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 (Cu²⁺, Zn²⁺, SO₄²⁻, NO₃⁻, PO₄³⁻) 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 (iₚₐₕ, Eₚᵤₛ, and Eₚₑₛ) and to the electrokinetic parameters (iₐₙ₉, Rₚ and P). They prove the behaviour dependence of the above alloy on the composition and nature of the electrolyte.