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APPENDICES

APPENDIX I

TABLE 9 THE CALIBRATION CURVE OF IDM IN PHOSPHATE BUFFER OF pH 7.2 : WATER (1:4)

CONCENTRATION (mcg/ml)	AVERAGE ABSORBANCE
9.20	0.182
19.60	0.388
31.00	0.613
39.00	0.771
52.00	1.028
62.00	1.226

ABSORBANCE AT 318 nm

$Y = 0.019772*X$
$r^2 = 0.99985$

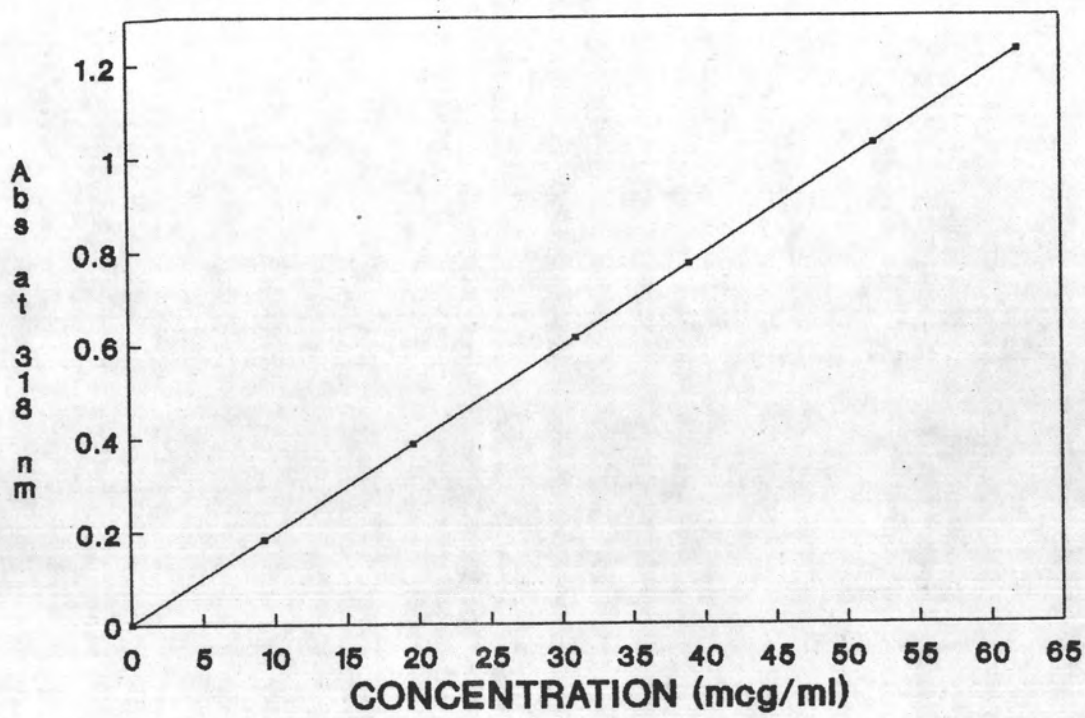

Figure 74 The calibration curve of Indomethacin in phosphate buffer of pH 7.2 : water (1.4)

TABLE 10 % CONTENT OF IDM FROM IDM-MAN POWDER

SAMPLE	1	2	3	AVERAGE	SD	%CV
PHY 1:1	98.06	99.29	99.11	98.82	0.54	0.55
PHY 1:5	97.58	98.57	99.87	98.68	0.94	0.95
PHY 1:10	98.10	98.81	99.99	98.97	0.78	0.79
SOL 1:1	99.06	98.60	98.75	98.80	0.19	0.19
SOL 1:5	97.60	100.12	97.23	98.32	1.28	1.31
SOL 1:10	98.12	100.27	99.20	99.19	0.88	0.88

TABLE 11 % CONTENT OF IDM FROM IDM-PVP POWDER

SAMPLE	1	2	3	AVERAGE	SD	%CV
PHY 1:1	98.46	99.89	98.36	98.90	0.70	0.71
PHY 1:5	95.88	97.21	97.48	96.86	0.70	0.72
PHY 1:10	98.08	98.94	100.28	99.10	0.91	0.92
SOL 1:1	100.36	99.61	100.46	100.14	0.38	0.38
SOL 1:5	99.05	100.58	100.98	100.20	0.83	0.83
SOL 1:10	100.53	100.37	99.44	100.11	0.48	0.48

TABLE 12 % CONTENT OF IDM FROM IDM-PEG POWDER

SAMPLE	1	2	3	AVERAGE	SD	%CV
PHY 1:1	95.06	98.69	100.93	98.22	2.42	2.46
PHY 1:5	99.19	99.34	98.57	99.03	0.33	0.34
PHY 1:10	96.95	100.49	99.10	98.85	1.46	1.47
SOL 1:1	100.65	100.15	99.50	100.10	0.47	0.47
SOL 1:5	100.07	99.77	99.70	99.85	0.16	0.16
SOL 1:10	99.89	100.18	101.05	100.37	0.49	0.49

TABLE 13 % CONTENT OF IDM FROM IDM-SLS POWDER

SAMPLE	1	2	3	AVERAGE	SD	%CV
PHY 1:0.1	96.93	99.01	99.91	98.61	1.25	1.27
PHY 1:0.5	99.68	99.65	99.93	99.75	0.12	0.12
PHY 1:1.0	97.71	100.44	99.61	99.25	1.14	1.15
SOL 1:0.1	101.15	99.96	100.00	100.37	0.55	0.55
SOL 1:0.5	99.40	100.71	101.15	100.42	0.74	0.74
SOL 1:1.0	100.75	100.02	99.73	100.17	0.43	0.43

TABLE 14 THE DISSOLUTION OF IDM FROM IDM POWDER

TIME (MIN)	% DRUG DISSOLVED						AVERAGE	SD	%CV
	1	2	3	4	5	6			
2	1.71	1.92	2.48	3.64	3.41	1.55	2.45	0.81	33.17
4	5.34	6.17	5.55	5.01	5.71	5.63	5.57	0.35	6.36
6	10.88	11.59	11.31	11.55	11.05	10.71	11.18	0.33	2.96
8	18.75	19.75	20.17	19.10	19.27	19.30	19.39	0.46	2.35
10	27.05	27.76	26.98	27.46	26.59	27.96	27.30	0.47	1.73
12	34.27	36.41	36.32	35.50	36.05	35.12	35.61	0.75	2.11
14	42.67	44.53	44.58	44.36	45.00	45.04	44.36	0.80	1.80
16	49.22	50.98	49.45	50.20	49.27	50.57	49.95	0.68	1.35
18	56.39	58.62	56.45	58.77	57.36	59.81	57.90	1.26	2.18
20	62.46	65.15	64.45	62.60	62.09	64.27	63.51	1.16	1.83

TABLE 15 THE DISSOLUTION OF IDM FROM TREATED IDM POWDER

TIME (MIN)	% DRUG DISSOLVED						AVERAGE	SD	%CV
	1	2	3	4	5	6			
2	13.21	14.08	14.20	13.87	13.38	13.67	13.73	0.36	2.59
4	29.45	27.94	27.87	18.49	18.70	18.58	23.50	4.94	21.03
6	45.34	43.76	42.56	42.15	42.20	43.87	43.31	1.14	2.63
8	53.40	53.60	53.18	53.34	52.32	52.55	53.06	0.47	0.88
10	59.97	59.42	59.39	59.46	59.43	59.73	59.57	0.21	0.36
12	65.03	64.51	62.25	63.12	61.97	61.99	63.14	1.22	1.93
14	69.02	68.68	66.52	66.97	66.38	66.43	67.33	1.10	1.63
16	73.82	73.20	71.73	72.08	70.96	71.06	72.14	1.05	1.46
18	77.87	79.30	79.45	79.40	78.65	80.06	79.12	0.69	0.88
20	81.01	81.38	80.73	81.32	80.08	81.51	81.00	0.49	0.60

TABLE 16 THE DISSOLUTION OF IDM FROM 1:1 IDM:MAN PHYSICAL MIXTURE POWDER

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	AVERAGE	SD	%CV
2	7.51	7.46	20.69	14.61	19.40	16.75	14.40	5.26	36.49
4	22.73	22.44	35.52	27.47	24.89	31.26	27.38	4.72	17.23
6	36.06	34.87	47.45	38.71	34.20	43.79	39.18	4.88	12.46
8	45.81	44.74	58.11	46.62	42.16	51.42	48.14	5.25	10.90
10	53.62	51.56	65.54	53.31	51.11	57.43	55.43	4.96	8.95
12	60.71	59.21	71.97	60.75	54.13	61.68	61.41	5.33	8.68
14	65.56	64.41	78.43	66.68	59.37	65.41	66.64	5.77	8.65
16	69.97	68.41	82.09	71.65	63.70	69.02	70.81	5.60	7.91
18	74.10	71.18	84.87	75.66	68.06	71.82	74.28	5.30	7.13
20	76.11	73.35	86.47	77.99	70.86	74.08	76.48	4.99	6.52

TABLE 17 THE DISSOLUTION OF IDM FROM 1:5 IDM:MAN PHYSICAL MIXTURE POWDER

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	AVERAGE	SD	%CV
2	15.25	16.97	29.79	36.00	29.79	36.34	27.36	8.38	30.64
4	35.59	35.16	46.17	46.50	47.30	45.55	42.71	5.21	12.20
6	49.57	47.45	56.61	58.71	56.04	54.06	53.74	3.98	7.41
8	59.57	55.54	62.88	68.47	66.19	60.80	62.24	4.26	6.85
10	64.64	62.25	69.19	73.83	69.48	65.31	67.45	3.82	5.66
12	69.90	67.25	74.33	76.99	72.95	70.60	72.00	3.17	4.40
14	74.43	69.91	76.93	81.21	75.68	73.19	75.23	3.46	4.60
16	80.65	72.91	78.34	83.82	78.72	75.64	78.35	3.47	4.43
18	78.91	76.23	83.68	86.44	81.04	78.86	80.86	3.38	4.18
20	80.93	77.35	83.92	87.59	82.76	79.97	82.09	3.22	3.93

TABLE 18 THE DISSOLUTION OF IDM FROM 1:10 IDM:MAN PHYSICAL MIXTURE POWDER

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	AVERAGE	SD	%CV
2	28.35	23.51	42.96	34.07	30.65	34.56	32.35	6.02	18.61
4	44.58	38.83	56.14	47.86	46.48	46.16	46.68	5.12	10.97
6	55.68	47.43	65.47	58.88	56.80	58.85	57.19	5.35	9.36
8	61.90	52.90	74.55	66.05	62.79	65.43	63.94	6.41	10.03
10	67.25	58.56	78.23	71.31	68.37	70.09	68.97	5.83	8.46
12	71.74	61.98	82.84	74.34	71.70	74.18	72.80	6.12	8.40
14	75.36	65.11	87.63	77.84	74.89	76.62	76.24	6.57	8.62
16	78.25	67.66	90.02	80.91	77.80	79.38	79.00	6.53	8.27
18	80.10	69.76	91.20	82.18	80.13	82.31	80.95	6.26	7.73
20	82.11	71.42	91.48	83.01	81.70	83.59	82.22	5.85	7.11

TABLE 19 THE DISSOLUTION OF IDM FROM 1:1 IDM:PEG PHYSICAL MIXTURE POWDER

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	AVERAGE	SD	%CV
2	17.48	26.59	25.72	23.05	14.60	20.30	21.29	4.30	20.21
4	30.87	32.63	30.37	33.51	24.66	28.53	30.09	2.91	9.66
6	41.84	39.45	37.51	44.03	32.74	35.99	38.60	3.72	9.65
8	49.30	46.32	42.24	49.05	39.09	42.13	44.69	3.80	8.51
10	55.71	50.68	47.72	55.38	44.40	47.21	50.18	4.21	8.39
12	60.76	56.27	53.52	60.61	49.46	52.59	55.54	4.15	7.47
14	65.06	59.49	58.64	63.73	53.74	55.41	59.35	4.07	6.85
16	68.14	62.43	63.50	67.00	57.37	59.06	62.92	3.88	6.16
18	71.39	65.09	59.28	69.87	60.06	62.32	64.67	4.62	7.15
20	72.94	67.91	64.87	71.32	62.63	64.50	67.36	3.74	5.55

TABLE 20 THE DISSOLUTION OF IDM FROM 1:5 IDM:PEG PHYSICAL MIXTURE POWDER

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	AVERAGE	SD	%CV
2	22.26	25.58	28.92	26.05	37.69	21.98	27.08	5.30	19.56
4	32.87	35.07	38.10	35.39	42.09	33.04	36.09	3.19	8.85
6	41.93	41.81	48.10	43.48	50.08	41.79	44.53	3.32	7.47
8	48.26	48.15	52.83	49.30	58.87	49.54	51.16	3.78	7.39
10	53.58	51.72	57.59	54.86	62.52	54.65	55.82	3.47	6.21
12	57.03	56.20	61.01	58.28	66.34	58.75	59.60	3.37	5.65
14	60.50	58.93	64.30	63.17	68.85	63.17	63.15	3.13	4.95
16	63.10	62.57	66.24	65.76	72.26	65.22	65.86	3.16	4.80
18	65.42	64.60	69.25	67.93	74.06	67.44	68.12	3.08	4.52
20	67.17	67.38	70.15	69.82	75.13	70.41	70.01	2.63	3.75

TABLE 21 THE DISSOLUTION OF IDM FROM 1:10 IDM:PEG PHYSICAL MIXTURE POWDER

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	AVERAGE	SD	%CV
2	32.54	33.09	38.31	28.35	34.60	32.33	33.20	2.97	8.94
4	43.10	43.49	39.47	44.58	49.02	44.37	44.00	2.81	6.38
6	51.60	52.31	50.35	55.68	59.40	50.05	53.23	3.32	6.23
8	58.47	59.99	57.42	61.90	66.75	59.66	60.70	3.04	5.00
10	64.64	64.58	62.44	67.25	72.95	63.04	65.82	3.54	5.37
12	67.95	69.94	67.92	71.74	78.45	67.97	70.66	3.75	5.31
14	72.50	72.19	69.12	75.36	83.84	70.78	73.97	4.80	6.49
16	76.77	75.35	72.12	78.25	86.16	72.29	76.82	4.73	6.15
18	78.48	77.94	73.48	80.10	88.79	74.55	78.89	4.98	6.31
20	81.57	81.13	73.65	82.11	90.39	76.97	80.97	5.16	6.38

TABLE 22 THE DISSOLUTION OF IDM FROM 1:1 IDM:PVP PHYSICAL MIXTURE POWDER

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	AVERAGE	SD	%CV
2	11.85	15.52	15.46	26.57	14.94	17.66	17.00	4.61	2..11
4	24.24	21.57	21.55	22.12	22.37	22.41	22.38	0.90	4.02
6	31.17	29.11	29.74	27.36	30.42	29.80	29.60	1.19	4.01
8	36.46	35.83	36.72	31.87	37.66	34.63	35.53	1.88	5.28
10	42.24	41.29	40.90	36.40	43.52	39.64	40.66	2.25	5.52
12	46.05	45.77	45.12	39.58	48.25	43.95	44.79	2.66	5.94
14	49.58	50.42	48.56	44.63	52.74	47.71	48.94	2.49	5.09
16	53.60	53.21	52.51	47.54	56.24	51.50	52.43	2.62	5.00
18	55.02	54.86	55.37	53.72	59.33	54.15	55.41	1.84	3.32
20	57.68	57.39	57.78	52.37	60.87	56.81	57.15	2.50	4.38

