



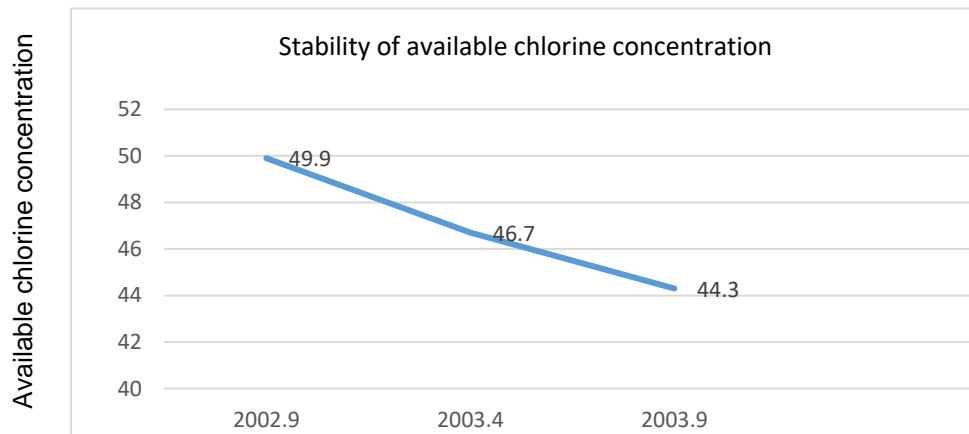
## KECA Disinfecting Solutions Long Term Stability & Efficacy Test

1. Purpose: To evaluate the residual chlorine stability properties
2. Test date: From September 2002 to September 2003
3. Testing method  
KECA solution: 49.6 ppm / ph 5.9

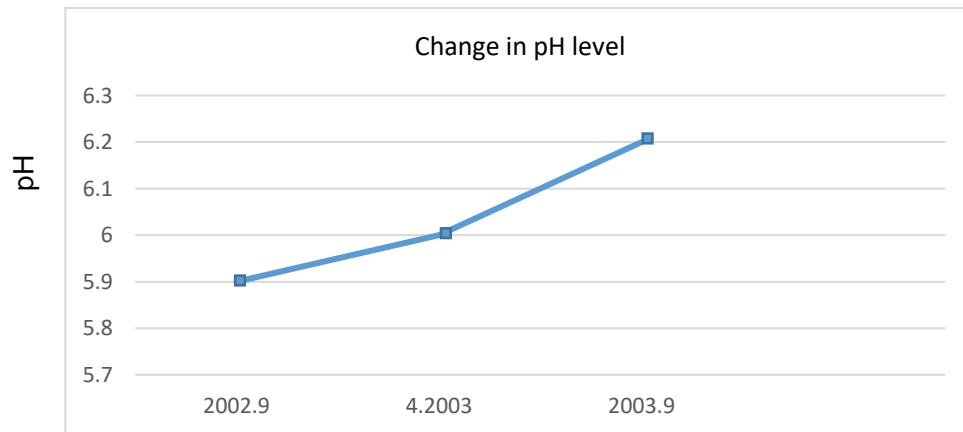
Place 20 L of KECA 50 generated solutions (available chlorine concentration 49.6 ppm = ph 5.9) in an airtight, opaque plastic container and store on a shelf in an indoor room.

Measure the available chlorine concentration (ACC) and pH level in one year.

4. Test results
  - 4-1) The graph of available chlorine concentration variations



- 4-2) The graph of pH level variation



5. The long term stability test on residual chlorine shows that the available chlorine concentration was slightly decreased, but still in the effective range of disinfecting solutions. The pH had also changed slightly.

The solution kept more than 80% of its available chlorine concentration when stored in an airtight. UV and strong light has a significant effect on the stability properties of the solution and it should be stored in an opaque container.

## KECA Disinfecting Solutions Stability test at 122° F

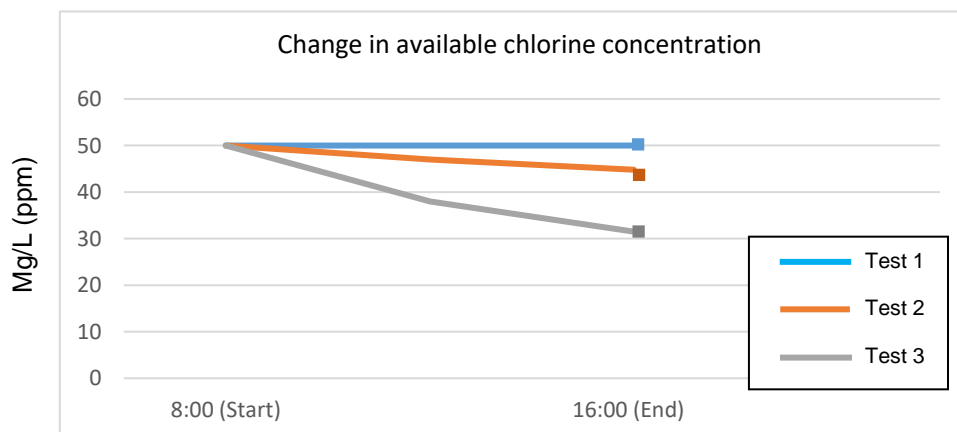
1. Purpose  
To evaluate the residual chlorine stability properties
2. Test date  
September 20, 2007. Start at 8 AM
3. Testing method  
KECA disinfecting solution (available chlorine concentration 50ppm) placed in (3x) 500 cc PET bottles.  
Test 1: 500 ml  
Test 2: 400 ml (space left in container for gas)  
Test 3: 500 ml

Test 1: Closed container  
Test 2: Closed container  
Test 3: Open container

Place all 3 bottles in 122°F thermo-bath. After 8 hours measure the available chlorine concentration.

4. Test results
  - 4-1) The rate of change in available chlorine concentration

Test No.			Starting (ppm)	Finish (ppm)	Decrease amt. (ppm)	Decrease rate (%)
1	Closed	No gas	50	50.0	0	0
2	Closed	Gas	50	44.8	5.2	10.4
3	Open		50	31.5	18.5	37



5. Examination

Test 1 showed no change in available chlorine concentration. Test 2 and test 3 showed a decreasing rate of 10.4% and 37% change in available chlorine concentration,