

REFERENCES

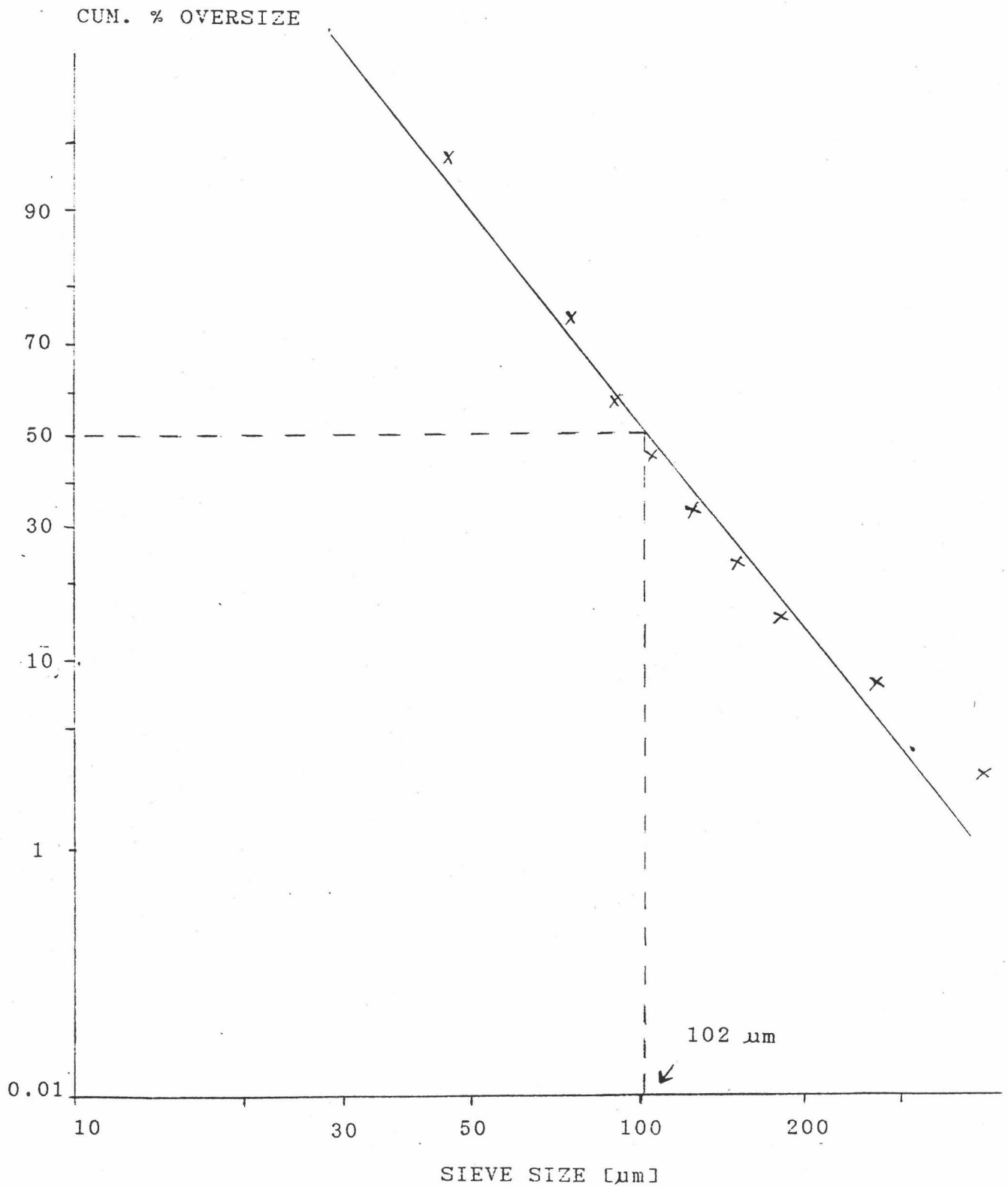
- American Pharmaceutical Association (A.Ph.A.) 1986
Handbook of Pharmaceutical Excipients pp.
296-297 USA : np.
- Bolhuis, G.K. and Lerk, C.F. 1973 Comparative
Evaluation of Excipients for Direct Compression
I Pharm. Weekbl. 108 : 469-481.
- Bos, C.E., Bolhuis, G.K., Van Doorne, H. and Lerk, C.F.
1987 Native Starch in Tablet Formulations
: Properties on Compaction Pharm. Weekbl.
(Sci.) 9 : 274-282
- Creighton, T.E. 1990 Protein Function A Practical
Approach pp. 101-105 Oxford, England : IRL
Press
- Federal Register 1964, Oct. 20 29 : 14403
- Graefe, G. 1964 Staerke 16 : 158
- Hanson, L.P. 1974 Vegetable Protein Processing,
pp.166-167 New Jersey: Noyes Data Corporation
- Herman, J., Remon, J.P., and De Vilder, J. 1989
Modified Starches as Hydrophilic Matrices for
Controlled Oral Delivery I. Production and
Characterisation of Thermally Modified Starches
Int. J. Pharm. 56 : 51-63.

- Hogan, J.T. 1967 The Manufacture of Rice Starch
in Whistler, R.L. and Paschall, E.F. (eds.),
Starch: Chemistry and Technology Vol II, pp.
79-85 New York : Academic Press.
- Kerr, Ralph W. and Cleveland, Frank C. 1960 U.S.
Patents 2,938,901 Surgical Dusting Powder
and Process Therefor
- Lieberman , H.A. and Lachman , L. 1981
Pharmaceutical Dosage Forms Vol II, p. 228
New York : Marcel Dekker
- Limmatvapirat, Sontaya 1991 Utilization of
Cellulose from Bagasse as Excipient for Tablet
Preparations pp. 75-77. Master's Thesis,
Chulalongkorn University.
- Mitrevej, Ampol, Varavinit, Saiyavit and Sinchaipanid,
Nuttanan 1990 Comparative Evaluation
of Direct Compression Fillers : Application of
Spray-dried Rice Starch in Tableting,
pp. 132-145 NUS-JSPS Seminar, Chiba, Japan
- Mukhprasert, Amornratana 1992 Chemical Modification
of Rice Flour and Its Utilization in Tempura
Flour, p.5 Master's Thesis, Chulalongkorn
University.
- Perry, R.H. and Chilton, C.H. 1973 Chemical

