GROUP E CATIONS

K^+	Na^+	NH_4^+

Group E cations don't have a common precipitating agent since they are mostly soluble in water. Both K^+ and Na^+ are alkali metals, while NH_4^+ is considered to be in Group E due to its salts being very soluble.

Flame test is the most reliable way to detect the presence of K^+ and Na^+ in low concentrations.

Na^+	➢ **Extremely sensitive** ➢ **Confirmatory test:** - An intense yellow flame that lasts for 5 seconds or more without the blue filter - The intensity and duration of the sodium flame is directly proportional to the concentration on Na^+ present
K^+	➢ **More volatile than sodium** - this means that the flame emission duration of K^+ is shorter than the duration of Na^+ ➢ **Confirmatory test:** - A reddish violet flame that lasts for 2 seconds with blue filter - The use of the blue filter is to permit the transmittance of the reddish violet potassium flame that is usually masked by the intense yellow sodium flame

The tests for different cation groups introduces NH_4^+ at various points of the analysis means that the test for ammonium ion should be performed to the original solution.

NH_4^+	➢ **Confirmatory actions:** - Reaction with 6 M NaOH: produces ammonia - Heating of the solution: releases ammonia gas in the air which then reacts with the red litmus paper attached to the watch glass, making it unifromly change from red to blue - A scattered change means that during heating, a spray of NaOH droplets occured