TABLE 23 THE DISSOLUTION OF IDM FROM 1:5 IDM:PVP PHYSICAL MIXTURE POWDER

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	AVERAGE	SD	%CV
2	11.49	22.78	23.20	34.26	19.72	25.14	22.76	6.76	29.71
4	24.58	28.32	25.89	24.70	23.85	27.30	25.77	1.58	6.15
6	29.34	36.75	35.04	33.43	31.13	35.75	33.57	2.61	7.78
8	35.20	42.24	38.86	41.14	39.19	42.43	39.84	2.48	6.23
10	41.10	47.31	42.11	45.85	45.38	48.83	45.10	2.72	6.03
12	45.35	51.06	45.38	50.89	48.79	53.29	49.13	2.96	6.03
14	50.09	53.94	48.82	53.67	53.12	57.32	52.83	2.76	5.23
16	53.48	57.29	51.83	57.23	56.72	61.52	56.34	3.09	5.48
18	56.73	60.06	54.71	61.42	61.83	64.83	59.93	3.35	5.59
20	59.40	62.99	56.10	62.58	62.97	67.70	61.96	3.57	5.75

TABLE 24 THE DISSOLUTION OF IDM FROM 1:10 IDM:PVP PHYSICAL MIXTURE POWDER

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	AVERAGE	SD	%CV
2	15.66	27.11	26.08	16.59	23.33	17.78	21.09	4.60	21.80
4	29.59	30.64	29.74	25.83	29.02	26.87	28.61	1.70	5.93
6	30.40	40.43	37.37	35.89	36.54	36.17	36.13	2.98	8.24
8	38.35	46.94	43.07	42.06	42.61	43.25	42.72	2.51	5.87
10	43.62	53.65	47.90	47.21	48.28	49.61	48.38	2.99	6.18
12	47.55	57.96	52.16	52.08	52.03	54.35	52.69	3.11	5.90
14	51.21	62.75	55.83	55.47	55.96	59.11	56.72	3.55	6.25
16	54.58	66.05	59.68	57.96	58.87	63.14	60.05	3.68	6.14
18	58.13	69.07	62.04	61.98	62.24	65.68	63.19	3.42	5.41
20	60.32	71.80	64.41	63.45	64.58	68.38	65.49	3.67	5.61

TABLE 25 THE DISSOLUTION OF IDM FROM 1:0.1 IDM:SLS PHYSICAL MIXTURE POWDER

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	7	AVERAGE	SD	%CV
2	48.68	55.79	58.88	61.33	41.73	40.96	42.99	50.05	7.94	15.87
4	62.28	64.97	67.56	71.85	57.44	62.01	56.06	63.17	5.12	8.10
6	75.18	73.75	75.28	82.12	66.99	69.66	65.71	72.67	5.26	7.23
8	80.42	80.41	82.03	86.77	73.09	78.13	69.79	78.66	5.25	6.68
10	84.90	84.50	85.76	92.09	78.77	80.18	74.04	82.89	5.37	6.48
12	86.08	86.59	87.78	93.79	81.88	82.40	76.49	85.00	5.04	5.93
14	88.70	87.77	88.20	93.93	82.72	82.78	78.25	86.05	4.77	5.54
16	90.69	90.50	88.33	95.00	84.63	85.01	79.60	87.68	4.67	5.33
18	91.75	91.23	89.33	95.61	85.02	87.71	79.69	88.62	4.77	5.39
20	91.86	92.90	89.75	96.06	85.86	104.74	82.17	91.91	6.75	7.35

TABLE 26 THE DISSOLUTION OF IDM FROM 1:0.5 IDM:SLS PHYSICAL MIXTURE POWDER

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	7	AVERAGE	SD	%CV
2	46.27	61.51	50.29	41.51	52.85	44.00	37.33	47.68	7.42	15.57
4	61.40	64.84	56.03	56.40	66.03	55.79	55.04	59.36	4.31	7.26
6	68.99	74.81	65.71	67.19	74.07	63.00	64.59	68.34	4.24	6.20
8	73.19	79.91	70.50	73.85	79.62	68.55	72.54	74.02	3.99	5.39
10	77.72	83.05	74.11	78.22	85.38	71.95	76.33	78.11	4.38	5.61
12	79.72	85.59	76.25	81.38	87.96	75.53	79.09	80.79	4.26	5.28
14	80.39	89.22	77.64	84.24	89.54	78.04	81.10	82.88	4.58	5.52
16	82.40	90.26	80.70	85.87	90.46	78.24	81.93	84.26	4.39	5.21
18	83.38	90.84	83.02	86.58	91.71	78.89	82.15	85.22	4.36	5.12
20	85.11	90.80	83.25	86.66	91.45	79.39	82.38	85.58	4.09	4.78

TABLE 27 THE DISSOLUTION OF IDM FROM 1:1.0 IDM:SLS PHYSICAL MIXTURE POWDER

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	AVERAGE	SD	%CV
2	47.56	57.52	59.40	31.77	44.27	41.37	46.98	9.45	20.12
4	59.14	59.08	58.32	47.72	53.57	52.10	54.99	4.25	7.73
6	66.50	64.17	66.65	56.20	61.10	48.86	60.58	6.35	10.47
8	70.64	70.61	72.09	63.11	72.19	66.95	69.26	3.25	4.70
10	77.33	76.50	72.71	67.53	73.12	67.84	72.50	3.79	5.23
12	77.54	76.41	76.27	72.13	75.27	68.58	74.37	3.09	4.15
14	79.52	78.37	78.53	73.78	79.12	70.67	76.67	3.29	4.29
16	79.29	81.22	80.65	77.38	81.01	71.42	78.50	3.42	4.36
18	80.39	81.45	81.61	78.62	82.14	72.18	79.40	3.42	4.31
20	80.46	81.97	82.71	79.72	81.90	73.09	79.97	3.24	4.05

TABLE 28 THE DISSOLUTION OF IDM FROM 1:1 IDM:MAN COPRECIPITATE POWDER

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	AVERGAE	SD	%CV
2	15.53	12.71	18.35	12.43	15.37	12.58	14.50	2.15	14.85
4	31.75	27.42	33.26	28.40	33.68	33.15	31.28	2.47	7.90
6	47.08	44.09	46.39	43.81	47.95	45.56	45.82	1.50	3.28
8	57.56	58.52	57.35	52.92	59.20	60.78	57.72	2.43	4.21
10	65.43	66.76	64.12	58.61	63.89	63.26	63.68	2.54	3.99
12	70.66	71.75	68.00	65.81	67.69	65.62	68.25	2.29	3.35
14	75.74	76.22	73.74	68.59	73.21	69.04	72.76	2.98	4.09
16	78.96	79.78	77.04	70.55	77.06	71.29	75.78	3.58	4.72
18	80.60	82.03	79.53	72.75	79.90	74.34	78.19	3.41	4.36
20	82.25	83.65	81.24	75.35	81.72	75.86	80.01	3.21	4.01

TABLE 29 THE DISSOLUTION OF IDM FROM 1:5 IDM:MAN COPRECIPITATE POWDER

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	AVERGAE	SD	%CV
2	64.41	73.61	67.89	56.02	44.70	46.73	58.89	10.69	18.15
4	84.90	84.65	88.87	79.43	69.15	76.28	80.55	6.51	8.09
6	77.57	93.62	95.01	89.52	81.52	87.48	87.45	6.22	7.12
8	92.36	96.07	97.34	95.19	87.94	93.49	93.73	3.06	3.26
10	94.94	96.85	99.36	96.26	89.14	95.46	95.33	3.11	3.26
12	95.56	97.63	98.93	96.74	90.96	96.23	96.01	2.50	2.60
14	97.09	98.89	100.05	97.69	92.90	97.02	97.27	2.23	2.29
16	96.95	98.59	99.13	97.84	93.53	96.57	97.10	1.82	1.88
18	97.72	98.91	99.14	98.77	94.60	96.14	97.55	1.66	1.71
20	98.04	98.62	98.85	99.10	95.04	95.99	97.61	1.54	1.57

