Olive (Olea europaea sativa Hoff Link) is one of the most important fruit crops in the Mediterranean area where it is used for the production of oil and as a food source. The most important minerals in olives are Ca, P, Fe, Cu, Na, K and Mg. Table oil is fairly high in fat but much of the fat in olive oil is in the form of monounsaturated fatty acids and exhibit a high nutritional and biological value, resulting in good human health; therefore it can be considered as a healthy but high calorie food. In this study, the olive varieties of Samanlı, Domat, Manzanilla and Ascolana mineral matter contents (Na, K, Ca, Mg, Mn, Fe, Zn, Cu, Pb, Cd, As, Hg) were determined as freshly in green ripening period and after they were processed to green olive brine. As a result of the analyses performed it was determined that the mineral matter contents of the olive varieties of Samanlı, Domat, Manzanilla and Ascolana were changed significantly depending on being much or less of the harvest. Mineral composition was found as freshly in green ripening period variety as follows: 8.90-17.20 mg/100 g Na, 441-751 mg/100 g K, 10.60-26.60 mg/100 g Ca, 10.60-26.60 mg/100 g Mg, 1.42-2.68 mg/kg Mn, 3.24-14.88 mg/kg Fe, 2.00-5.06 mg/kg Zn, 3.59-7.19 mg/kg Cu, 0.013-0.0141 mg/kg Pb, 0.009-0.056 mg/kg Cd, 0.010-0.050 mg/kg As. Mercury was below the detection limits of this analysis. Mineral composition of olives after the green brine process was found as follows: 1564-2051 mg/100 g Na, 412.30-740.10 mg/100 g K, 42.16-85.03 mg/100 g Ca, 4.75-36.70 mg/100 g Mg, 1.40-2.72 mg/kg Mn, 3.23-15.10 mg/kg Fe, 2.18-4.10 mg/kg Zn, 3.28-6.67 mg/kg Cu, 0.012-0.0138 mg/kg Pb, 0.007-0.056 mg/kg Cd, 0.009-0.052 mg/kg As, resp. As a result of analysis it was decided that the chemical and the physical features of Samanlı, Domat, Manzanilla and Ascolana were protected, though they are adapted varietes, they are useful for green olive production. The level of metal contain was found well under the legal limits [1] which is 1 mg/kg for Pb and 5 mg/kg for Cu. The level of lead and cadmium was found under the limits of Turkish Food Codex which is 0.05 mg/kg fort the grain with stone. The amount of copper in the fresh and prossesed olives which were obtained from Samanlı variety was found over the limit of TS 774. It was thought that this small amount of the lead, cadmium and arsenic in the olives comes from the environment. As a conclusion the amount of Pb, Cd, As in olive was found lower than the level which might be risky for human health.