.10	1.89	105.23	1.70

Table C20 Average percent dissolved of CPM from DSDT prepared from WG blank tablet of 1400 kg CF at the beginning (0), 1, 2 and 3 months storage

Time (min)	% drug dissolved of 6 tablets							
	0 month		1 month		2 months		3 months	
	average	SE	average	SE	average	SE	average	SE
1	21.73	3.72	39.39	1.18	20.58	2.16	16.47	1.34
3	30.44	5.18	41.49	0.77	26.65	3.69	25.54	1.70
5	39.44	6.52	53.78	1.96	41.22	6.08	37.06	2.63
7	54.48	8.37	63.37	2.31	57.85	7.46	45.38	3.50
9	64.67	9.58	72.47	2.31	69.28	8.84	52.59	3.97
15	80.71	10.08	88.13	1.41	81.29	7.33	66.95	3.62
20	91.15	9.52	94.39	2.51	86.71	6.52	73.98	3.01
25	96.10	8.82	100.81	2.84	92.03	5.13	82.22	3.19
30	105.03	2.26	106.45	2.56	96.38	3.99	86.76	2.34

Table C21 Average percent dissolved of DZP from DSDT prepared from DC blank tablet of 1000 kg CF at the beginning (0), 1, 2 and 3 months storage

Time (min)	% drug dissolved of 6 tablets							
	0 month		1 month		2 months		3 months	
	average	SE	average	SE	average	SE	average	SE
1	20.09	0.85	24.89	2.32	17.87	0.40	20.63	1.97
3	48.27	1.06	46.42	2.04	43.56	1.69	37.64	1.48
5	62.49	1.62	61.70	2.84	58.39	1.70	52.35	2.16
7	72.67	2.01	73.96	3.94	69.44	2.15	62.48	3.00
9	80.54	2.08	83.79	4.79	80.95	3.02	70.67	3.49
15	94.9	2.23	98.58	4.51	101.49	3.51	87.36	3.88
20	100.67	1.52	105.33	3.83	109.99	1.56	95.69	2.35
25	103.82	0.97	107.75	2.23	112.68	1.00	100.66	1.54
30	103.77	0.83	108.96	1.34	111.85	1.08	102.99	1.23

Table C22 Average percent dissolved of DZP from DSDT prepared from DC blank tablet of 1400 kg CF at the beginning (0), 1, 2 and 3 months storage

Time (min)	% drug dissolved of 6 tablets							
	0 month		1 month		2 months		3 months	
	average	SE	average	SE	average	SE	average	SE
1	3.10	0.46	5.54	0.70	3.76	0.83	5.51	1.48
3	19.29	1.79	25.52	0.85	20.15	3.93	15.22	2.80
5	37.15	2.75	42.61	1.23	32.41	4.54	26.70	4.17
7	49.87	3.32	54.61	2.11	42.73	5.05	35.93	4.95
9	59.38	3.66	64.49	2.29	52.77	5.03	43.05	5.28
15	77.79	3.72	83.04	2.25	70.07	7.60	59.35	5.42
20	87.16	3.35	93.28	2.02	80.59	5.89	69.49	5.09
25	93.10	2.73	99.95	1.45	87.56	4.74	76.32	4.71
30	97.32	1.89	103.46	1.26	93.48	3.81	82.08	4.38

Table C23 Average percent dissolved of DZP from DSDT prepared from DC blank tablet of 1800 kg CF at the beginning (0), 1, 2 and 3 months storage

Time (min)	% drug dissolved of 6 tablets							
	0 month		1 month		2 months		3 months	
	average	SE	average	SE	average	SE	average	SE
1	9.39	1.31	14.62	1.79	22.03	1.35	20.57	1.16
3	42.34	1.26	44.47	2.51	47.59	2.59	39.46	2.01
5	57.68	1.90	62.94	3.89	62.40	2.60	54.10	2.41
7	68.02	2.41	75.14	3.78	74.15	2.66	64.21	2.87
9	75.75	2.71	83.40	4.27	83.38	3.80	71.67	3.20
15	91.97	2.44	100.47	3.61	100.60	2.19	82.86	4.35
20	101.35	2.60	108.02	2.42	108.52	1.62	91.33	3.38
25	106.31	2.18	110.82	1.68	110.21	1.32	96.93	3.51
30	108.32	1.26	111.43	1.41	108.77	0.99	100.70	2.54

Table C24 Average percent dissolved of DZP from DZP DC tablet of 1000 kg CF at the beginning (0), 1, 2 and 3 months storage

