

**EXER  
2-1**



TSPVisc,  
TSPpH,  
TSPSolids

Now that you've seen an example of how to plot the data quickly in MINITAB™, I would like you to work on the computer in pairs... ..Each pair will make a Time Plot for a different KPC.

*Assist each pair in doing one of the KPC's (pH, Solids, Viscosity).*

*Allow 15 minutes for entire exercise, 5 minutes to graph, 5 minutes to write conclusions, 5 minutes to discuss.*



---

---

---

---

---

EXER  
2-1



Now that your plotting is nearly complete, what are you beginning to notice?

Some things that you may wish to look at include:

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. How much variation is there?
4. Is there any trend or pattern?

*Here you could remind them briefly of some control chart concepts such as periodicity, but not in any detail.*

Jot down in your Participant Notes a few of your observations that you may share these with the group later.



---

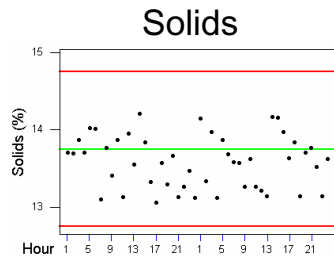
---

---

---

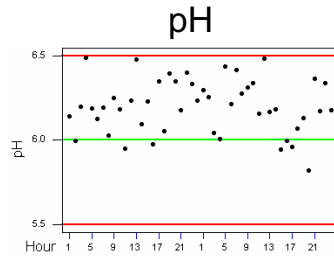
---

EXER  
2-1



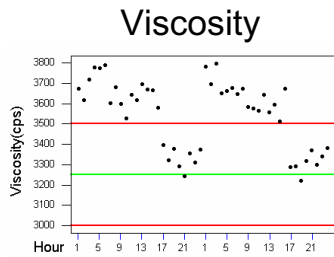
Copyright © July, 2001, Colgate-Palmolive Company. 000113A

2-9



Copyright © July, 2001, Colgate-Palmolive Company.

2-10



Copyright © July, 2001, Colgate-Palmolive Company.

2-11



Great work! Let's share what we've observed for each KPC...

*Show PowerPoint Slide 2-10-“Solids”.*

*Ask a group that did Solids to begin. Allow the group several minutes to give their observation. Reinforce correct understanding.*

We see that data for the solids appears random, that is there are no apparent patterns. However, more of the points are below the target line than above, so the mean is below the set point. It will need to be slightly adjusted.

*Show PowerPoint Slide 2-11-“pH”.*

*Ask a group that did pH to discuss their observations. Reinforce correct understanding.*

Notice that the pH is within the initial specification limits but that it is not well centered. We may need to adjust this.

*Show PowerPoint Slide 2-12-“Viscosity”.*

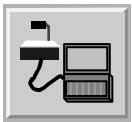
*Ask a group that did Viscosity to discuss their observations. Reinforce correct understanding.*



EXER  
2-1

Did you see the repeating pattern? It seems that for about 16 hours the viscosity remained high and outside the specification, and then it was within specification for 8 hours. This pattern repeated during the next 24 hours. What might this indicate? It seems that viscosity varied by shift, and that perhaps two shifts had viscosity out of specification while one shift brought it within specification. We will come back to this later.

DEMO  
2-3



Perhaps you saw the pattern well enough, but look now at a simple technique which can help us see patterns even better.

It involves simply drawing boxes around clusters of data.

*Show them how they can do so using the Rectangle tool on MINITAB's Tool's Palette. After drawing a rectangle that is large enough to contain each cluster of data, make sure use the Fill Tool on the Attribute Palette and choose "N" for "No Fill". After showing them how to do one or two rectangles, show them, let them create the rest to finish the Viscosity plot.*




---



---



---



---



---