

How many pounds of chlorine will be needed to disinfect a **new** 10-inch PVC pipe that is 2.2 miles long? The chlorine comes from 75% available calcium hypochlorite.

- $$\text{Lbs} = \frac{\text{ppm} \times 8.34 \times \text{MG}}{\% \text{ purity}}$$

To find the flow, we have to calculate the volume of the pipe in million gallons (MG).

The pipe length is

$$2.2 \text{ miles} \times 5,280 \text{ ft} = 11,616.00 \text{ ft}$$

$$10 \text{ inches} \div 12 \text{ inches} = .8334 \text{ ft}$$

The volume of the pipe is

$$\text{Volume} = .785 \times .8334 \text{ ft} \times .8334 \text{ ft} \times 11,616.00 \text{ ft}$$

$$\text{Volume} = 6,333.35 \text{ ft}^3$$

$$\text{Volume} = 6,333.35 \text{ ft}^3 \times 7.48$$

$$\text{Volume} = 47,373.43 \text{ gal} \div 1,000,000$$

$$\text{Volume} = .047373 \text{ MG}$$

A new pipe has a concentration of 50 ppm by definition.

$$\text{Lbs} = \frac{50 \text{ ppm} \times 8.34 \times .047373}{.75}$$

$$\text{Lbs} = 26.33$$