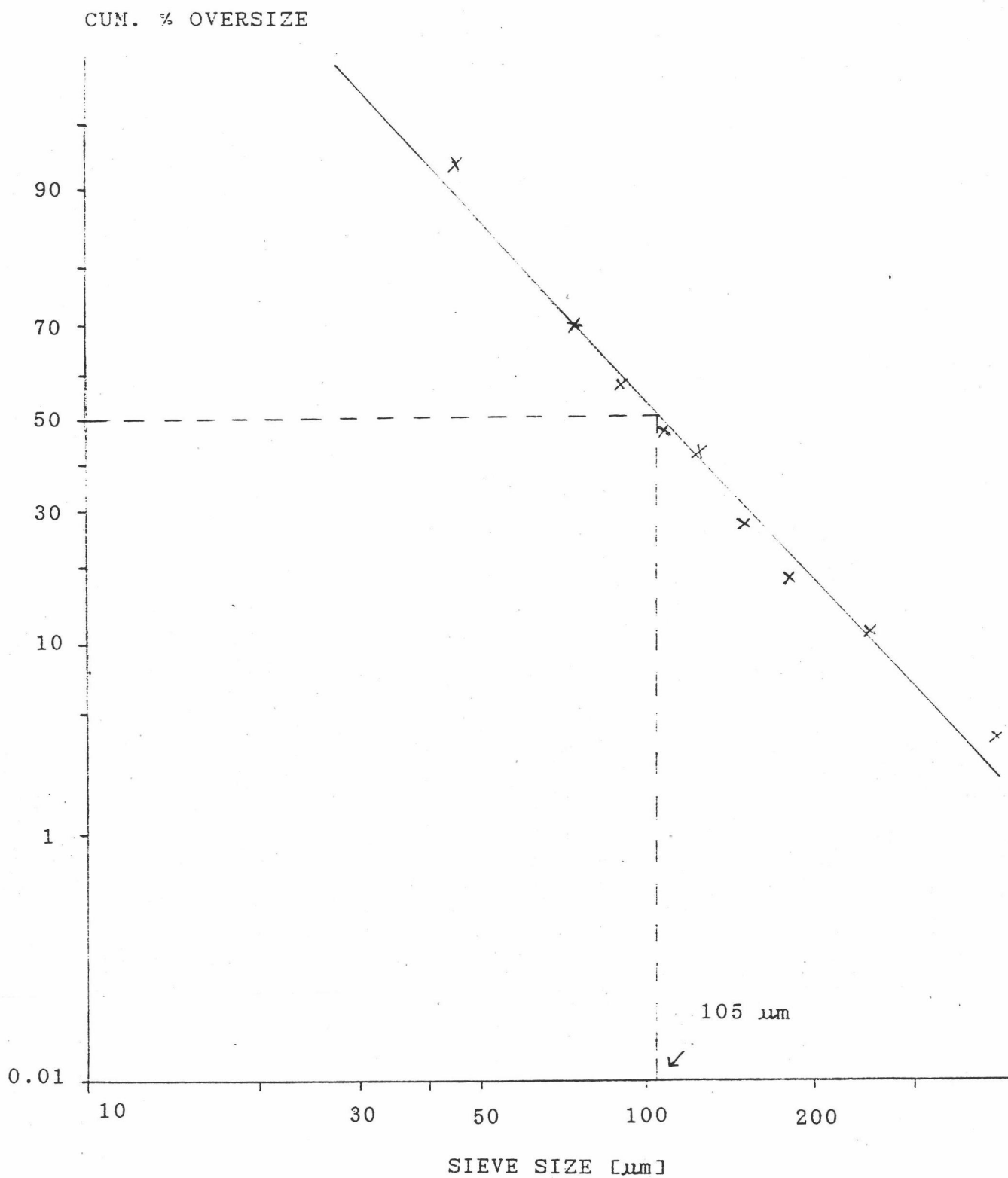
- Engineers' Handbook, 5th edn., pp.20-59 - 20-63
Japan: Mc Graw-Hill Kogakusha
- Rutenberg, M.W. 1980 Starch and Its
Modifications in Davidson, R.L. (ed.), Handbook
of Water Soluble Gums and Resins, pp. 22-1
- 22-50 New York : McGraw-Hill
- _____, M.W. and Solarek, D. 1984 Crosslinked
Starch in Whistler, R.L., Bemiller, J.N. and
Paschall, J.F., Starch Chemistry and Technology
2 nd edn., pp. 324-332 London : Academic Press
- Schoch, T.J. 1967 Properties and Uses of Rice
Starch in Whistler, R.L., and Paschall, E.F.
(eds.), Starch : Chemistry and Technology
Vol II, pp. 79-85 New York : Academic Press
- Swinkels, Ir. J.J.M. Industrial Starch Chemistry
Avebe Product information p. 10
- Visavarungroj, N. and Remon, J.P. 1990
Crosslinked Starch as a Disintegrating Agent
Int. J. Pharm. 62 : 125-131.
- Zobel, H.F. 1984 Gelatinization of Starch and
Mechanical Properties of Starch Pastes in
Whistler, R.L., Bemiller, J.N., and Paschall,
J.F., Starch Chemistry and Technology, 2 nd
edn., pp. 285-309 London : Academic Press

APPENDICES

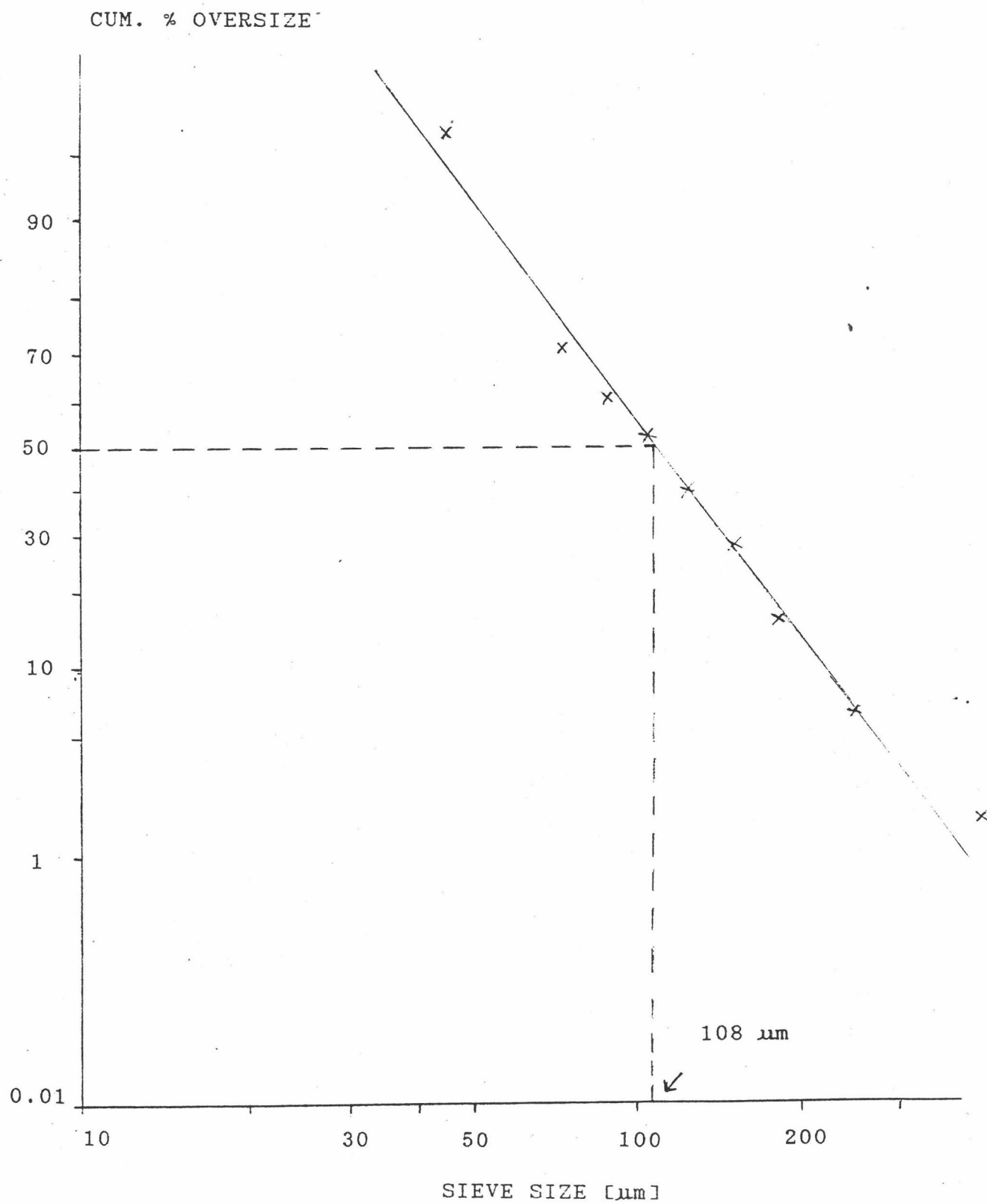
Appendix 1 Mean Wt. Diameter of S.A. (Temp. 130 °C)



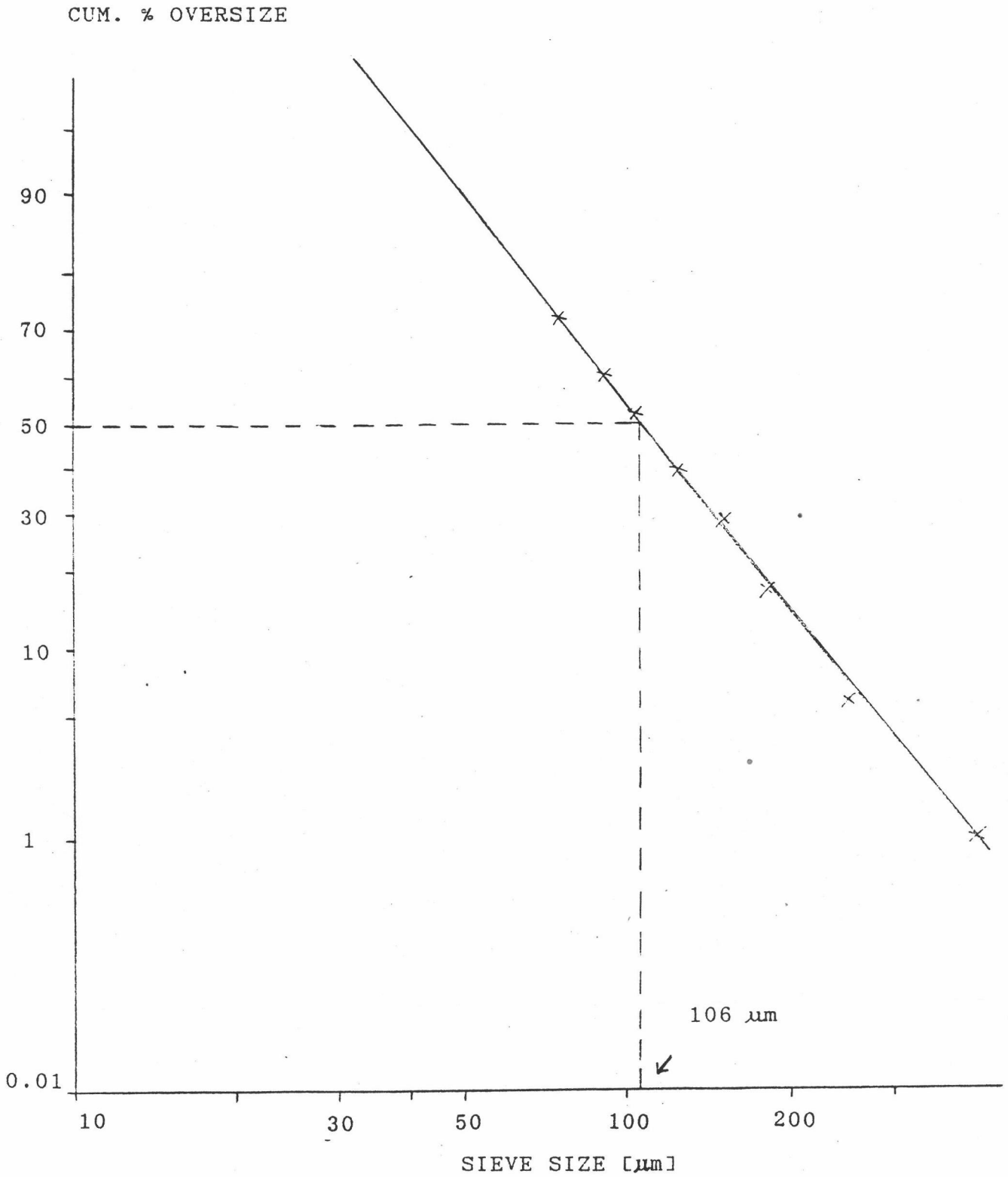
Appendix 2 Mean Wt. Diameter of S.A. (Temp. 135 °C)



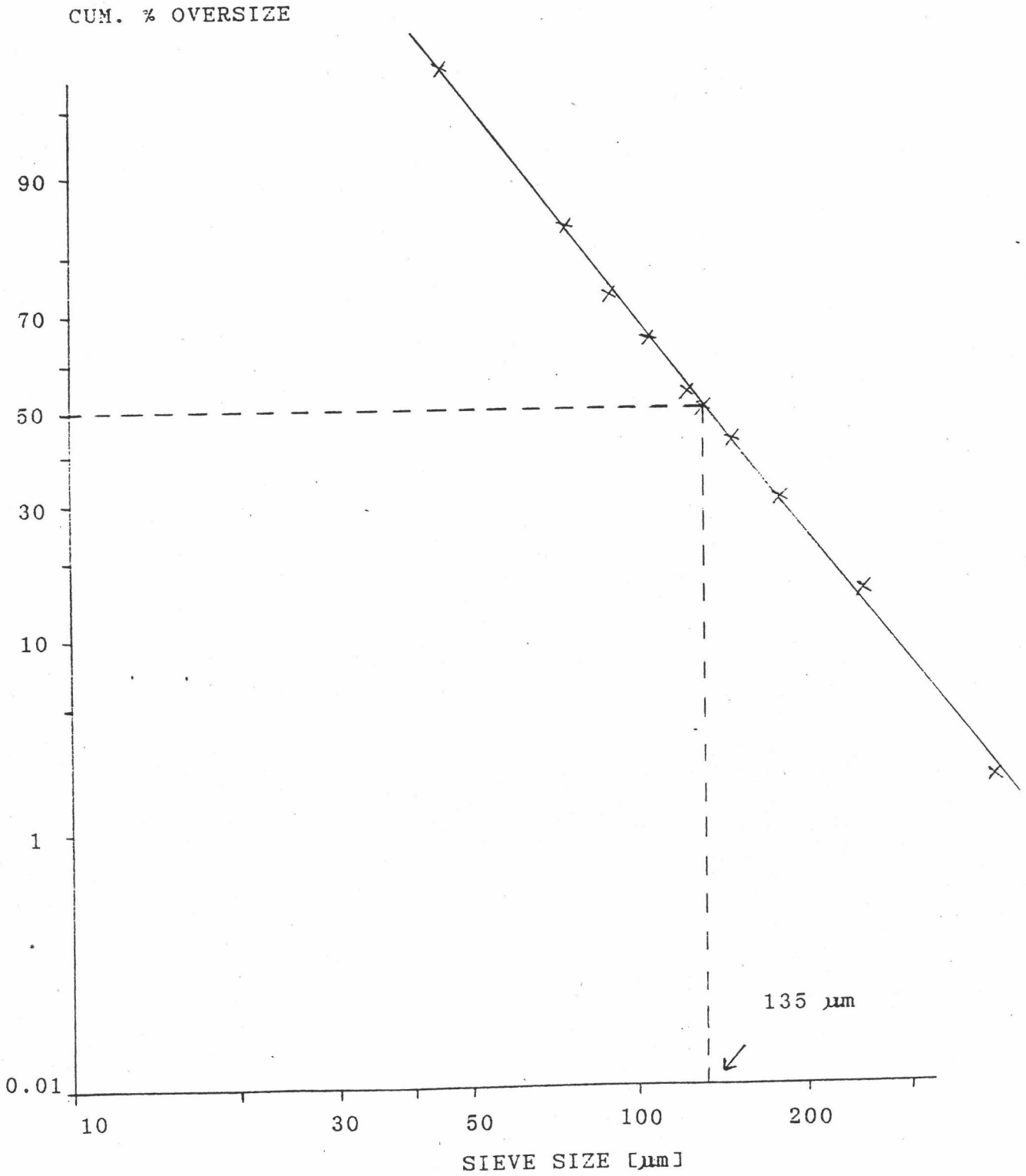
Appendix 3 Mean Wt. Diameter of S.A. (F.R. 4.32 g/min)



