

FLUORIDE DOSAGE CALCULATIONS
For use with
MASS/DEPARTMENT OF PUBLIC HEALTH DAILY FLUORIDATION REPORT

Notes:

- Use the following formulas to calculate the **Calculated Fluoride Ion Dosage** in Section III of Form A of the Mass DPH fluoridation report.
- The natural fluoride level for Massachusetts of 0.1 ppm is incorporated into all calculated dosage formulas below.
- Million Gallons (MG) must be expressed in decimal form. *Ex. 1,000,000 would be entered as 1.0; 500,000 would be 0.5 .*

A. Calculations of Daily Dosage

1. a) If using a **Saturator**- using **gallons** of makeup water (saturated solution) added each day.

$$\text{Calculated dosage (ppm)} = \frac{\text{Gallons of makeup water added each day}}{\text{Water treated each day (MG)} \times 50}$$

- b) If using a **Saturator**- using **cubic feet** of makeup water added each day.

$$\text{Calculated dosage (ppm)} = \frac{\text{Cubic feet of makeup water added each day}}{\text{Water treated each day (MG)} \times 6.7}$$

2. a) If using **Hydrofluosilicic acid**- using **pounds** added each day.

$$\text{Calculated dosage (ppm)} = \frac{\text{Pounds of acid added each day}}{\text{Water treated each day (MG)} \times C4^*}$$

*For C4 values use the following table:

Commercial purity of H ₂ SiF ₆ in %	C4
22	43.1
23	41.2
24	39.5
25	37.8
26	36.5
27	35.1
28	33.9
29	32.7
30	31.7

3. a) If using a **Dry Feeder**- using **pounds** of sodium Silicofluoride added each day.

$$\text{Calculated dosage (ppm)} = \frac{\text{Pounds of Silicofluoride added each day}}{\text{Water treated each day (MG)} \times 12.4}$$

B. Only For systems using a Saturator - Calculation of monthly dosage **

1. a) If using a **Saturator**- using **pounds** of sodium fluoride added each month

$$\text{Calculated dosage (ppm)} = \frac{\text{Pounds of Sodium Fluoride added each month}}{\text{Water treated each month (MG)} \times 16.9}$$

** If you have any questions on the monthly dosage calculation see the MA State **Recommended Standard Operating Procedures for Sodium Fluoride (NaF) Saturators** on the following website: Mass DEP/DWP- <http://www.mass.gov/eea/agencies/massdep/service/approvals/fluoride.html> or contact DPH at 617-624-5573.