The quality of beer can be damaged during storage due to the change in compositions, with altering the sensory properties. Polyethylene terephthalate bottle-packed beer (PETB) has been uniquely marketed in Korea, in addition of glass-bottled beer (GBB). Therefore, quality index of PETB and GBB by as accelerated test method was investigated for its shelf-life estimation. The pH, titratable acidity, amino acid content, alcohol content, color, bitterness units of 7 brand beers, including 3 of GBB and 4 PETB were analyzed during storage at 40°C. Sensory evaluation was also conducted to investigate the quality factor of the shelf-life during storage. The pH, titratable acidity, amino acid content and alcohol content of beers showed inconsistent result for all products; therefore, they cannot be considered as an appropriate quality factor. The color difference (∆E) of all beers increased during storage, because of the browning of beer; in contrast, bitterness units of all beers decreased. The physicochemical characteristics of the PETB beers were more rapidly changed than GBB. Bitterness and overall acceptability based on sensory evaluation decreased as storage periods increased. Bitterness and color difference changes of quality parameters, had effects on the sensory properties and determination of the shelf-life. The average rate constant of bitterness unit and color difference (∆E) were -0.441 and 0.414, respectively. The correlation coefficients of color difference (∆E) and bitterness units were more than 0.9 in all seven beers. In conclusion, bitterness units and color difference (∆E) would be a good quality index for shelf-life estimation of bottled beer.