

Marks
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- A solution of 2.00 M NaOH (50.0 mL) at 44.9 °C is added to a constant pressure (“coffee cup”) calorimeter containing 250.0 mL of 0.70 M HNO₃ at 21.5 °C. The final temperature of the solution is 29.9 °C. Calculate the enthalpy of neutralisation of OH⁻(aq) and H⁺(aq) in kJ mol⁻¹. Assume the density of these solutions is 1.000 g mL⁻¹ and the specific heat capacity of the solutions is 4.184 J K⁻¹ g⁻¹.

Answer:

Calculate the pH in the combined solution in the calorimeter at 21.5 °C.

Answer: