

Date	Number Sampled	Defects	Proportion Defective	Date	Number Sampled	Defects	Proportion Defective
12-Oct	50	9	0.18	17-Oct	50	7	0.14
	50	3	0.06		50	9	0.18
	50	10	0.20		50	0	0.00
	50	2	0.04		50	8	0.16
18-Oct	50	6	0.12	20-Oct	50	0	0.00
	50	9	0.18		50	0	0.00
	50	6	0.12		50	4	0.08
	50	1	0.02		50	7	0.14
19-Oct	50	4	0.08	21-Oct	50	5	0.10
	50	5	0.10		50	1	0.02
	50	2	0.04		50	9	0.18
	50	5	0.10		50	9	0.18
Total					2,000	196	

The upper and lower control limits are computed by using formula (19-8).

$$LCL, UCL = p \pm 3 \sqrt{\frac{p(1-p)}{n}} = .098 \pm 3 \sqrt{\frac{.098(1-.098)}{50}} = .098 \pm .1261$$

From the above calculations, the upper control limit is .2241, found by $.098 + .1261$. The lower control limit is 0. Why? The lower limit by the formula is $.098 - .1261 = -0.0281$. However, a negative proportion defective is not possible, so the smallest value is 0. We set the control limits at 0 and 0.2241. Any sample outside these limits indicates the quality level of the process has changed.

This information is summarized in Chart 19-6, which is output from the Minitab system.

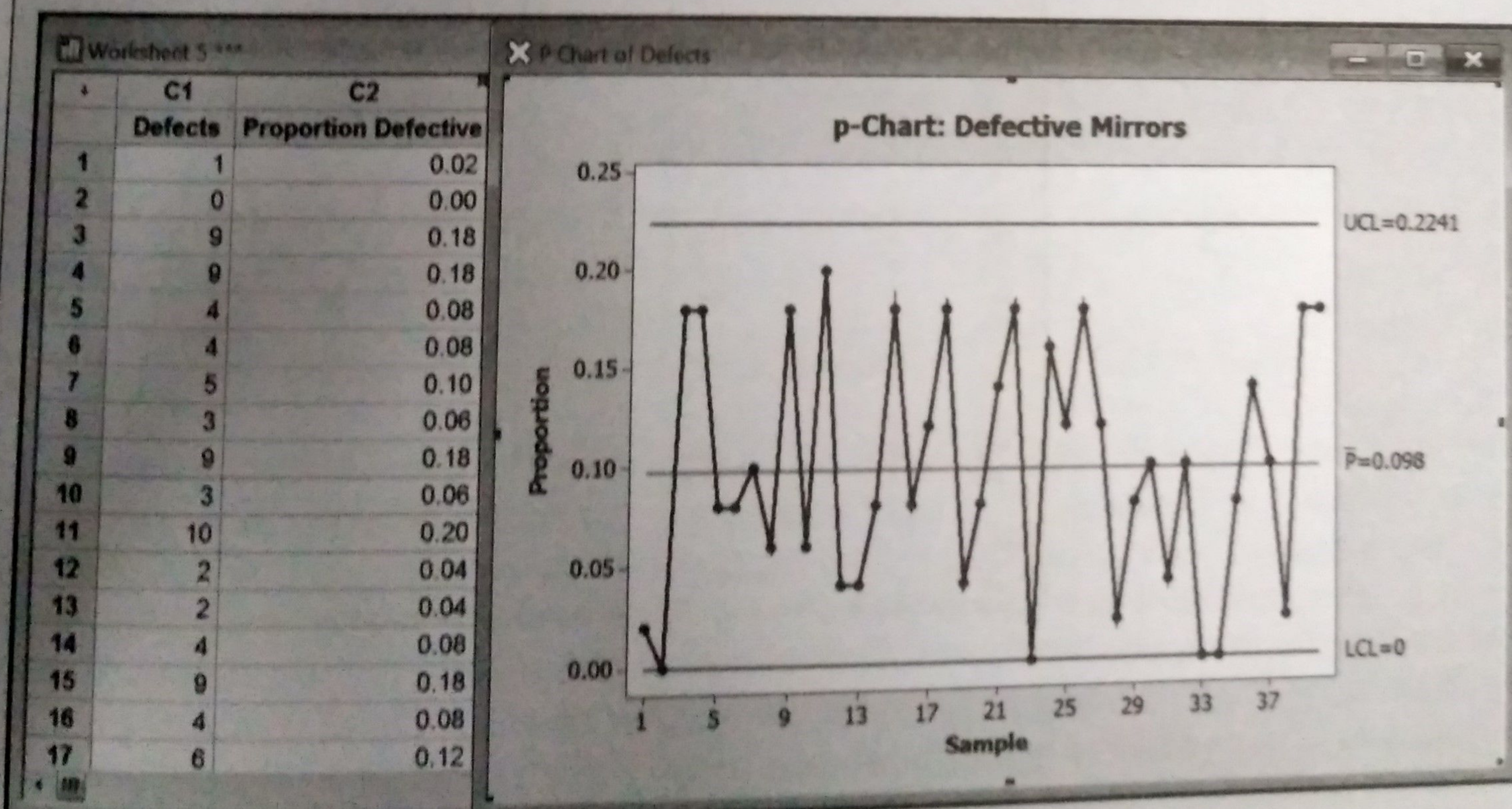


CHART 19-6 p-Chart for Mirrors at Jersey Glass