

WORKSHEETS

HN55 Residential Water Calculator (Metric)

SELECTING CHEMILIZER PUMP SIZE AND DILUTION

CHLORINE DEMAND CALCULATION:

IRON _____ PPM X .9 = _____ PPM
HYDROGEN SULFIDE _____ PPM X 8.5 = _____ PPM
ALGAE REQUIRES EXTRA 5 PPM = _____ PPM
DESIRED RESIDUAL = _____ PPM
TOTAL CHLORINE DEMAND = _____ PPM

Selection of the pump ratio will determine how long the stock solution lasts (2:128 will cause stock solution to run out quicker than 1:128):

Injection factor Using 2:100 is .02 Using 1:100 is .01
 Using 1:250 is .004 Using 1:500 is .002

Required Dilution:

$\frac{\% \text{ chlorine} \times \text{Injection factor} \times 1,000,000}{\text{Total Chlorine Demand PPM}}$ then subtract 1 = liter of water to mix with 1 liter of chlorine

of Days chlorine solution will last

$\frac{\text{LPD of water use} \times \text{Injection factor}}{1000}$ = LPD of chlorine solution used

$\frac{\text{LPD of solution}}{\text{Size of solution container in liters}}$ = # of days between refills

Examples: A well supplying 1000 liters of water per day (4 people, 250 liters each) with least frequent refill.

3.0 PPM IRON	X .9 =	2.7 PPM
5.0 PPM H ₂ S	X 8.5 =	42.5 PPM
ALGAE	=	5.0 PPM
DESIRED RESIDUAL	=	0.5 PPM
Chlorine Demand	=	50.7 PPM

Dilution using **5.25%** chlorine (household bleach) and a 1:100 pump

$\frac{5.25\% \times .01 \times 1,000,000}{50.7 \text{ PPM}}$ = 10.7 - 1 = 9.4 liters of water to 1 liter of chlorine

Time between refills with a 100 liter solution tank

1000 X .0078 = 7.8 LPD, then divide 100 by 7.8 to get approximately 13 days to empty the tank

Dilution using **12%** chlorine and a 1:250 pump

20.0 PPM IRON	X .9 =	18 PPM
15.0 PPM H ₂ S	X 8.5 =	127.5 PPM
ALGAE	=	5.0 PPM
DESIRED RESIDUAL	=	0.5 PPM
Chlorine Demand	=	151 PPM

$\frac{12\% \times .004 \times 1,000,000}{151 \text{ PPM}}$ = 3.2 - 1 = 2.2 liters of water to 1 liter chlorine

Time between refills with a 150 liter solution tank

1000 X .004 = 4 LPD, then divide 150 by 4 to get approximately 37 days to empty the tank