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# Input the required values for alkalinity calculation
H2SO4_req = float(input("Enter the volume of H2SO4 required in ml: "))
Sample = float(input("Enter the value of sample in liters: "))

# Calculate alkalinity removed
Alkalinity_Removed = H2SO4_req
print("Alkalinity Removed: ", Alkalinity_Removed, "mg")

# Calculate total alkalinity per liter
Alk_mg_per_lit = Alkalinity_Removed / Sample
print("Total Alkalinity:", Alk_mg_per_lit, "mg/lit")

# Input the value of OH-Alkalinity present
OH = float(input("Enter the value of OH-Alkalinity present (mg/lit): "))

# Alkalinity removed till pH of 8.3
H2SO4_req_8_3 = float(input("Enter the volume of H2SO4 required till pH 8.3 in ml: "))
Alkalinity_Removed_8_3 = H2SO4_req_8_3
print("Alkalinity Removed till pH 8.3: ", Alkalinity_Removed_8_3, "mg")

# Carbonate Alkalinity up to pH 8.3
CO3_Combined = Alkalinity_Removed_8_3 / Sample
print("Carbonate Alkalinity up to pH 8.3:", CO3_Combined, "mg/lit")

# Calculate Carbonate Alkalinity (CO3)
CO3 = CO3_Combined - OH
print("Carbonate Alkalinity (CO3):", CO3, "mg/lit")

# Calculate Bicarbonate Alkalinity (HCO3)
HCO3 = Alk_mg_per_lit - 2 * CO3 - OH
print("Bicarbonate Alkalinity (HCO3):", HCO3, "mg/lit")

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↩ Enter the volume of H2SO4 required in ml: 30
Enter the value of sample in liters: 0.2
Alkalinity Removed: 30.0 mg
Total Alkalinity: 150.0 mg/lit
Enter the value of OH-Alkalinity present (mg/lit): 5
Enter the volume of H2SO4 required till pH 8.3 in ml: 11
Alkalinity Removed till pH 8.3: 11.0 mg
Carbonate Alkalinity up to pH 8.3: 55.0 mg/lit
Carbonate Alkalinity (CO3): 50.0 mg/lit
Bicarbonate Alkalinity (HCO3): 45.0 mg/lit

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