TABLE 30 THE DISSOLUTION OF IDM FROM 1:10 IDM:MAN COPRECIPITATE POWDER

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	AVERGAE	SD	%CV
2	41.40	43.81	39.96	52.82	51.99	54.39	47.39	5.82	12.29
4	56.58	61.63	59.13	72.45	71.98	74.14	65.98	7.05	10.69
6	65.17	70.50	69.59	81.28	81.37	81.84	74.96	6.74	9.00
8	69.71	75.34	73.10	84.85	86.60	86.44	79.34	6.84	8.63
10	73.82	79.01	77.09	87.84	89.58	88.66	82.67	6.23	7.54
12	76.59	81.94	79.42	89.93	90.17	90.74	84.80	5.70	6.72
14	79.21	84.93	82.25	91.37	92.98	91.89	87.11	5.26	6.04
16	81.09	86.19	83.97	92.16	91.50	92.06	87.83	4.34	4.94
18	82.68	87.80	86.19	92.90	92.69	92.35	89.10	3.86	4.33
20	83.96	88.36	87.50	93.79	93.13	92.64	89.90	3.57	3.97

TABLE 31 THE DISSOLUTION OF IDM FROM 1:1 IDM:PEG COPRECIPITATE POWDER

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	AVERAGE	SD	%CV
2	13.28	18.71	11.81	16.71	18.02	20.04	16.43	2.95	17.94
4	30.05	32.46	22.06	31.28	30.92	35.42	30.37	4.09	13.45
6	42.47	49.54	33.48	39.85	42.24	48.10	42.61	5.31	12.47
8	53.48	54.92	42.25	53.95	49.13	64.12	52.97	6.57	12.40
10	62.78	66.93	50.67	62.97	60.72	68.89	62.16	5.82	9.36
12	72.73	73.81	57.65	64.14	68.03	77.58	68.99	6.63	9.61
14	78.03	82.16	63.33	69.17	77.06	83.49	75.54	7.13	9.44
16	81.76	85.09	69.03	74.59	81.44	84.85	79.46	5.81	7.31
18	84.37	89.93	75.45	79.02	85.88	86.95	83.60	4.91	5.87
20	86.86	91.89	77.43	79.99	86.73	88.13	85.17	4.93	5.79

TABLE 32 THE DISSOLUTION OF IDM FROM 1:5 IDM:PEG COPRECIPITATE POWDER

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	AVERAGE	SD	%CV
2	71.67	76.23	65.82	65.12	64.04	63.40	67.71	4.67	6.89
4	83.72	83.37	88.62	76.70	76.60	87.18	82.70	4.65	5.63
6	89.84	99.01	97.31	85.63	96.22	97.34	94.23	4.82	5.11
8	99.81	104.80	101.92	97.63	99.74	100.23	100.69	2.22	2.21
10	96.95	105.48	103.92	98.42	101.61	101.19	101.26	2.93	2.90
12	101.54	105.41	104.59	99.81	101.36	100.80	102.25	2.03	1.99
14	104.32	106.03	105.20	100.50	101.61	100.91	103.09	2.17	2.11
16	102.42	105.27	104.62	99.45	100.69	100.15	102.10	2.21	2.16
18	102.79	103.98	104.25	99.48	101.03	98.84	101.73	2.10	2.06
20	102.41	104.63	103.89	99.06	100.61	99.32	101.65	2.15	2.11

TABLE 33 THE DISSOLUTION OF IDM FROM 1:10 IDM:PEG COPRECIPITATE POWDER

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	AVERAGE	SD	%CV
2	83.16	96.33	90.41	83.79	88.89	88.57	88.53	4.39	4.96
4	88.52	90.68	104.39	97.55	97.43	98.22	96.13	5.23	5.44
6	101.13	102.10	104.62	98.65	98.69	99.32	100.75	2.15	2.13
8	102.25	102.92	104.25	99.00	99.19	99.52	101.19	2.04	2.02
10	102.47	102.39	103.26	99.19	99.38	99.42	101.02	1.71	1.70
12	101.48	102.61	103.17	99.23	98.96	99.76	100.87	1.65	1.63
14	102.96	102.74	103.60	99.91	99.94	100.45	101.60	1.53	1.51
16	101.74	101.52	102.67	99.29	99.47	100.14	100.80	1.25	1.24
18	102.09	102.17	102.41	99.16	99.34	99.87	100.84	1.40	1.39
20	101.68	101.46	101.69	99.18	99.51	100.05	100.60	1.05	1.04

TABLE 34 THE DISSOLUTION OF IDM FROM 1:1 IDM:PVP COPRECIPITATE POWDER

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	AVERAGE	SD	%CV
2	50.99	49.88	42.89	35.42	24.90	21.67	37.62	11.39	30.26
4	68.86	71.95	63.66	58.87	45.66	42.39	58.56	11.10	18.96
6	75.31	84.07	74.41	70.01	69.28	64.85	72.99	6.04	8.28
8	88.55	90.92	82.31	86.91	83.56	76.54	84.80	4.69	5.53
10	92.73	96.71	90.25	93.96	91.88	85.50	91.84	3.46	3.77
12	96.64	100.49	89.45	95.53	95.80	91.16	94.85	3.63	3.83
14	99.50	102.37	97.36	97.04	97.84	94.38	98.08	2.44	2.49
16	100.90	102.91	100.84	96.61	97.92	95.89	99.18	2.54	2.56
18	102.90	104.67	102.56	96.13	97.39	96.68	100.06	3.40	3.40
20	104.46	104.39	102.45	96.74	97.44	96.77	100.38	3.46	3.45

TABLE 35 THE DISSOLUTION OF IDM FROM 1:5 IDM:PVP COPRECIPITATE POWDER

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	AVERAGE	SD	%CV
2	26.33	32.76	39.72	55.40	62.14	61.72	46.35	14.13	30.48
4	46.12	64.22	79.42	84.28	84.36	85.13	73.92	14.37	19.44
6	62.21	85.28	94.88	93.64	87.68	92.67	86.06	11.19	13.00
8	73.64	94.52	95.35	95.77	87.80	94.76	90.31	7.93	8.78
10	80.87	97.09	97.77	96.55	88.07	95.38	92.62	6.17	6.66
12	86.91	97.72	98.41	96.12	88.03	95.26	93.74	4.56	4.87
14	91.49	98.68	99.23	96.91	88.56	96.05	95.15	3.87	4.07
16	93.89	98.39	99.09	96.30	87.93	95.30	95.15	3.67	3.86
18	95.87	99.02	98.83	96.15	88.03	95.47	95.56	3.65	3.81
20	96.49	99.80	99.01	96.46	87.98	95.63	95.89	3.84	4.00

TABLE 36 THE DISSOLUTION OF IDM FROM 1:10 IDM:PVP COPRECIPITATE POWDER

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	AVERAGE	SD	%CV
2	103.69	85.92	85.40	79.23	79.28	84.77	86.38	8.22	9.51
4	105.27	99.48	100.32	108.27	100.72	105.85	103.32	3.30	3.19
6	105.97	101.50	102.33	113.41	112.69	115.69	108.60	5.58	5.14
8	105.01	101.56	102.71	114.46	115.42	117.35	109.42	6.46	5.91
10	103.59	101.62	102.33	114.91	115.72	117.67	109.31	6.87	6.28
12	103.66	101.53	102.10	114.89	115.86	117.39	109.24	6.88	6.30
14	103.21	101.79	102.24	114.71	116.75	118.17	109.48	7.15	6.53
16	102.57	101.32	101.62	114.23	115.98	117.40	108.85	7.09	6.51
18	102.32	101.06	101.22	105.67	115.65	117.40	107.22	6.77	6.32
20	102.67	100.79	100.66	98.86	115.92	117.40	106.05	7.60	7.16

