An alternative method using ion exchange resin, with mild processing conditions, without production of soaps and minimizing loss of neutral oil has been used for the deacidification of crude vegetable oil. The objective of this work was to evaluate and compare the quality of soybean oil deacidified by chemical and ion exchange methods. A fixed bed with 150 mL of a strong anionic resin (Amberlyst A26 OH) was used, where the miscella fed to the bed was composed of a mixture of degummed soybean oil with acidity of 2.18 %, using isopropanol as a solvent at the proportion of 50 %. The temperature employed during the process was 323.15 K and the flow rate was 7.0 mL.min⁻¹. The solvent was evaporated in a rotary evaporator under the following conditions: 393.15 K and 170 mmHg. Oil samples before and after deacidification by ion exchange, as well as deacidified in the industrial plant by the chemical method, were characterized according to the usual indexes for quality and identity. Deacidification by ion exchange reduced substantially the percentage of free fatty acids (98.22 %) and other undesirable compounds such as phospholipids and peroxides, however there was a tocopherol retention by the resin. The fatty acid composition and color did not show significant differences. The content of phospholipids and the intensity of oil color were lower for the oil deacidified by the chemical method than by ion exchange. Chemical refining also decreases the content of tocopherols, but in a lower degree than ion exchange deacidification.