

PROBLEM 1.7

A WELL-STIRRED TANK IS FED BY AN INLET PIPE WITH CROSS-SECTION, $A_1 = 10 \text{ cm}^2$. THE INLET VELOCITY IS $U_1 = 10 \frac{\text{cm}}{\text{s}}$. INSIDE THE TANK A PLASTER BALL SLOWLY DISSOLVES SUPPLYING A STEADY SOURCE OF CALCIUM CARBONATE TO THE WATER, $S = +5 \text{ g/s}$. THE OUTLET PIPE AREA IS THE SAME AS THE INLET. THERE IS NO CALCIUM CARBONATE IN THE INFLOW. AT STEADY STATE, WHAT IS THE OUTLET CONCENTRATION?

