The aluminium alloy Al-12Si has been polarized by potentiodynamic method at 25 °C under magnetic stirring and in an aerated solution. Its electrochemical behaviour was tested first by varying the concentration of NaI or NaCl (10^{-4}, 10^{-3}, 10^{-2}) added respectively to NaCl or NaI (10^{-3} M), and the pH of NaCl 10^{-3} M (pH∈=∈2.3, 7.3, 10) when adding HCl or NaOH (i.e. the composition of the solution), then by incorporating different ions familiar to an industrial atmosphere (Cu^{2+}, Zn^{2+}, SO^{2-}_4 NO^{-}_3, PO^{3-}_4 at 10^{-6} M to NaCl 10^{-3} M (i.e. the electrolyte nature). The use of the electrokinetic curves obtained allowed the access to the passivation (i_{pass}, E_{rup} and E_{rep}) and to the electrokinetic parameters (i_{corr}, R_p and P). They prove the behaviour dependence of the above alloy on the composition and nature of the electrolyte.