

The**TREND**Published by
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2012 Volume 12**System Sizing****Lab News Update:****Reagents and
Lab Equipment
on the Chemtex
Website!**

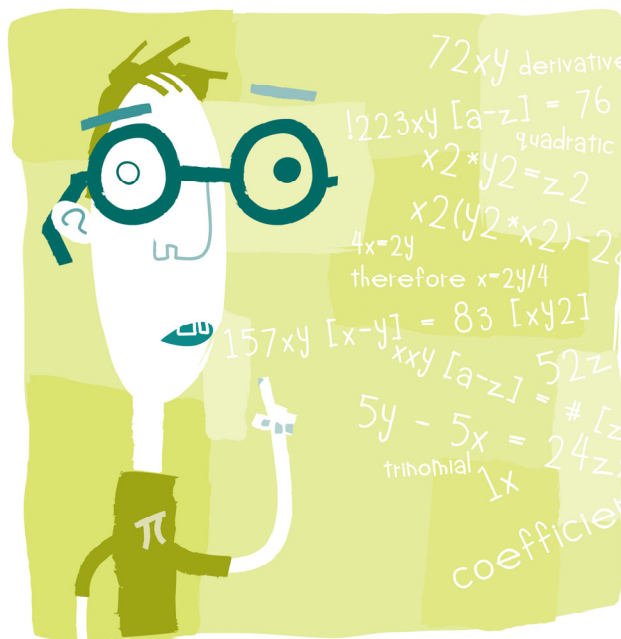
Have you checked out the new Online Catalog yet? Log in today to see available products and pricing. Ordering online is convenient and quick!

Check this out!**Test Kit Instructions**

Take the frustration out of operator testing by providing a laminated 8x11 instruction card detailed with pictures. Perfect for testing stations! Turn to the back page to see a sample.

**Coming up next in
The Trend****Interpretation of Deposit
Analysis****Treating A Closed Loop
System?****Know your system
volume!**

When treating a closed loop system, it is useful to know the system volume. In many cases, the volume is unknown or estimated incorrectly. There are several ways to determine an accurate system volume for a closed loop.



For the following methods of system sizing, it is necessary to take before and after samples for analysis of the sizing agent. The change in concentration is used to calculate system volume.

Sodium Chloride

Adding sodium chloride, or table salt, to a closed loop is a long-standing method to calculate volume. Salt is the most economical sizing agent and can be purchased at convenient locations. In systems where initial chloride concentration is above 20 ppm and the water sample is clear, this method can provide accurate results.

The before and after chloride values are achieved by titration method in which the analyst determines the color change and resulting concentration. It is difficult to see the end color change in waters with high turbidity, waters dark in color due to iron or copper, and glycol solutions. The inability to accurately determine the chloride concentration in these types of samples is the major drawback to this method.

Lithium Bromide

The addition of lithium bromide to a closed loop for system sizing is a known method in water treatment, although sodium chloride is much more common due to its accessibility. Lithium bromine is expensive to purchase and analysis is performed by a subcontracted lab.

MOLY-SZR

Due to the ease and accuracy of testing, adding molybdenum as the sizing agent has been the preferred method of system sizing over the last several years. The before and after samples are analyzed by a colorimeter; this allows for accurate concentration determination, even in dark colored waters and glycol solutions. If there is a considerable amount of iron sediment in the system, it may tie up some of the molybdenum and affect the end result.

MOLY-SZR is available in two sizes. The 1/4 lb. size will increase the molybdenum residual by 12 ppm in a 1000 gallon closed loop; the 1/2 lb. size will raise the molybdenum by 24 ppm in 1000 gallons.

ON-TRAC-SZR

On-Trac is a fluorescent dye that is available in a concentrated liquid for easy application and circulation throughout the system. A very small volume of dye added to the system will allow for accurate determination of closed systems up to 50,000 gallons.

Dye concentration is measured with a handheld fluorometer in parts per billion (ppb). This enables the lab to calculate system volume accurately in cases where diluting the sample is necessary due to color, turbidity or other interferences.

The system water pH will affect the On-Trac concentration; optimal pH range is 6-10. The dye will also break down in direct sunlight. Certain glycol solutions may contain a similar dye that interferes with the meter reading, but volume determination is possible if before and after samples are carefully taken and analyzed.

Other Methods

Other methods of system volume determination include before and after analysis of loop after adding a known volume of chemical treatment, such as LG-262, LG-269 and LG-505.

Guidelines for Application

The most common reasons for inaccurate estimations include insufficient circulation time, valved off zones, uncirculated dead legs and closed pot feeder valves. It is crucial to allow the sizing agent to completely circulate throughout the system; suggested circulation time is 24-72 hours. Make sure bypass feed lines are open and work with the building engineer to ensure all zones within the loop are open as well.

For further information on system sizing, please contact the Chemtex Technical Department.



Lab Notes:

International Chemtex strives for superior quality of all products and reagents and takes our quality control process very seriously. If there is a situation where the quality of a product is in question, it is crucial that the Technical Department is given the batch date from the product container. If the batch date is provided, we can thoroughly investigate the issue by pulling the product retain and reviewing the batch history.

K-250 “P” & “M” Alkalinity Test 1 drop = 10 ppm as CaCO₃

1

Add 10 mL of the water sample to a clean sample tube.



2

Add 3 drops of I-101 Phenolphthalein Indicator and swirl. If sample turns magenta, “P” Alkalinity is present; continue to next step. If no color is present, record result as zero.



3

Add D-102 Alkalinity Titrant dropwise until the sample changes from magenta to its original color. Drops x 10 = ppm “P” Alkalinity as calcium carbonate (CaCO₃)



4

Using the neutralized sample from the “P” test; add 3 drops of I-201 Methyl Purple and swirl. A green color indicates the presence of “M” Alkalinity.



5

Add D-102 alkalinity titrant dropwise until the first permanent purple color is reached.



6

Add the number of drops from this test to the number of drops from the “P” test. Total drops x 10 = ppm “M” alkalinity as calcium carbonate (CaCO₃)