abstract Kaon polarization operator in dense baryonic matter of arbitrary isotopic composition is calculated including s- and p-wave kaon-baryon interactions. The regular part of the polarization operator is extracted from the realistic kaon-nucleon interaction based on the chiral and 1/Nc expansion. Contributions of the Λ(1116), Σ(1195), Σ(1385) resonances are taken explicitly into account in the pole and regular terms with inclusion of mean-field potentials. The baryon-baryon correlations are incorporated and fluctuation contributions are estimated. Results are applied for K− in neutron star matter. Within our model a second-order phase transition to the s-wave K− condensate state occurs at ρ > 4ρ0 once the baryon-baryon correlations are included. We show that the second-order phase transition to the p-wave K− condensate state may occur at densities ρ < ∼ 3ρ0/5 in dependence on the parameter choice. We demonstrate that a first-order phase transition to a proton-enriched (approximately isospin-symmetric) nucleon matter with a p-wave K− condensate can occur at smaller densities, ρ < ∼ 2ρ0. The transition is accompanied by the suppression of hyperon concentrations.