TABLE 37 THE DISSOLUTION OF IDM FROM 1:0.1 IDM:SLS COPRECIPITATE POWDER

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	AVERAGE	SD	%CV
2	80.45	63.90	47.93	52.08	46.79	58.23	12.66	21.74
4	78.56	78.99	58.49	64.90	63.34	68.86	8.37	12.16
6	83.15	85.24	66.63	74.43	72.01	76.29	6.96	9.12
8	87.62	88.73	71.57	77.72	77.41	80.61	6.56	8.14
10	90.00	92.52	75.45	82.99	82.12	84.62	6.07	7.18
12	91.18	93.96	78.58	85.49	85.12	86.87	5.34	6.15
14	94.76	95.57	80.64	88.80	87.05	89.36	5.46	6.11
16	93.59	95.46	82.40	90.26	90.00	90.34	4.47	4.95
18	95.54	96.49	83.24	91.39	91.45	91.62	4.68	5.11
20	96.14	97.52	83.92	91.84	92.47	92.38	4.74	5.13

TABLE 38 THE DISSOLUTION OF IDM FROM 1:0.5 IDM:SLS COPRECIPITATE POWDER

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	AVERAGE	SD	%CV
2	84.32	76.21	74.92	53.69	54.58	54.38	66.35	12.49	18.82
4	93.83	80.58	93.89	65.84	77.23	72.16	80.59	10.42	12.93
6	98.26	92.56	96.75	75.48	85.94	78.59	87.93	8.68	9.87
8	99.50	95.84	99.02	86.41	93.54	88.79	93.85	4.89	5.21
10	100.74	97.21	99.82	89.58	97.18	90.57	95.85	4.29	4.48
12	101.39	97.99	99.73	92.93	98.82	95.33	97.70	2.81	2.88
14	101.96	98.51	101.47	97.17	101.22	97.87	99.70	1.90	1.91
16	101.23	98.07	101.02	97.07	102.26	98.36	99.67	1.91	1.92
18	101.87	98.25	100.32	97.85	103.35	99.44	100.18	1.94	1.94
20	102.96	98.72	101.11	98.62	103.86	100.37	100.94	1.97	1.95

TABLE 39 THE DISSOLUTION OF IDM FROM 1:1.0 IDM:SLS COPRECIPITATE POWDER

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	AVERAGE	SD	%CV
2	94.59	88.59	82.11	62.21	62.66	67.85	76.34	12.75	16.70
4	101.73	100.61	96.22	76.57	76.71	87.07	89.82	10.44	11.63
6	103.29	102.61	98.60	80.75	91.28	93.75	95.05	7.73	8.13
8	103.68	102.54	99.54	96.54	97.00	98.73	99.67	2.65	2.66
10	104.50	102.62	99.90	99.82	99.06	98.94	100.81	2.05	2.04
12	105.04	102.55	99.53	100.76	100.84	100.31	101.51	1.82	1.79
14	105.36	102.99	100.83	100.88	103.12	101.90	102.51	1.56	1.52
16	104.76	101.79	100.09	100.59	101.87	102.49	101.93	1.50	1.47
18	104.54	100.96	99.85	100.36	101.53	103.14	101.73	1.63	1.60
20	104.47	101.15	100.05	100.56	101.74	102.49	101.74	1.45	1.42

TABLE 40 THE TIME 80% OF IDM FROM POWDER DISSOLUTION

SAMPLE	MINUTE	SECOND
IDM	>20	
TREATED IDM	19	50
MAN PHY 1:1	>20	
MAN PHY 1:5	15	14
MAN PHY 1:10	14	50
MAN SOL 1:1	17	53
MAN SOL 1:5	4	16
MAN SOL 1:10	8	
PEG PHY 1:1	>20	
PEG PHY 1:5	>20	
PEG PHY 1:10	17	30
PEG SOL 1:1	15	30
PEG SOL 1:5	3	40
PEG SOL 1:10	2	20
PVP PHY 1:1	>20	
PVP PHY 1:5	>20	
PVP PHY 1:10	>20	
PVP SOL 1:1	7	20
PVP SOL 1:5	5	
PVP SOL 1:10	2	20
SLS PHY 1:0.1	8	13
SLS PHY 1:0.5	11	26
SLS PHY 1:1.0	15	40
SLS SOL 1:0.1	7	13
SLS SOL 1:0.5	4	16
SLS SOL 1:1.0	2	53

TABLE 41 THE TIME 80% OF IDM FROM ALL CAPSULE DISSOLUTION

SAMPLE	MINUTE	SECOND
IDM	>20	
TREATED IDM	15	26
MANNITOL PHY	17	21
MANNITOL SOL	9	13
PEG 4000 PHY	16	33
PEG 4000 SOL	11	56
PVP K 30 PHY	19	40
PVP K 30 SOL	8	42
SLS PHY	16	36
SLS SOL	8	21

TABLE 42 THE CONTENT OF IDM FROM VARIOUS CAPSULE

SAMPLE	% AVERAGE CONTENT OF IDM FROM CAPSULE						AVERAGE	SD	%CV
	1	2	3	4	5	6			
IDM	100.42	96.13	98.27	101.75	99.65	100.18	99.40	1.79	1.80
TR IDM	100.33	97.19	98.73	99.68	101.49	100.15	99.60	1.35	1.36
MAN PHY	102.48	101.07	96.73	111.27	101.37	113.99	104.48	6.08	5.82
MAN SOL	103.16	109.01	98.30	99.81	102.58	97.94	101.80	3.77	3.71
PEG PHY	100.00	111.20	95.56	95.26	100.91	103.66	101.10	5.39	5.33
PEG SOL	100.90	101.70	101.48	98.67	109.32	102.52	102.43	3.30	3.22
PVP PHY	100.22	99.28	99.83	100.43	99.96	104.50	100.70	1.73	1.72
PVP SOL	105.79	98.21	105.58	105.67	101.98	103.34	103.43	2.73	2.63
SLS PHY	101.41	96.68	100.89	94.80	95.05	102.31	98.52	3.10	3.15
SLS SOL	107.28	105.95	98.88	95.83	95.96	100.40	100.72	4.48	4.45

TABLE 43 WEIGHT VARIATION OF CAPSULE

SAMPLE	WEIGHT OF CAPSULE (mg)						AVERAGE	SD	%CV
	1	2	3	4	5	6			
IDM	184.60	189.70	190.50	175.60	179.00	186.70	184.35	5.43	2.95
TREATED IDM	183.90	173.40	179.90	182.70	183.70	187.10	181.78	4.30	2.37
MAN PHY	209.90	209.20	208.50	203.30	208.80	196.00	205.95	4.95	2.40
MAN SOL	198.00	198.40	198.40	207.90	198.70	205.90	201.22	4.07	2.02
PEG PHY	211.50	197.40	216.70	208.30	201.30	194.00	204.87	7.98	3.90
PEG SOL	216.60	202.00	201.20	218.40	195.50	215.20	208.15	8.87	4.26
PVP PHY	202.30	199.90	200.80	201.70	205.50	201.70	201.98	1.75	0.87
PVP SOL	210.80	215.90	208.50	198.20	205.40	205.80	207.43	5.42	2.61
SLS PHY	182.20	189.80	193.40	195.90	188.90	188.30	189.75	4.30	2.27
SLS SOL	180.40	183.50	186.40	183.60	188.40	190.10	185.40	3.26	1.76