Time (min)	% drug dissolved of 6 tablets							
	0 month		1 month		2 months		3 months	
	average	SE	average	SE	average	SE	average	SE
1	18.16	0.63	20.94	0.79	14.20	0.68	5.02	0.98
3	35.77	1.29	20.01	1.13	26.07	0.65	17.49	2.20
5	51.87	1.86	40.54	1.18	40.62	0.45	28.95	3.10
7	65.96	1.94	58.21	2.00	52.56	0.68	38.19	3.55
9	77.49	2.00	70.44	3.06	62.59	0.88	47.54	3.71
15	95.75	2.33	83.59	3.52	79.70	0.79	66.52	3.69
20	102.18	2.76	88.31	2.51	86.39	0.62	77.28	3.14
25	104.16	3.07	89.42	2.29	88.80	1.50	84.99	2.80
30	104.00	3.32	89.07	1.96	89.53	2.10	88.92	2.85

Table C25 Average percent dissolved of DZP from DZP DC tablet of 1400 kg CF at the beginning (0), 1, 2 and 3 months storage

Time (min)	% drug dissolved of 6 tablets							
	0 month		1 month		2 months		3 months	
	average	SE	average	SE	average	SE	average	SE
1	20.03	1.35	0.00	0.00	13.10	1.36	8.19	1.07
3	38.06	1.36	16.53	1.49	24.93	0.87	21.80	1.23
5	53.86	1.68	35.64	2.29	37.43	0.82	33.92	1.72
7	69.54	2.04	52.49	3.71	49.35	1.86	44.07	1.69
9	83.60	2.15	63.54	3.71	59.04	1.85	53.43	1.71
15	102.65	2.17	79.60	3.07	78.19	2.45	73.59	1.51
20	106.42	2.10	84.95	2.39	90.03	2.26	83.17	1.87
25	106.42	1.92	86.50	1.61	94.70	1.54	89.98	2.17
30	105.87	1.85	85.93	1.63	96.48	1.31	93.69	2.47

Table C26 Average percent dissolved of DZP from DZP DC tablet of 1800 kg CF at the beginning (0), 1, 2 and 3 months storage

Time (min)	% drug dissolved of 6 tablets							
	0 month		1 month		2 months		3 months	
	average	SE	average	SE	average	SE	average	SE
1	14.39	1.06	0.34	0.28	10.24	1.09	11.85	0.96
3	32.66	0.51	17.55	2.31	27.87	1.16	18.08	0.62
5	52.11	0.96	36.51	2.10	42.96	1.68	27.56	0.94
7	67.10	1.53	55.14	3.28	56.51	1.87	36.48	0.88
9	80.84	2.09	65.35	3.94	69.05	1.78	45.66	1.88
15	93.62	2.21	75.70	2.21	88.88	1.54	61.67	2.35
20	98.90	1.28	79.10	1.91	95.85	1.17	73.41	3.13
25	99.01	1.18	79.98	1.62	96.85	1.02	81.60	2.86
30	99.38	1.41	78.76	2.13	96.55	1.06	86.89	2.17

Table C27 Average percent dissolved of DZP from DSDT prepared from WG blank tablet of 1000 kg CF at the beginning (0), 1, 2 and 3 months storage

Time (min)	% drug dissolved of 6 tablets							
	0 month		1 month		2 months		3 months	
	average	SE	average	SE	average	SE	average	SE
1	14.50	2.82	19.14	2.25	25.95	3.26	23.98	2.12
3	70.78	6.11	80.82	4.40	69.50	3.44	79.64	5.32
5	100.66	3.03	106.80	1.87	93.38	2.28	99.50	2.87
7	107.00	1.15	110.85	1.57	97.96	1.58	102.91	3.15
9	107.81	0.50	110.35	1.07	98.13	1.07	103.08	3.47
15	107.38	0.44	111.27	1.39	97.68	0.93	102.86	3.35
20	107.12	0.51	109.24	1.05	97.13	0.90	102.19	3.35
25	106.41	0.52	108.24	1.15	96.59	0.93	101.94	3.39
30	105.52	0.61	106.72	0.72	96.14	1.02	101.21	3.24

Table C28 Average percent dissolved of DZP from DSDT prepared from WG blank tablet of 1400 kg CF at the beginning (0), 1, 2 and 3 months storage

Time (min)	% drug dissolved of 6 tablets							
	0 month		1 month		2 months		3 months	
	average	SE	average	SE	average	SE	average	SE
1	20.23	0.47	7.49	0.98	4.89	1.42	8.45	0.64
3	47.23	3.65	27.57	2.16	47.64	3.21	43.09	3.39
5	86.79	4.31	48.17	3.59	83.82	3.02	80.30	6.09
7	112.17	0.67	72.61	3.78	96.20	0.59	103.56	2.34
9	113.72	0.92	94.48	3.34	96.82	0.35	108.10	1.03
15	113.23	0.98	109.92	1.63	96.34	0.37	107.23	0.73
20	112.54	0.89	110.16	1.72	95.53	0.34	106.24	1.00
25	112.56	0.82	108.83	1.79	95.07	0.33	106.96	1.36
30	111.33	0.85	108.66	1.83	94.45	0.33	105.03	0.76

Table C29 Average percent dissolved of DZP from DSDT prepared from WG blank tablet of 1800 kg CF at the beginning (0), 1, 2 and 3 months storage

