p Chart

In some quality control processes the measure is a binomial variable indicating the presence or absence of a defect in the product. In an automated production environment, there may be continuous measurement of the product and a "tagging" of the product which is non-conforming to specifications. Due to variation in materials, tool wear, personnel operations, etc. one may expect that a certain proportion of the products will have defects. The p Chart plots the proportion of defects in samples of the same size and indicates by means of upper and lower control limits, those samples which may indicate a problem in the process.

To demonstrate the p Chart we will utilize a file labeled pchart.txt. Load the file and select the Analyses / Statistical Process Control / p Chart option. The specification form is shown below along with the results obtained after clicking the Compute Button:

Figure 1   The SPC pChart Specification Dialog

```
Target proportion = 0.0100
Sample size for each observation =    1000
Average proportion observed = 0.0116
Defects p Control Chart Results

Sample No.   Proportion
_____  _____
         1         0.012
         2         0.015
         3         0.008
```

```
 4          0.010
 5          0.004
 6          0.007
 7          0.016
 8          0.009
 9          0.014
10          0.010
11          0.005
12          0.006
13          0.017
14          0.012
15          0.022
16          0.008
17          0.010
18          0.005
19          0.013
20          0.011
21          0.020
22          0.018
23          0.024
24          0.015
25          0.009
26          0.012
27          0.007
28          0.013
29          0.009
30          0.006
```

```
Target proportion = 0.0100
Sample size for each observation =   1000
Average proportion observed = 0.0116
```
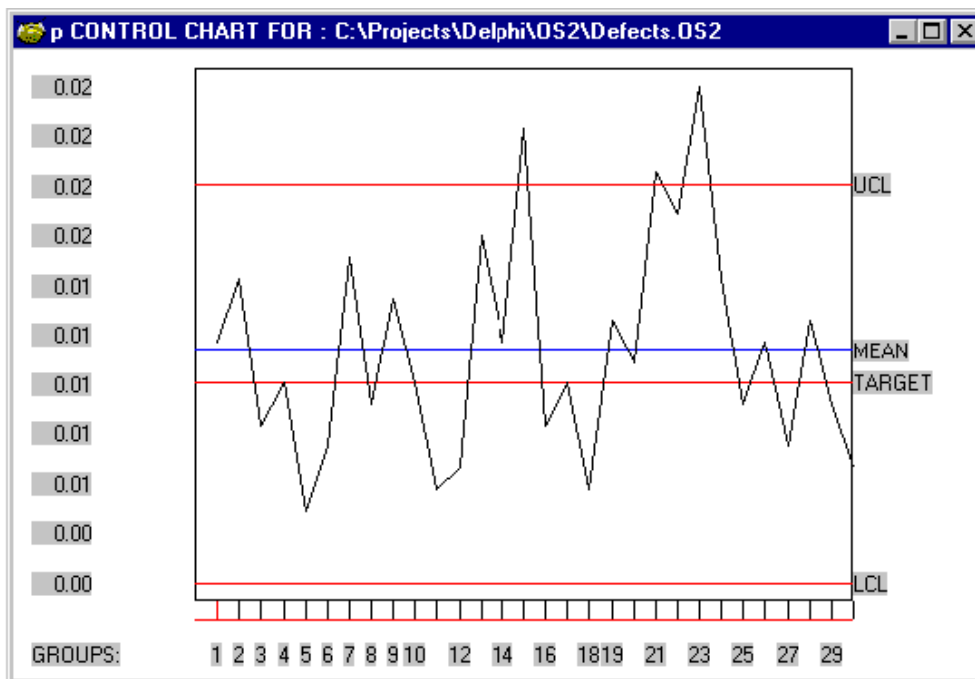

Figure 2   An SPC pChart