TABLE 44 THE DISINTEGRATION TIME OF ALL CAPSULES

SAMPLE	DISINTEGRATION TIME OF THE CAPSULE (MIN)						AVERAGE	SD	% CV
	1	2	3	4	5	6			
IDM	2.6	3.1	3.0	3.1	3.2	2.8	2.9	0.20	6.65
TREATED IDM	2.6	2.6	2.7	2.7	2.7	2.8	2.7	0.08	3.10
MAN PHY	3.3	3.2	3.2	3.3	3.1	3.3	3.2	0.06	1.89
MAN SOL	3.0	3.1	3.1	3.1	3.0	3.2	3.1	0.06	1.98
PEG PHY	3.1	3.2	3.3	3.2	3.1	3.1	3.2	0.07	2.31
PEG SOL	3.1	3.1	3.1	3.2	3.1	3.1	3.1	0.04	1.32
PVP PHY	3.4	3.4	3.4	3.2	3.2	3.3	3.3	0.10	2.95
PVP SOL	3.0	3.1	3.1	3.0	3.1	3.0	3.1	0.03	1.05
SLS PHY	2.2	2.2	2.4	2.4	2.2	2.2	2.2	0.09	3.95
SLS SOL	2.1	2.2	2.1	2.2	2.2	2.1	2.1	0.04	2.03

TABLE 45 THE DISSOLUTION OF IDM FROM IDM-MAN PHYSICAL MIXTURE CAPSULE

TIME (MIN)	% DURG DISSOLVED 1	2	3	4	5	6	AVERAGE	SD	%CV
2	4.18	5.56	5.80	6.15	5.97	6.47	5.69	0.73	12.89
4	11.38	10.56	10.83	13.78	9.19	13.42	11.53	1.61	13.97
6	17.02	26.32	21.70	32.32	24.57	22.14	24.01	4.70	19.57
8	35.42	43.57	40.43	48.53	41.04	37.82	41.14	4.18	10.16
10	50.37	56.57	55.29	59.93	56.44	52.75	55.22	3.03	5.49
12	61.84	66.08	65.05	68.11	66.16	63.88	65.19	1.97	3.02
14	70.00	72.67	73.07	74.91	73.56	71.21	72.57	1.59	2.19
16	76.42	78.30	78.15	80.33	80.06	77.72	78.50	1.35	1.72
18	81.49	82.39	83.46	84.95	87.29	82.97	83.76	1.90	2.27
20	86.39	86.10	87.99	89.19	89.65	87.39	87.79	1.32	1.50

TABLE 46 THE DISSOLUTION OF IDM FROM IDM-MAN COPRECIPITATE CAPSULE

TIME (MIN)	%DRUG DISSOLVED 1	2	3	4	5	6	AVERAGE	SD	%CV
2	4.46	4.63	5.07	7.16	7.16	4.41	5.48	1.21	21.99
4	22.74	13.29	16.94	26.89	19.00	13.85	18.79	4.82	25.65
6	49.86	39.69	43.88	54.30	39.77	42.20	44.95	5.40	12.01
8	72.07	73.21	72.06	73.75	71.41	73.13	72.60	0.81	1.12
10	87.41	87.58	87.11	87.36	85.99	85.84	86.88	0.70	0.80
12	96.48	96.58	95.93	96.28	94.78	93.22	95.54	1.20	1.26
14	102.42	101.63	101.84	102.48	101.29	99.24	101.48	1.09	1.07
16	107.76	106.30	106.31	106.73	105.96	104.10	106.19	1.10	1.03
18	111.85	109.93	109.74	110.40	109.80	107.78	109.92	1.20	1.09
20	114.49	112.75	112.99	113.30	112.83	110.48	112.81	1.19	1.06

TABLE 47 THE DISSSOLUTION OF IDM FROM IDM-PEG PHYSICAL MIXTURE CAPSULE

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	AVERAGE	SD	%CV
2	4.04	11.52	10.54	12.78	12.21	12.13	10.54	2.99	28.37
4	22.93	24.17	29.06	21.66	24.10	19.14	23.51	3.01	12.81
6	38.65	42.98	44.70	39.58	40.54	33.13	39.93	3.66	9.17
8	51.98	53.12	55.35	51.83	53.02	43.97	51.54	3.58	6.94
10	61.35	63.32	63.81	60.76	61.52	53.79	60.76	3.30	5.43
12	68.86	70.44	70.63	66.76	70.06	61.07	67.97	3.35	4.93
14	74.31	75.72	75.80	72.39	73.17	67.32	73.12	2.87	3.93
16	79.02	80.19	80.06	77.05	77.71	72.74	77.80	2.53	3.25
18	83.96	84.28	84.90	81.55	81.88	78.20	82.46	2.27	2.75
20	86.42	88.17	86.39	83.27	85.66	81.30	85.20	2.27	2.66

TABLE 48 THE DISSOLUTION OF IDM FROM IDM-PFG COPRECIPITATE CAPSULE

TIME (MIN)	% DURG DISSOLVED 1	2	3	4	5	6	AVERAGE	SD	%CV
2	4.00	3.31	3.33	2.28	3.86	3.26	3.34	0.55	16.59
4	8.20	9.13	11.48	8.93	9.68	9.22	9.44	1.01	10.74
6	30.71	30.30	30.73	33.27	31.20	23.47	29.95	3.05	10.18
8	50.90	52.85	50.10	53.59	48.78	43.95	50.03	3.16	6.31
10	66.84	69.75	67.31	70.26	64.76	62.46	66.90	2.70	4.04
12	80.04	83.67	80.88	84.00	77.63	76.68	80.48	2.75	3.42
14	90.27	93.74	91.42	92.71	87.58	88.30	90.67	2.21	2.44
16	98.66	103.46	99.73	101.09	96.52	97.51	99.49	2.30	2.31
18	105.59	108.27	106.21	107.82	102.30	105.43	105.94	1.94	1.83
20	111.60	113.73	111.90	113.64	108.33	111.87	111.84	1.79	1.60

TABLE 49 THE DISSOLUTION OF IDM FROM IDM-PVP PHYSICAL MIXTURE CAPSULE

TIME (MIN)	%DRUG DISSOLVED 1	2	3	4	5	6	AVERAGE	SD	%CV
2	4.26	2.09	2.05	2.08	2.02	1.88	2.40	0.84	34.88
4	3.47	3.15	4.16	3.98	4.06	4.82	3.94	0.53	13.47
6	9.99	9.86	11.22	11.51	12.99	12.38	11.33	1.14	10.10
8	20.41	21.43	22.69	22.84	27.03	23.13	22.92	2.06	9.00
10	32.52	33.71	37.75	35.30	39.35	33.54	35.36	2.44	6.90
12	43.30	43.97	50.63	49.29	50.74	44.84	47.13	3.16	6.70
14	52.92	53.25	61.94	61.71	60.99	53.50	57.38	4.17	7.27
16	62.81	63.43	72.08	71.50	70.29	62.64	67.12	4.20	6.26
18	71.35	70.96	79.80	79.89	78.03	71.83	75.31	3.98	5.29
20	77.90	78.95	85.49	86.25	86.63	79.62	82.48	3.70	4.48

TABLE 50 THE DISSOLUTION OF IDM FROM IDM-PVP COPRECIPITATE CAPSULE

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	AVERAGE	SD	%CV
2	10.98	10.98	11.10	11.10	10.36	10.36	10.81	0.33	3.03
4	34.39	35.56	36.14	35.36	37.64	37.84	36.16	1.23	3.42
6	67.37	70.71	71.07	63.94	69.77	70.99	68.97	2.58	3.75
8	78.41	79.42	77.10	74.87	79.77	81.00	78.43	1.99	2.54
10	84.62	91.12	86.72	84.68	88.42	89.05	87.43	2.35	2.69
12	99.10	99.76	98.39	95.74	100.98	102.22	99.37	2.04	2.06
14	100.72	102.77	103.59	101.32	106.11	105.12	103.27	1.92	1.86
16	101.77	104.41	104.67	104.76	108.42	107.23	105.21	2.14	2.03
18	101.45	104.89	104.55	106.82	109.53	107.31	105.76	2.54	2.40
20	101.51	105.17	104.63	107.31	111.45	107.39	106.24	3.05	2.87

