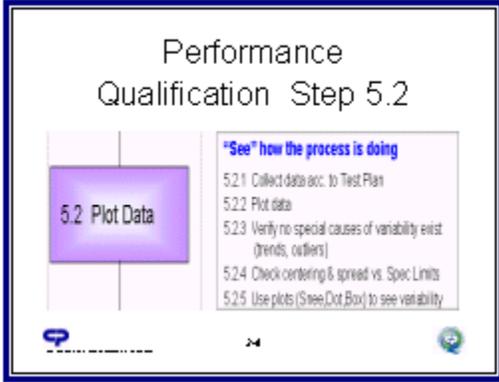


Part 2: 'See' the Process-Interpret Data Plots (1.5 hr)



Step 2- Plot Data

“See” how the process is doing

Plotting data collected over several days we can both get a quick view of how our process is doing compared to Specification Limits and see if any trends exist.

Company uses MINITAB™ as its standard statistical analysis software.

You will use MINITAB™ extensively in this workshop using the data on this **CD-ROM**.

DEMO 2-1 (MINITAB™ Project “LHS” with handouts “MINITAB™ Basics” and “MINITAB™ Course”)

Follow along with your Facilitator as they review with you some basics of MINITAB™. You may take some notes here, but you will receive a handout that reviews these basics for your continued use of MINITAB™ on your job.

DEMO 2-2 (MINITAB™ Project “LHS”, Worksheet “Raw Data”)

Follow along with your Facilitator as they show you how to do a Time Series Plot.

EXERCISE 2-1 (MINITAB™ Project “LHS”, Worksheet “Raw Data”)

Work in pairs with another participant to make a Time Plot of a Key Product Characteristic (KPC) for the Liquid Hand Soap (LHS) Performance Qualification (PQ). Your Facilitator will assign you to either Solids, pH or Viscosity.

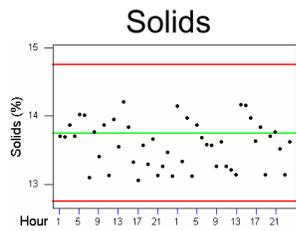
Analysis:

1. Does the KPC data fall mostly within the specification limits that have been set at this point? If not, how often is it going out?

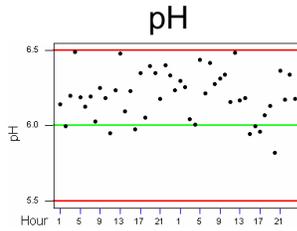
2. At what level are most of the points concentrated in? Or where does the mean appear to be

3. Is there any trend or pattern?

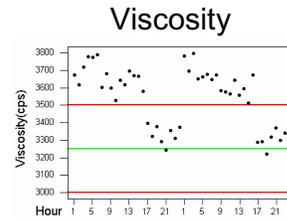
4. How much variation is there?



 © All 2011 Colgate-Palmolive Company 1001 USA 2-9



 © All 2011 Colgate-Palmolive Company 1001 USA 2-10

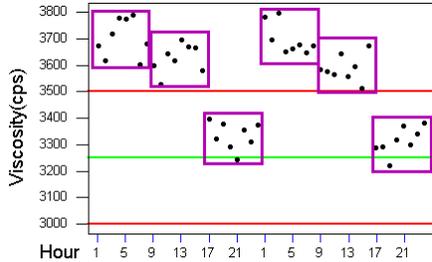


 © All 2011 Colgate-Palmolive Company 1001 USA 2-11

Your Time Plots for the LHS KPCs should look like those above.

DEMO 2-3 (MINITAB™ Project “LHS”)

Viscosity- with Boxes



2-13



Follow along with your Facilitator in MINITAB™ as they show you how to create boxes that surround the data obtained from each shift.

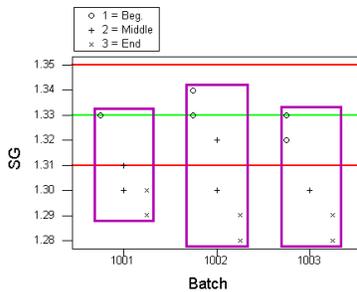
You will see that these boxes can help in a Continuous Process in spotting trends more clearly.

See Statistical Tools-Handy Guide for more details if desired.

EXERCISE 2-2 (MINITAB™ Project “LHS”)

Working in pairs, make boxes around the groupings you have identified on your KPC Time Plot.

Snee Plot-Example



2-14



Plots can reveal patterns in the data.

We'll now learn some techniques that can enhance our identification of patterns in our data.

For Batch Processes the Snee Plot technique can help us decide which our greatest contributor to variability is. Typical sources of variability analyzed for a batch process include:

- ◆ batch-to-batch variability
- ◆ within batch variability (i.e. Location of sample or time of sampling)
- ◆ Replication (or Analysis)

A major feature of this technique is the boxes drawn around the data points for each batch.