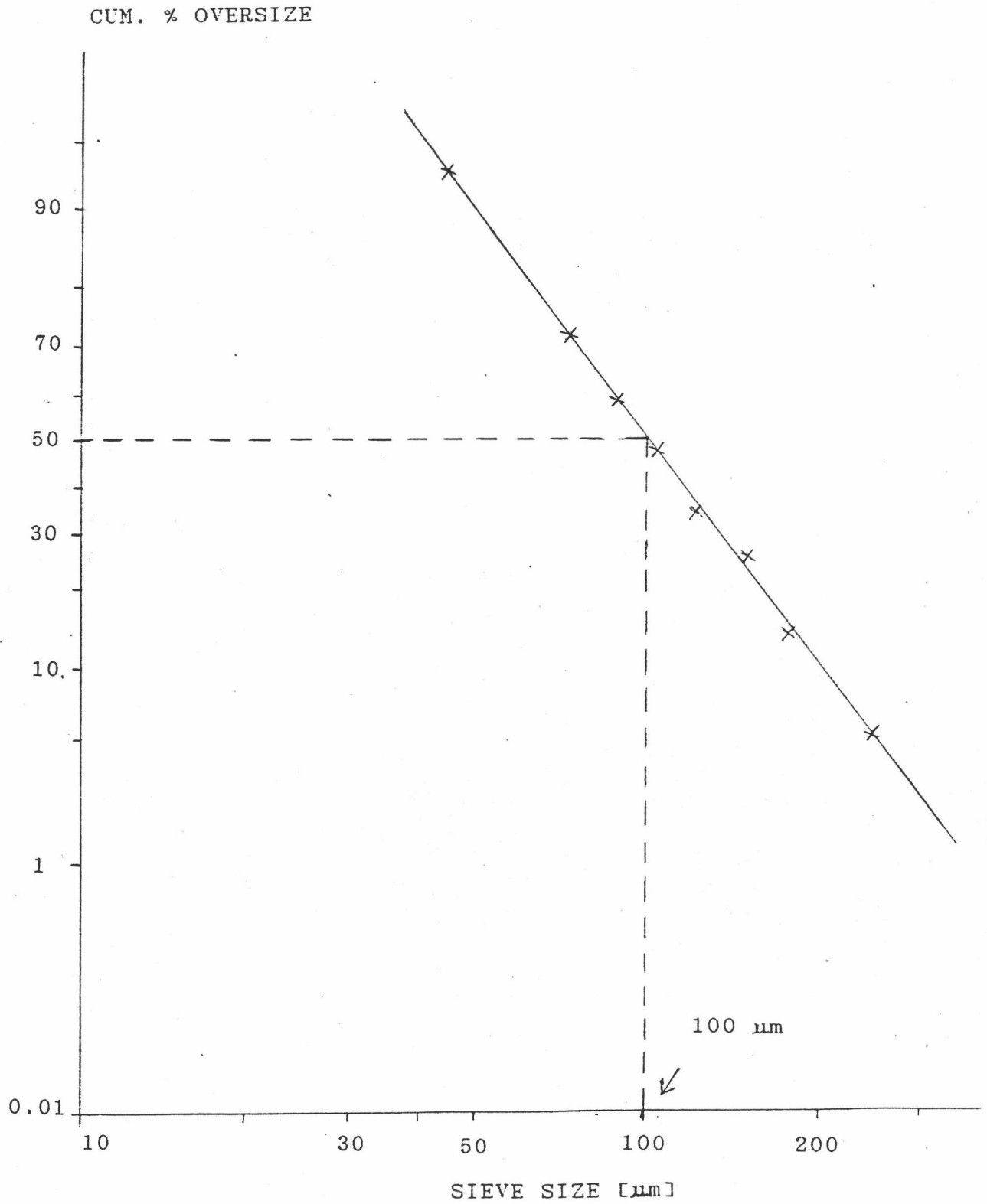
Appendix 4 Mean Wt. Diameter of S.A. (F.R. 21.60 g/min)



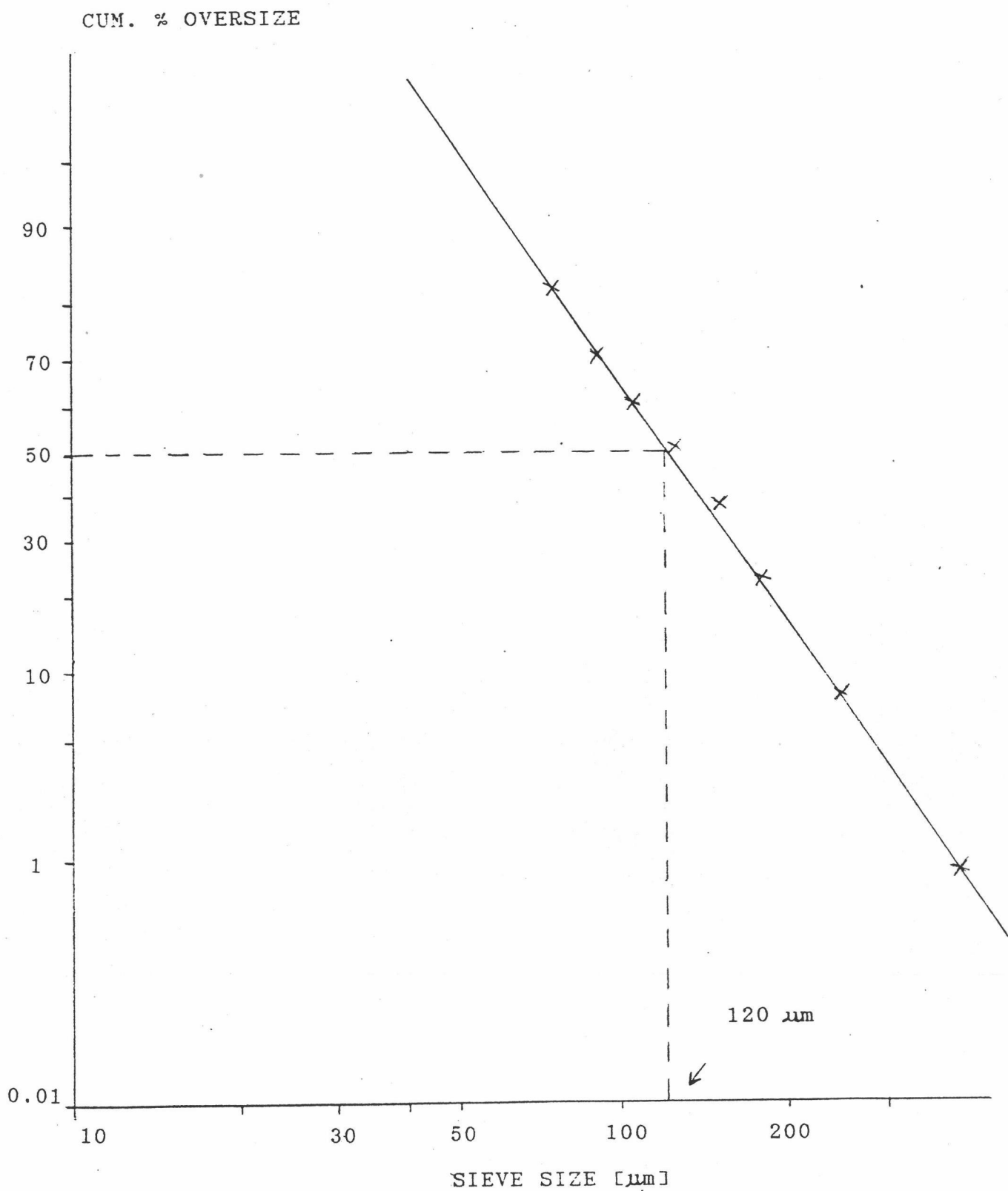
Appendix 5 Mean Wt. Diameter of S.A. Cl. 2 hrs.