TABLE 51 THE DISSOLUTION OF IDM FROM IDM-SLS PHYSICAL MIXTURE CAPSULE

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	AVERAGE	SD	%CV
2	4.24	8.22	8.54	6.07	5.06	6.46	6.43	1.55	24.15
4	25.66	15.35	18.07	18.23	16.19	24.52	19.67	3.98	20.22
6	46.21	32.08	38.68	39.11	39.46	40.16	39.28	4.10	10.45
8	58.82	50.27	53.73	53.71	47.12	52.37	52.67	3.58	6.79
10	67.48	60.92	63.00	63.62	63.20	62.12	63.39	2.03	3.20
12	74.58	68.59	69.86	69.55	70.62	68.99	70.37	1.99	2.83
14	80.52	74.39	75.63	75.33	75.95	74.93	76.12	2.03	2.66
16	84.68	78.70	80.49	80.42	80.15	80.11	80.76	1.85	2.29
18	88.25	82.46	84.61	84.43	85.53	84.55	84.97	1.73	2.04
20	91.44	85.86	87.81	87.55	88.81	87.45	88.15	1.71	1.94

TABLE 52 THE DISSOLUTION OF IDM FROM IDM-SLS COPRECIPITATE CAPSULE

TIME (MIN)	% DRUG DISSOLVED 1	2	3	4	5	6	AVERAGE	SD	%CV
2	13.60	13.60	12.08	12.08	12.47	12.47	12.71	0.65	5.08
4	21.31	21.94	16.64	19.37	24.44	25.43	21.52	2.96	13.74
6	26.52	53.41	50.45	48.72	56.35	57.94	48.90	10.49	21.46
8	77.47	76.22	71.63	71.83	78.35	80.53	76.00	3.28	4.32
10	89.73	94.24	85.35	83.80	88.02	89.24	88.40	3.35	3.79
12	98.36	102.08	93.89	96.62	96.98	98.79	97.79	2.48	2.54
14	106.22	105.63	103.08	100.18	101.70	103.72	103.42	2.10	2.03
16	110.21	108.59	107.06	104.34	107.23	108.48	107.65	1.81	1.68
18	110.72	110.73	108.34	107.74	109.10	109.97	109.43	1.14	1.04
20	111.02	111.24	108.65	109.61	109.61	111.45	110.26	1.03	0.94

TABLE 56 THE SURFACE TENSION OF SOLUTION

SAMPLE	SURFACE TENSION (DYNE/CM) 1	2	3	AVERAGE	CORRECTE VALUE
IDM	53.00	54.00	54.00	53.67	53.23
TREATED IDM	43.00	46.00	47.00	45.33	44.96
MAN PHY 1:1	54.00	55.00	56.00	55.00	54.55
MAN PHY 1:5	52.50	54.50	54.50	53.83	53.39
MAN PHY 1:10	51.50	48.50	50.00	50.00	49.59
MAN SOL 1:1	45.00	48.00	49.50	47.50	47.11
MAN SOL 1:5	42.00	44.00	45.00	43.67	43.31
MAN SOL 1:10	52.50	52.50	52.00	52.33	51.90
PEG PHY 1:1	46.50	48.50	49.00	48.00	47.61
PEG PHY 1:5	45.00	45.00	45.00	45.00	44.63
PEG PHY 1:10	48.00	49.00	48.50	48.50	48.10
PEG SOL 1:1	50.50	51.00	51.50	51.00	50.58
PEG SOL 1:5	48.00	49.00	49.80	48.93	48.53
PEG SOL 1:10	45.00	45.00	45.00	45.00	44.63
PVP PHY 1:1	50.00	51.00	50.50	50.50	50.09
PVP PHY 1:5	49.50	51.00	50.00	50.17	49.76
PVP PHY 1:10	48.00	51.00	49.00	49.00	48.60
PVP SOL 1:1	52.00	52.50	52.00	52.17	51.74
PVP SOL 1:5	55.00	55.00	55.00	55.00	54.55
PVP SOL 1:10	57.00	57.00	57.00	57.00	56.53
SLS PHY 1:0.1	31.20	31.00	31.00	31.07	30.81
SLS PHY 1:0.5	32.50	32.00	32.00	32.17	31.90
SLS PHY 1:1.0	32.00	32.00	32.00	32.00	31.74
SLS SOL 1:0.1	32.00	32.00	32.00	32.00	31.74
SLS SOL 1:0.5	32.00	32.00	32.00	32.00	31.74
SLS SOL 1:1.0	32.00	32.00	32.00	32.00	31.74

TABLE 57 THE RECORDED TIME FROM OSTWALD VISCOMETER

SAMPLE	TIME (MIN)			AVERAGE	AVERAGE
	1	2	3	(MIN)	(SEC)
WATER	1.12	1.12	1.12	1.12	71.72
IDM	1.13	1.13	1.14	1.13	73.21
TREATED IDM	1.09	1.09	1.09	1.09	68.92
MAN PHY 1:1	1.14	1.14	1.14	1.14	74.25
MAN PHY 1:5	2.09	2.10	2.10	2.10	129.55
MAN PHY 1:10	1.46	1.47	1.47	1.47	106.55
MAN SOL 1:1	1.12	1.13	1.14	1.13	73.11
MAN SOL 1:5	1.22	1.30	1.24	1.25	85.14
MAN SOL 1:10	1.27	1.28	1.30	1.28	88.20
PEG PHY 1:1	1.43	1.43	1.44	1.43	103.41
PEG PHY 1:5	12.22	12.26	12.26	12.25	744.51
PEG PHY 1:10	13.48	13.50	13.49	13.49	828.64
PEG SOL 1:1	1.40	1.40	1.40	1.40	100.08
PEG SOL 1:5	2.17	2.22	2.29	2.23	142.68
PEG SOL 1:10	2.43	2.44	2.47	2.44	164.46
PVP PHY 1:1	2.31	2.32	2.31	2.32	151.54
PVP PHY 1:5	15.27	15.25	15.31	15.28	927.95
PVP PHY 1:10	10.50	10.56	10.52	10.53	652.72
PVP SOL 1:1	3.10	3.10	3.11	3.11	190.51
PVP SOL 1:5	20.47	21.25	21.24	20.98	1298.22
PVP SOL 1:10	24.58	24.70	24.44	24.57	1497.20
SLS PHY 1:0.1	1.35	1.21	1.25	1.27	87.24
SLS PHY 1:0.5	1.43	1.42	1.46	1.44	103.66
SLS PHY 1:1.0	1.21	1.20	1.25	1.20	80.32
SLS SOL 1:0.1	1.10	1.10	1.10	1.10	69.88
SLS SOL 1:0.5	1.16	1.18	1.18	1.17	77.20
SLS SOL 1:1.0	1.15	1.16	1.15	1.16	75.63

TABLE 58 THE VISCOSITY OF SOLUTION

SAMPLE	VISCOSITY (poise)
IDM	0.82
TREATED IDM	0.78
MAN PHY 1:1	0.85
MAN PHY 1:5	1.54
MAN PHY 1:10	1.27
MAN SOL 1:1	0.84
MAN SOL 1:5	0.99
MAN SOL 1:10	1.03
PEG PHY 1:1	1.17
PEG PHY 1:5	8.71
PEG PHY 1:10	9.69
PEG SOL 1:1	1.14
PEG SOL 1:5	1.63
PEG SOL 1:10	1.89
PVP PHY 1:1	1.72
PVP PHY 1:5	10.80
PVP PHY 1:10	7.57
PVP SOL 1:1	2.18
PVP SOL 1:5	14.83
PVP SOL 1:10	17.10
SLS PHY 1:0.1	0.92
SLS PHY 1:0.5	1.18
SLS PHY 1:1.0	0.91
SLS SOL 1:0.1	0.79
SLS SOL 1:0.5	0.87
SLS SOL 1:1.0	0.86

