

Exercise 1.84

Automobile batteries contain sulfuric acid, which is commonly referred to as “battery acid.” Calculate the number of grams of sulfuric acid in 1.00 gal of battery acid if the solution has a density of 1.28 g/mL and is 38.1% sulfuric acid by mass.

Solution

Sulfuric acid has the chemical formula H_2SO_4 .

$$1.00 \text{ gal} \times \frac{3.7854 \text{ L}}{1 \text{ gal}} \times \frac{1000 \text{ mL}}{1 \text{ L}} \times \frac{1.28 \text{ g acid}}{1 \text{ mL}} \times \frac{38.1 \text{ g H}_2\text{SO}_4}{100 \text{ g acid}} \approx 1.85 \times 10^3 \text{ g H}_2\text{SO}_4$$