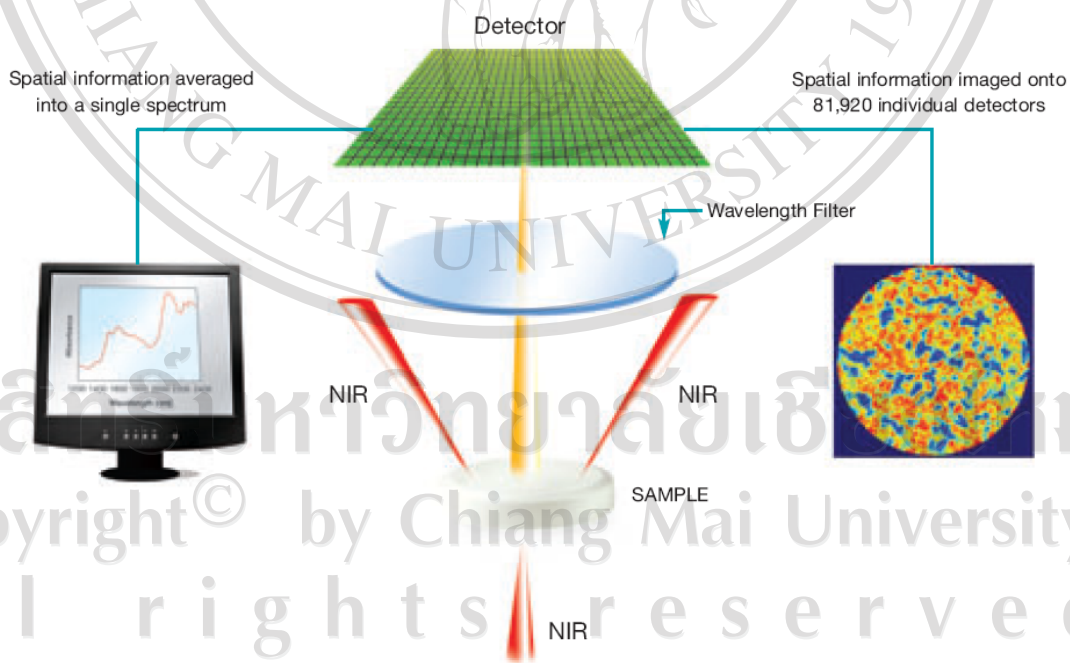
Time (min)	% drug dissolved of 6 tablets							
	0 month		1 month		2 months		3 months	
	average	SE	average	SE	average	SE	average	SE
1	17.97	0.88	9.69	0.67	3.48	2.26	8.74	1.49
3	34.26	2.70	43.82	2.00	16.02	3.99	23.91	5.02
5	52.96	4.31	81.98	6.22	37.45	2.49	50.26	10.32
7	73.71	5.52	101.81	2.49	59.84	2.23	70.16	7.94
9	94.33	5.21	107.21	2.62	84.85	1.18	92.66	4.55
15	107.98	0.97	107.74	2.97	103.07	1.47	108.41	0.35
20	108.17	1.06	106.83	2.30	104.42	1.78	108.71	0.35
25	107.51	0.98	107.39	1.99	103.88	1.85	108.27	0.37
30	107.13	1.02	104.26	2.48	103.07	1.89	107.42	0.30

APPENDIX D

NIR Chemical Imaging System

NIR-CI couples NIR spectroscopy with digital imaging. Lamps that emit NIR light illuminate the sample for diffuse reflectance or transmission measurements and are computer controlled to optimize data quality. A solid-state tunable filter selects NIR wavelengths that are then imaged onto a large format (320 x 256 pixel) focal plane array. Complete spectral data can be collected by tuning through the entire available tuning range, or if only a subset of wavelengths is needed, the filter can rapidly tune to only those required for the most efficient data collection protocol. NIR-CI uses a two-dimensional detector array.

Single Point Spectroscopy vs Chemical Imaging



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PRESENTATIONS

Orawan Chitvanich, Busaban Sirithunyalug, Siriporn Okonogi and Jakkapan Sirithunyalug. “Preparation of Chlorpheniramine Maleate Solution Dropping Tablet” Oral Presentation in “The 2007 US-Thai Consortium Conferences and Meeting” January 6th – 9th, 2007, The Twin Towers Hotel, Bangkok

Mitrevej, A., **Chitvanich, O.**, Sinchaipanid, N., Nutpolwat, N. “Application of stress relaxation to herbal tablet formulation” Poster in “The 15th Federal of Asian Pharmaceutical Associations (FAPA) Congress” November 15th – 19th, 1994, Bangkok.

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Orawan Chitvanich, Busaban Sirithunyalug, Siriporn Okonogi, Sirivipa Piyamongkul and Jakkapan Sirithunyalug. “Preparation and Characterization of Chlorpheniramine Maleate-Solution-Dropping Tablet” *CMU. J. Nat. Sci.* (2008) Vol.7 (1) pp. 73-78.

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