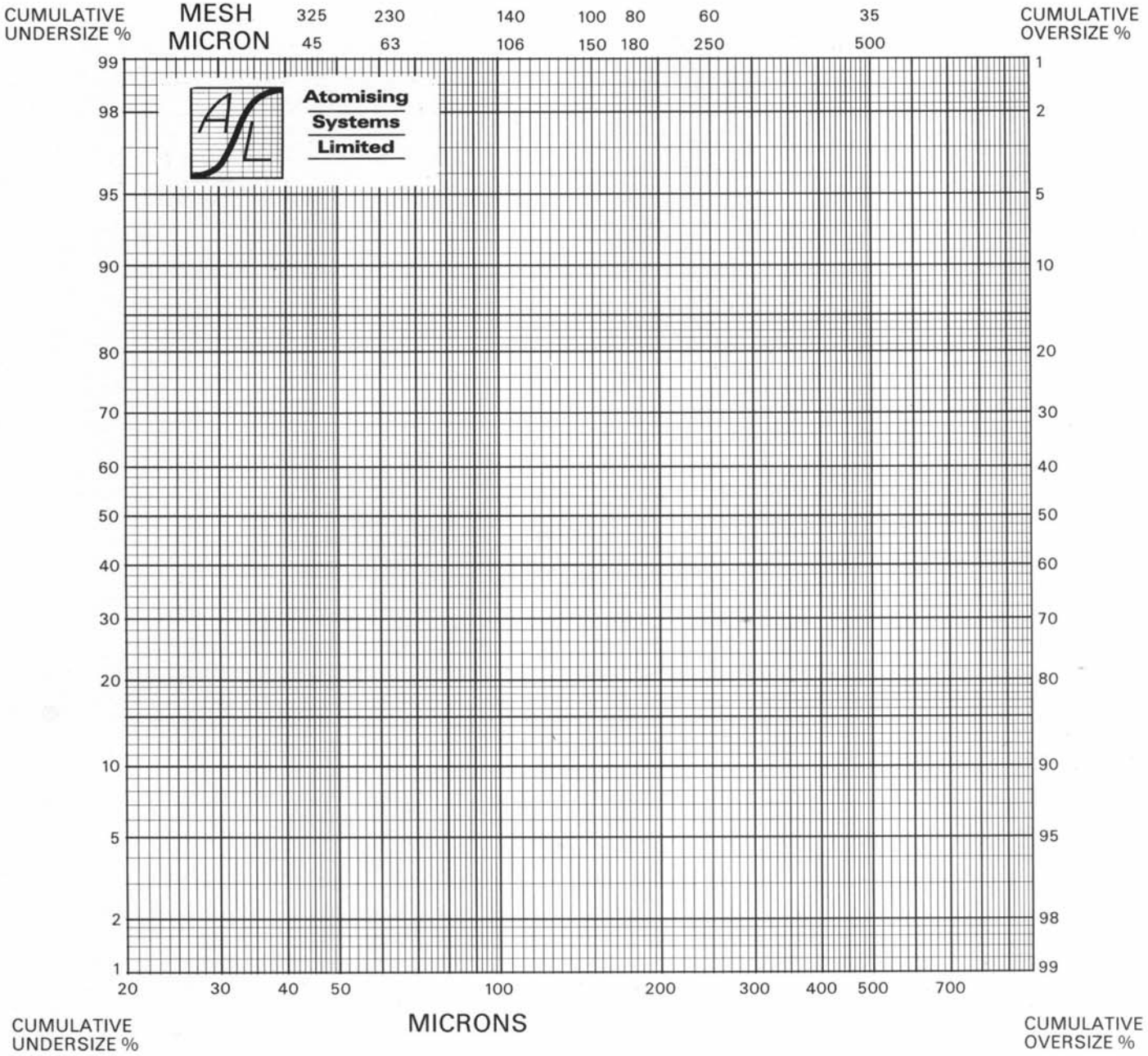
MEDIAN PARTICLE SIZE	MICRONS	RUN No.
STANDARD DEVIATION		
		DATE



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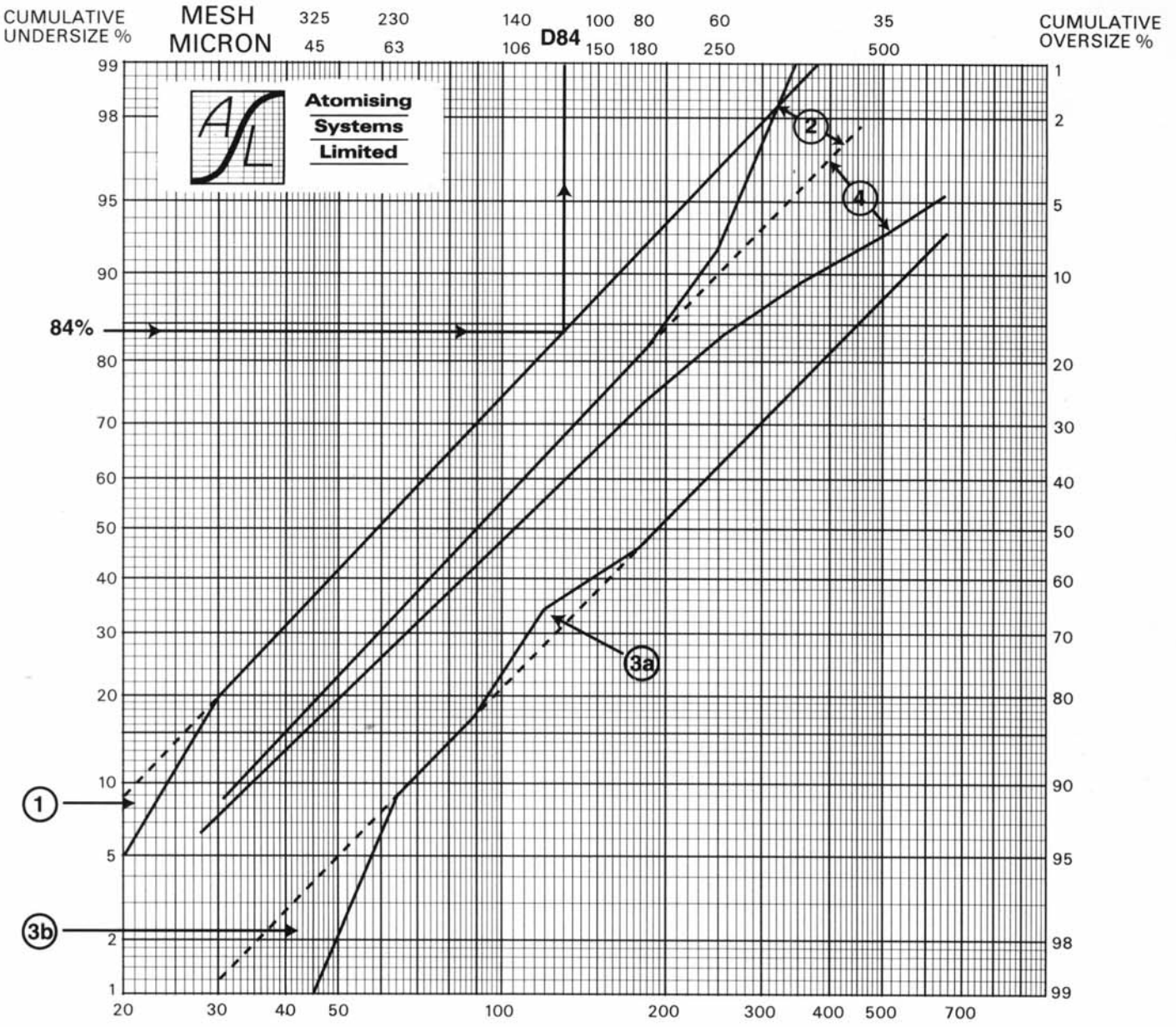

Using the log-normal plot

Convert all data into cumulative % undersize form, e.g. 16% sub 45µm, 31% sub 63µm, 65% sub 125µm, 90% sub 250µm. Then plot it as shown. Draw the best straight line through the data. Read off the median (D50%) size and D84% and calculate standard deviation as follows:-

Standard deviation σ = D84%/D50% = D50%/D16%

Inspect the line and the data points for problems. If the points are all very close to a straight line, then the size distribution is completely described by the median and standard deviation. Examples of deviations are shown above and discussed in more detail in Atomising News of Winter 2001/2.

1. **Loss of fines**
   May be difficult to detect using sieves, but the data from a sub-sieve machine (laser etc) may show the problem. It takes the form of a strong deviation below linear at the fine end.

2. **Loss of coarse**
   Here the coarse end of the graph will kick up above linear.

3. **Holed (3a) or blocked (3b) test sieves**
   These show up very clearly as sharp steps in the line.

4. **Fluctuations in atomising conditions**
   If excessive coarse particles are evident, as by the line deviating below the straight line at the coarse end (4), then this indicates inadequate atomisation. A rise in standard deviation may also result.

5. **Agglomeration effects**
   If fine particles agglomerate to make coarser ones, the shape of the distribution will change.

6. **Sampling errors**
   Depending on severity, these can show up more or less clearly. Segregation can result in over- or under-reporting of fines or coarse (see 1, 2, 3b, 4).