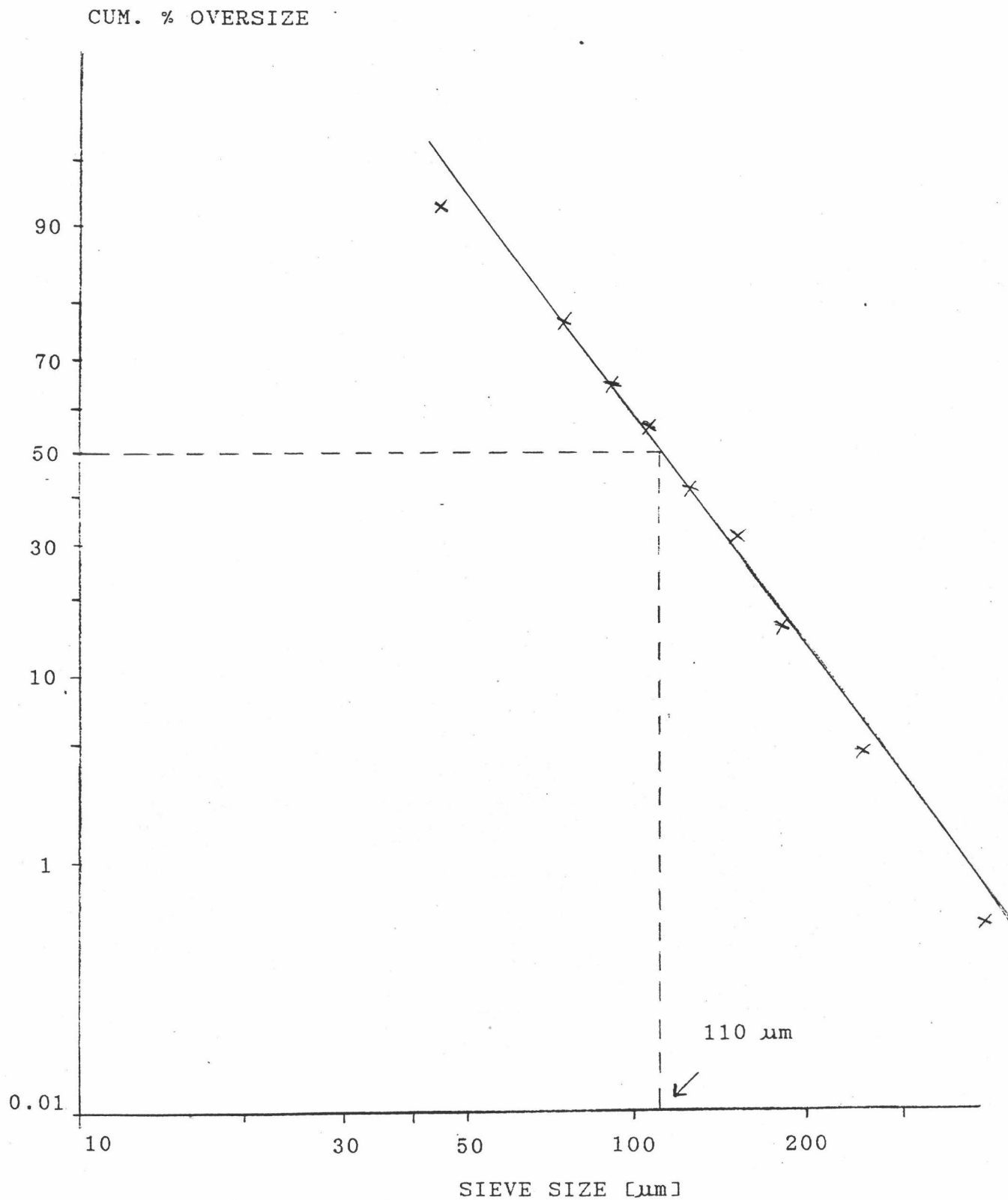
Appendix 6 Mean Wt. Diameter of S.A. Cl. 6 hrs.



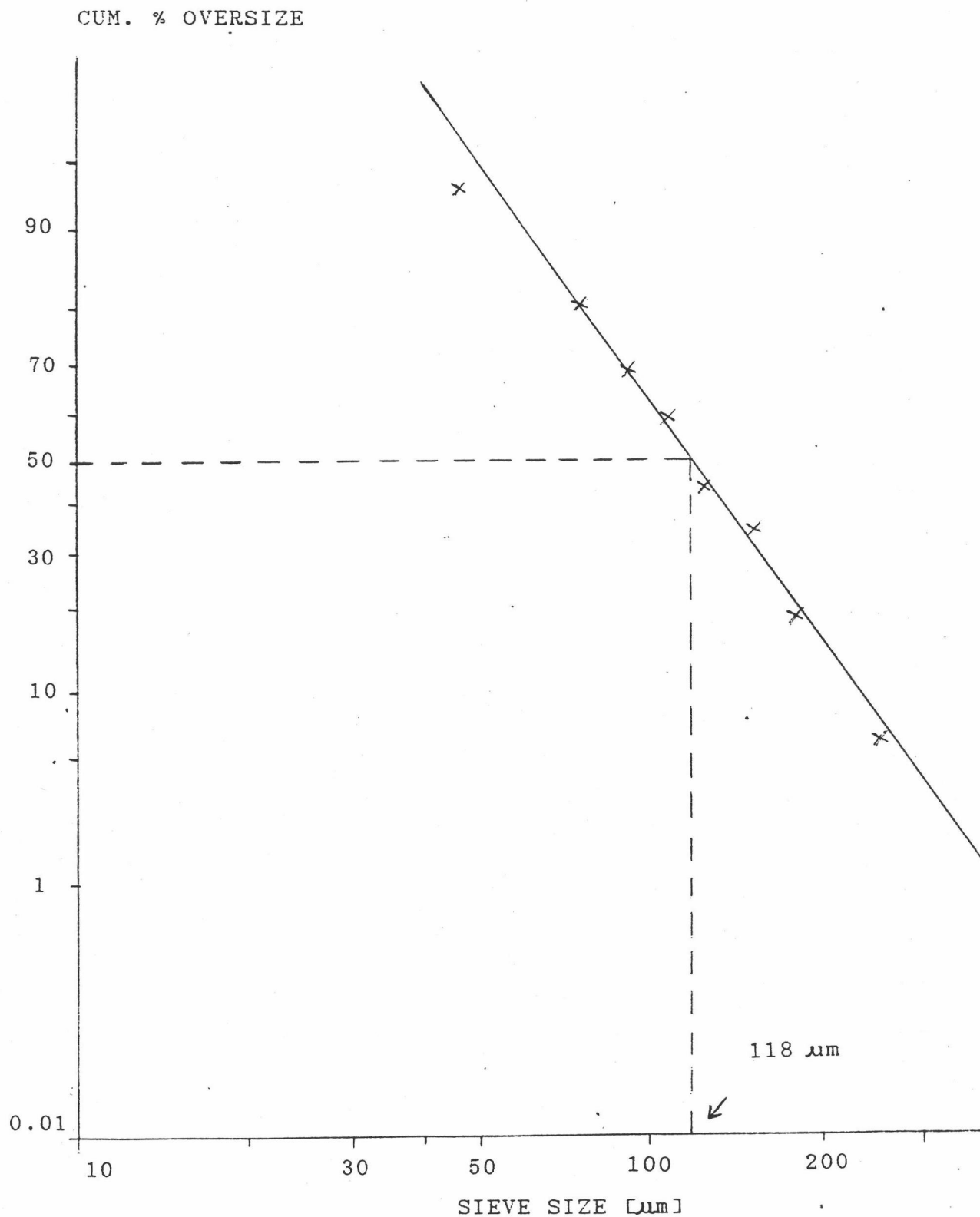
Appendix 7 Mean Wt. Diameter of S.A. Cl. 10 hrs.