TABLE 59 THE DENSITY OF SOLUTION FROM PYCNOMETER

SAMPLE	WEIGHT OF SAMPLE			DENSITY
	TOTAL (mg)	EMPTY (mg)	NET (mg)	(mg/ml)
IDM	22.52	12.64	9.88	0.99
TREATED IDM	22.82	13.81	10.01	1.00
MAN PHY 1:1	22.69	12.65	10.03	1.00
MAN PHY 1:5	23.29	12.83	10.46	1.05
MAN PHY 1:10	23.16	12.65	10.50	1.05
MAN SOL 1:1	22.92	12.83	10.10	1.01
MAN SOL 1:5	23.04	12.82	10.21	1.02
MAN SOL 1:10	22.96	12.65	10.30	1.03
PEG PHY 1:1	22.63	12.66	9.96	1.00
PEG PHY 1:5	23.13	12.83	10.30	1.03
PEG PHY 1:10	22.93	12.64	10.29	1.03
PEG SOL 1:1	22.86	12.81	10.05	1.00
PEG SOL 1:5	22.69	12.65	10.04	1.00
PEG SOL 1:10	22.92	12.82	10.10	1.01
PVP PHY 1:1	22.66	12.65	10.01	1.00
PVP PHY 1:5	23.06	12.81	10.24	1.02
PVP PHY 1:10	22.85	12.64	10.21	1.02
PVP SOL 1:1	22.88	12.82	10.06	1.01
PVP SOL 1:5	22.70	12.64	10.06	1.01
PVP SOL 1:10	22.87	12.82	10.06	1.01
SLS PHY 1:0.1	22.59	12.82	10.06	1.01
SLS PHY 1:0.5	22.82	12.82	10.00	1.00
SLS PHY 1:1.0	22.62	12.64	9.97	1.00
SLS SOL 1:0.1	22.80	12.81	9.90	1.00
SLS SOL 1:0.5	22.62	12.64	9.98	1.00
SLS SOL 1:1.0	22.83	12.82	10.02	1.00

TABLE 60 THE RECORDS OF PENETRATION TIME FOR WETTABILITY STUDY

SAMPLE	PENETRATION TIME (MINUTE)						AVERAGE	
	1	2	3	4	5	6	(MIN)	(SEC)
IDM	2.23	2.52	2.67	2.15	2.66	2.85	2.51	171.35
TREATED IDM	2.48	2.51	2.51	2.49	2.53	2.47	2.50	169.83
MAN PHY 1:1	0.11	0.15	0.14	0.12	0.14	0.14	0.13	13.22
MAN PHY 1:5	0.09	0.10	0.14	0.11	0.11	0.11	0.11	10.24
MAN PHY 1:10	0.10	0.88	0.11	0.09	0.09	0.09	0.22	22.44
MAN SOL 1:1	0.22	0.27	0.26	0.28	0.26	0.26	0.26	25.80
MAN SOL 1:5	0.08	0.08	0.06	0.07	0.08	0.08	0.08	7.59
MAN SOL 1:10	0.09	0.09	0.07	0.06	0.05	0.07	0.07	7.21
PEG PHY 1:1	0.12	1.27	0.13	0.13	0.13	0.13	0.32	12.77
PEG PHY 1:5	0.19	0.11	0.11	0.17	0.19	0.13	0.15	14.77
PEG PHY 1:10	0.15	0.14	0.15	0.17	0.17	0.16	0.15	15.43
PEG SOL 1:1	0.16	0.15	0.17	0.17	0.16	0.18	0.17	16.52
PEG SOL 1:5	0.37	0.27	0.30	0.29	0.29	0.28	0.30	30.08
PEG SOL 1:10	0.25	0.32	0.28	0.30	0.30	0.28	0.29	28.78
PVP PHY 1:1	-	-	-	-	-	-	-	-
PVP PHY 1:5	-	-	-	-	-	-	-	-
PVP PHY 1:10	-	-	-	-	-	-	-	-
PVP SOL 1:1	-	-	-	-	-	-	-	-
PVP SOL 1:5	-	-	-	-	-	-	-	-
PVP SOL 1:10	-	-	-	-	-	-	-	-
SLS PHY 1:0.1	0.12	0.13	0.16	0.16	0.17	0.21	0.16	15.84
SLS PHY 1:0.5	0.10	0.10	0.10	0.10	0.10	0.10	0.10	10.26
SLS PHY 1:1.0	0.08	0.08	0.08	0.08	0.08	0.08	0.08	8.14
SLS SOL 1:0.1	0.17	0.15	0.17	0.19	0.15	0.19	0.17	17.16
SLS SOL 1:0.5	0.54	0.22	0.28	0.24	0.26	0.23	0.30	29.59
SLS SOL 1:1.0	0.36	0.34	0.32	0.36	0.38	0.34	0.35	35.05

APPENDIX II

The wettability determination

The wettability of powder can be measured by penetration method. In order to see, if the measurement of penetration length of liquid in tablets allows, using the equation of Washburn (equation 2), a good calculation of the contact angle. The viscosity and the surface tension of the liquid must be known.

The length of penetration was 0.5 cm, and the radius of tube was 2.50 mm. Thus, the equation should be

$$(0.5)^2 = 2.5 \times (\cos \theta \times rt)/2\eta$$

$$\cos \theta = (0.25 \times 2\eta)/2.5\ rt$$

$$= 0.2\eta/rt \quad \ldots\ldots\ldots\ldots\ldots\ldots (4)$$

To obtain the viscosity, the ostwald viscometer was used as an equipment and poiseuille equation was used for calculation.

$$\eta = \pi Pr^4 t/8Ve \quad \ldots\ldots\ldots\ldots\ldots (5)$$

Table 67 The absolute viscosity of water at various temperature.

temp(^{o}C)	viscosity (poise)
25	0.8904
26	0.8705
27	0.8713
28	0.8327
29	0.8148
30	0.7975
31	0.7808

The investigated temperature was 29^{o}C, so the viscosity of water was 0.8148 poise. To determine the density of solution, the 10 ml pycnometer was used. The measured density of solution was shown in Table 59. The recorded time from ostwald viscometer was displayed in Table 57.

Thus, the viscosity was calculated and illustrated in Table 58.

To obtain the surface tension, the ring method was used for investigation. The tensiometer K 9 was the equipment. The interfacial tension was calibrated in this work with double distilled water (interfacial tension at 20^{o}C of water = 72.6 mN/m). The obtained water surface tension was 73.20 (dyne/cm), so the correction factor was

η - viscosity coeficient

p - pressure

r - radius of capillary

t - the different time between two points

V - volume of liquid

l - the length of capillary that liquid passed

In this case, the relative value was determined. The relative value was compared with standard solvent, so the equation would be

$$\eta_1/\eta_2 = d_1t_1/d_2t_2 \quad \ldots\ldots\ldots\ldots (6)$$

η_1/η_2 - relative viscosity

η_1 - absolute viscosity of sample 1

η_2 - absolute viscosity of sample 2

d_1 - density of liquid 1

d_2 - density of liquid 2

t_1 - time different of liquid 1

t_2 - time different of liquid 2

Water was used as standard solvent, accordind to the Table 67. The absolute viscosity of water at various temperature.

0.991803. Each datum was triplicate measurement and was shown in Table 61.

The penetration time of liquid was recorded for six determinations and was also seen in Table 60.

The cos of contact angle was obtained by using Washburn-Rideal equation 2, so the contact angle of powders were shown in Table 55 with both cos of angle and degree of contact angle.

VITA

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