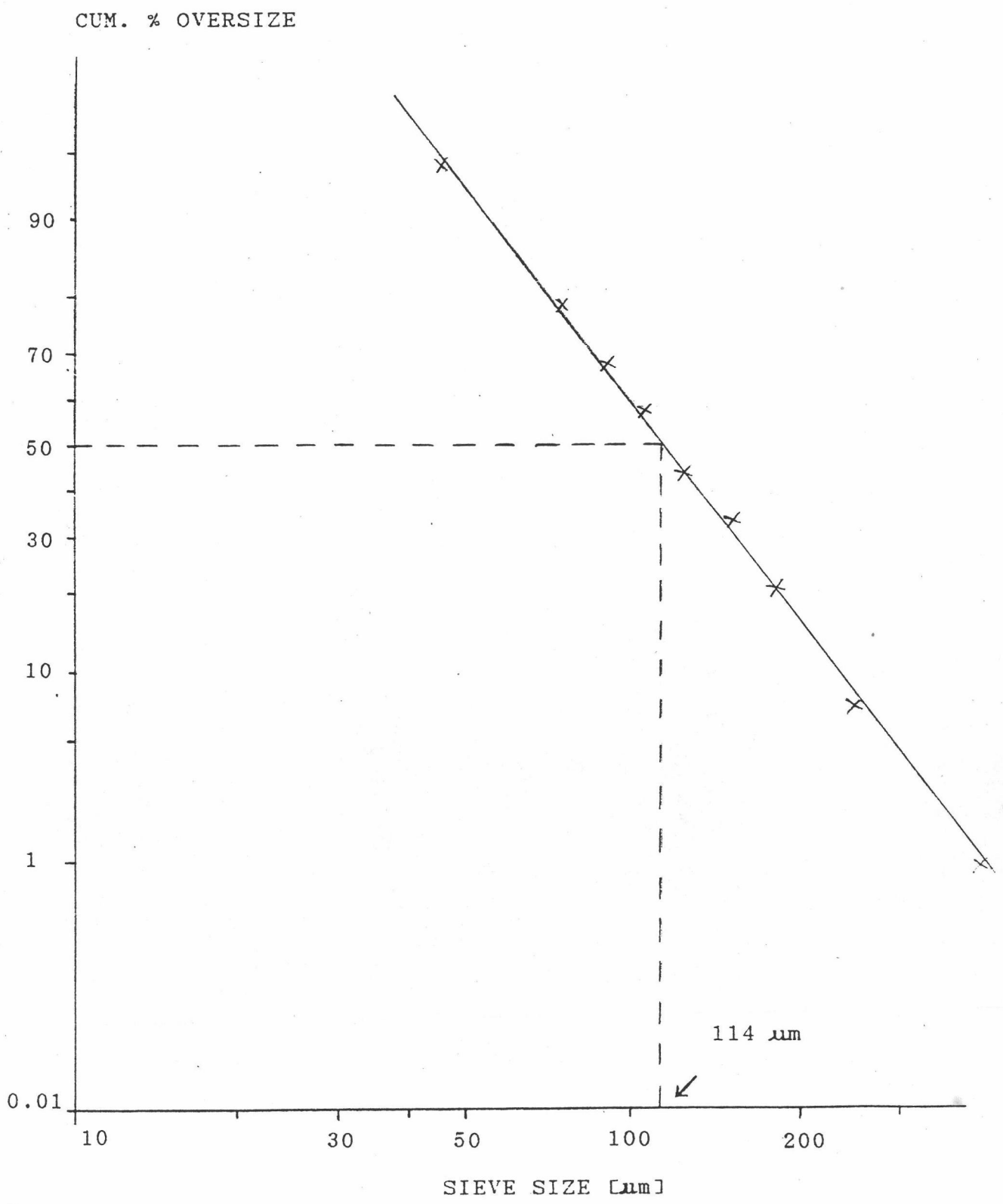
Appendix 8 Mean Wt. Diameter of S.A. DP.



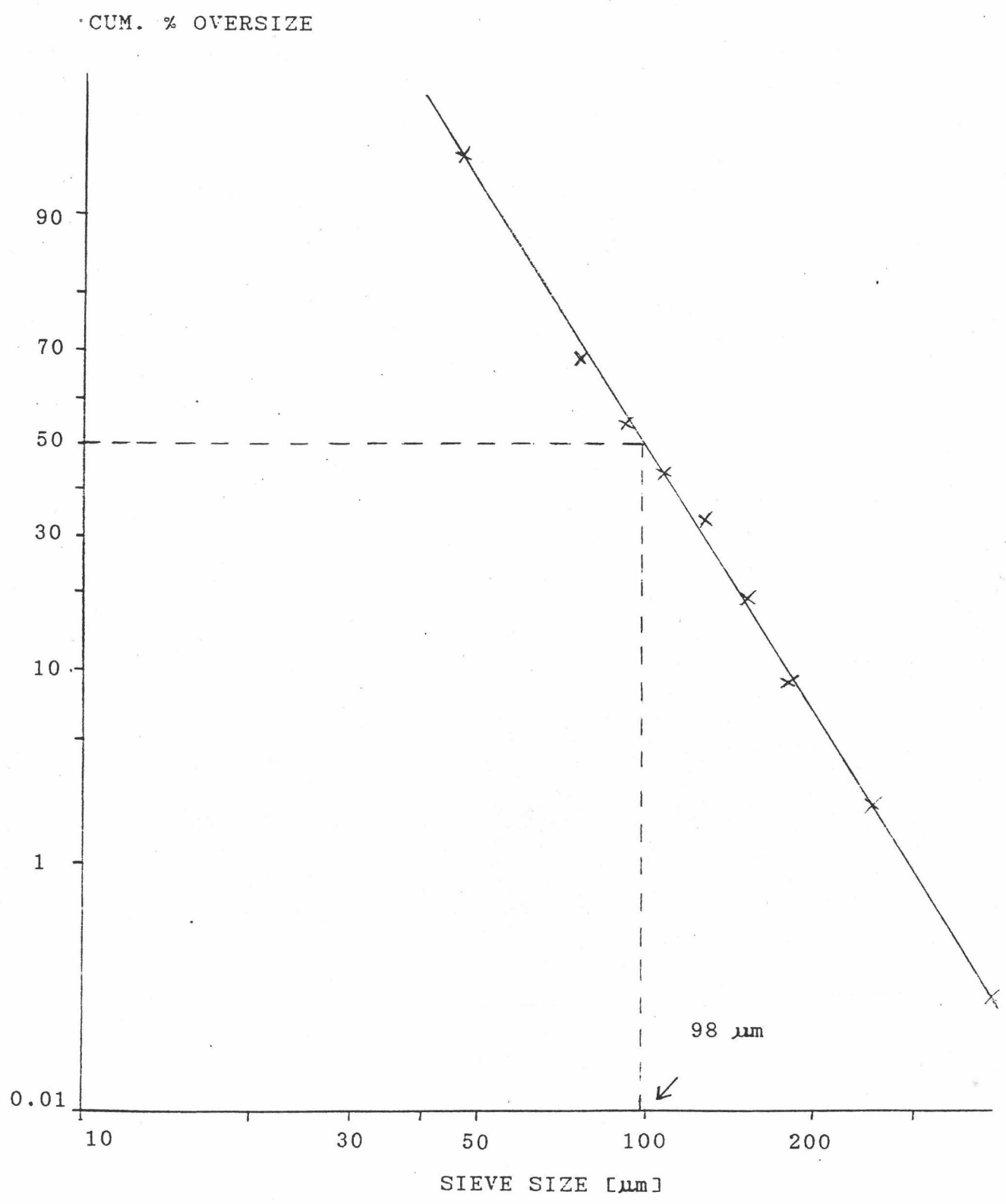
Appendix 9 Mean Wt. Diameter of S.A. DP., Cl. 2 hrs.



Appendix 10 Mean Wt. Diameter of S.A. DP., Cl. 6 hrs.

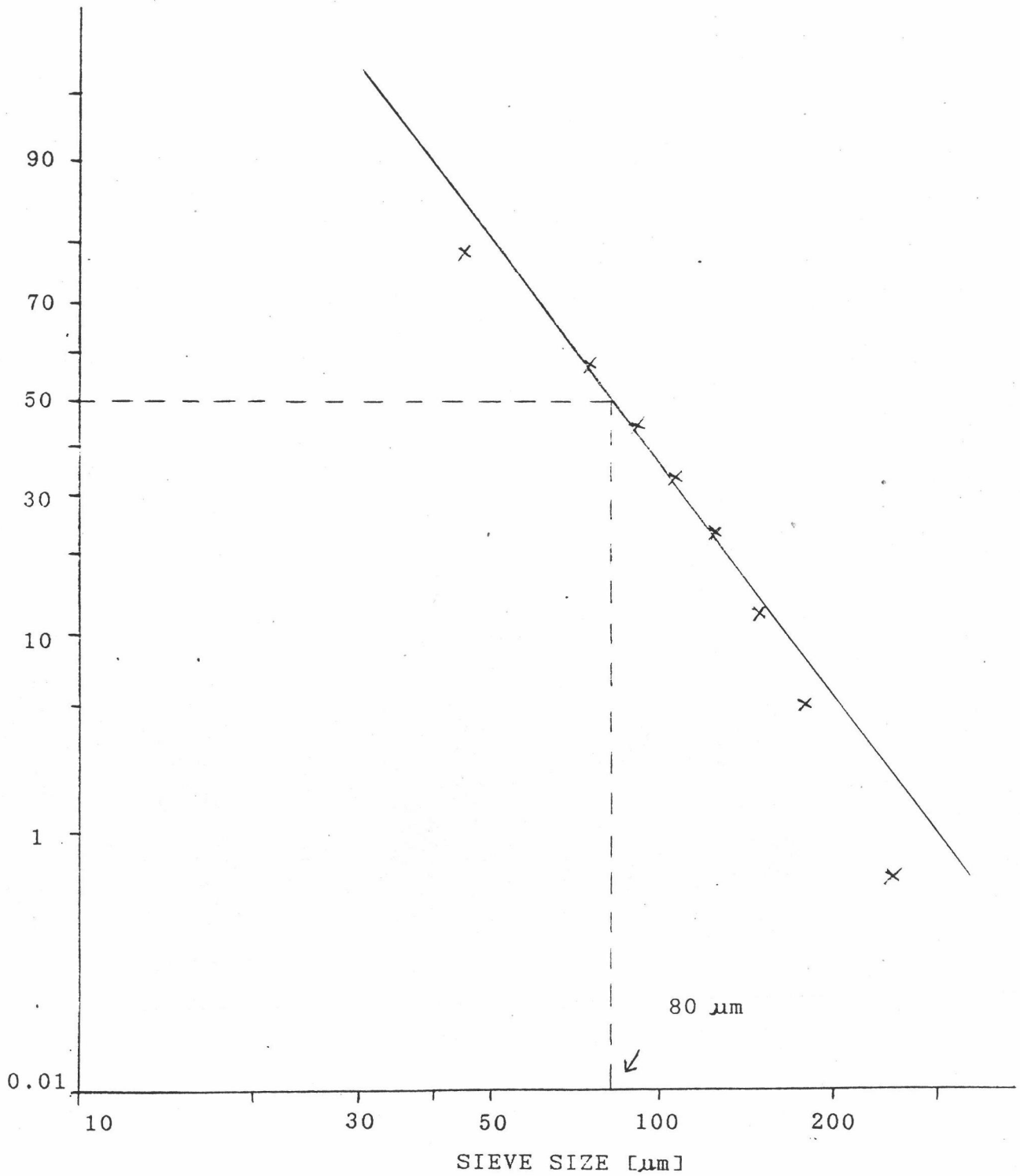


Appendix 11 Mean Wt. Diameter of S.A. DP., Cl. 10 hrs.



Appendix 12 Mean Wt. Diameter of Starch^R 1500

CUM. % OVERSIZE



Appendix 13 Mean Wt. Diameter of Eratab^R

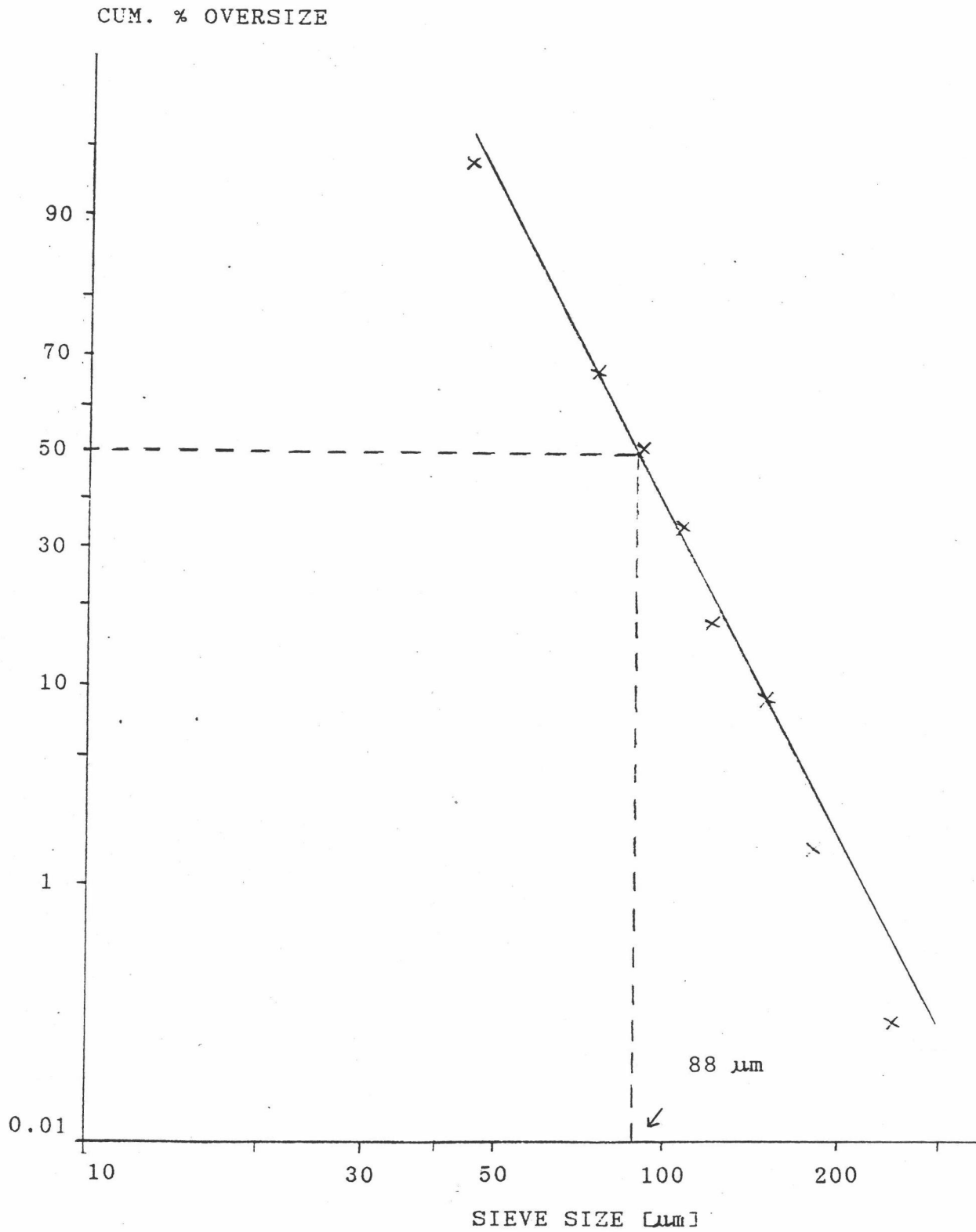


Table 25 Particle Size Distribution of Starch
Aggregates prepared at inlet air temperature
of 130 °C (Conc. 50 %, FR.12.96 g/min., P.1.5 bar)

SIEVE SIZE [µm]	% WT. RETAINED	CU.% OVERSIZE
425	2.7	2.7
250	5.3	6.0
180	6.5	14.5
150	8.1	22.6
125	10.6	33.2
106	11.9	45.1
90	12.3	57.4
75	16.3	73.7
45	20.4	94.1
0	5.9	100.0

Table 26 Particle Size Distribution of Starch
Aggregates prepared at inlet air temperature
of 135 °C (Conc. 50 %, FR.12.96 g/min., P.1.5 bar)

SIEVE SIZE [µm]	% WT. RETAINED	CU.% OVERSIZE
425	3.5	3.5
250	7.7	11.2
180	7.2	18.4
150	9.0	27.4
125	14.5	41.9
106	5.1	47.0
90	9.8	56.8
75	12.6	69.4
45	22.7	92.1
0	7.9	100.0

Table 27 Particle Size Distribution of Starch
Aggregates prepared at feed rate 4.32 g./min
(Conc. 50 %, Temp. 130 °C, P. 1.5 bar).....

SIEVE SIZE [μm]	% WT. RETAINED	CU. % OVERSIZE
425	1.7	1.7
250	4.8	6.5
180	9.0	15.5
150	13.0	28.5
125	11.0	39.5
106	12.9	52.4
90	7.7	60.1
75	9.7	69.8
45	26.0	95.8
0	4.2	100.0

Table 28 Particle Size Distribution of Starch
Aggregates prepared at feed rate 21.60 g./min
(Conc. 50 %, Temp. 130 °C, P. 1.5 bar).....

SIEVE SIZE [μm]	% WT. RETAINED	CU. % OVERSIZE
425	1.1	1.1
250	5.1	6.2
180	10.6	16.8
150	11.9	28.7
125	9.6	38.3
106	13.7	52
90	8.4	60.4
75	11.9	72.3
45	27.7	100
0	0	100

Table 29 Particle Size Distribution of 2-hour crosslinked Starch Aggregates (Conc. 50 %, Temp. 135 °C, FR. 12.96 g/min., P.1.5 bar).....

SIEVE SIZE [μm]	% WT.RETAINED	CU.% OVERSIZE
425	2.0	2.0
250	12.9	14.9
180	15.6	30.5
150	12.9	43.4
125	10.0	53.4
106	11.1	64.5
90	8.7	73.2
75	10.3	83.5
45	13.3	96.8
0	3.2	100.0

Table 30 Particle Size Distribution of 6-hour crosslinked Starch Aggregates (Conc. 50 %, Temp. 135 °C, FR. 12.96 g/min., P.1.5 bar).....

SIEVE SIZE [μm]	% WT.RETAINED	CU.% OVERSIZE
425	0.7	0.7
250	4.1	4.8
180	8.8	13.6
150	11.2	24.8
125	8.9	33.7
106	13.5	47.2
90	11.3	58.5
75	13.7	72.2
45	21.0	93.2
0	6.8	100.0

Table 31 Particle Size Distribution of 10-hour crosslinked Starch Aggregates (Conc. 50 %, Temp. 135 °C, FR. 12.96 g/min., P.1.5 bar).....

SIEVE SIZE [μm]	% WT.RETAINED	CU.% OVERSIZE
425	0.8	0.8
250	7	7.8
180	14.3	22.1
150	14.9	37
125	12.6	49.6
106	10.6	60.2
90	9	69.2
75	13	82.2
45	16.8	99
0	1	100

Table 32 Particle Size Distribution of Deproteinized Starch Aggregates (Conc. 50 %, FR.30.24 g/min., Temp. 135 °C, P. 1.5 bar).....

SIEVE SIZE [μm]	% WT.RETAINED	CU.% OVERSIZE
425	0.4	0.4
250	4.2	4.6
180	11.6	16.2
150	15.1	31.3
125	10	41.3
106	15	56.3
90	9.3	65.6
75	11.3	76.9
45	16.2	93.1
0	6.9	100

Table 33 Particle Size Distribution of Deproteinized
and 2-hour crosslinked Starch Aggregates
(the same conditions as Table 32).....

SIEVE SIZE [μm]	% WT.RETAINED	CU.% OVERSIZE
425	0.8	0.8
250	5.1	5.9
180	12.8	18.7
150	14.9	33.6
125	10.3	43.9
106	15	58.9
90	9.6	68.5
75	11	79.5
45	13.9	93.4
0	6.6	100

Table 34 Particle Size Distribution of Deproteinized
and 6-hour crosslinked Starch Aggregates
(the same conditions as Table 32).....

SIEVE SIZE [μm]	% WT.RETAINED	CU.% OVERSIZE
425	0.9	0.9
250	6.3	7.2
180	12.4	19.6
150	13.8	33.4
125	9.4	42.8
106	14.1	56.9
90	9.8	66.7
75	11.6	78.3
45	16.1	94.4
0	5.6	100

Table 35 Particle Size Distribution of Deproteinized
and 10-hour crosslinked Starch Aggregates
(the same conditions as Table 32).....

SIEVE SIZE	% WT. RETAINED	CU. % OVERSIZE
[μm]		
425	0.1	0.1
250	2.2	2.3
180	6.9	9.2
150	10.1	19.3
125	13.9	33.2
106	10.3	43.5
90	10.3	53.8
75	16	69.8
45	24.7	94.5
0	5.5	100

Table 36 Particle Size Distribution of Starch 1500^R

SIEVE SIZE	% WT. RETAINED	CU. % OVERSIZE
[μm]		
425	0.0	0.0
250	0.5	0.5
180	4.3	4.8
150	7.5	12.3
125	10.9	23.2
106	9.9	33.1
90	10.7	43.8
75	13.7	57.5
45	20.6	78.1
0	21.9	100.0

Table 37 Particle Size Distribution of Eratab^R

SIEVE SIZE [μm]	% WT. RETAINED	CU. % OVERSIZE
425	0.0	0.0
250	0.1	0.1
180	1.6	1.7
150	7.5	9.2
125	8.4	17.6
106	16.5	34.1
90	15.8	49.9
75	17.1	67.0
45	27.2	94.2
0	5.8	100.0

VITAE

Siriyos Timaroon got his B.Sc. in pharmacy from Chulalongkorn University in 1976. He has been working in the Armed Forces Pharmaceutical Factory (in tablet section) since 1983.

