In a study of ice cream formulations using different types of fat, rheology provides information to analyze the effect of each studied fat in the ice cream structure. The ice cream industry has used hydrogenated vegetable fat for the effects that it provides to the texture and its low cost. Due to its trans fatty acid content, many studies have been made to find a substitute. This project aimed to study the influence of different fats during the ageing process of an ice cream. Four ice cream formulations were produced using the same methodology and ratio of ingredients, varying the fat base using hydrogenated vegetable fat, low-trans fat, palm fat and cupuassu fat. Oscillatory rheological tests before and after the ageing process were performed in a MARS, Haake rheometer + optical microscopy, at 10 °C to simulate the temperature of the refrigerator used in the ageing process. A cone plate sensor (C35 / 1 Ti polished) was used. Analysis were performed at least in triplicate, with a stress amplitude sweep ranging from 0.01 to 100 Pa, with a constant frequency of 1 Hz and frequency sweeps varying from 0.1 -10 Hz, with a constant stress of 0.1 Pa. The structural behavior to the ageing process of the formulation produced with cupuassu fat was the most similar to the one produced with hydrogenated fat, followed by the low-trans fat formulation. The formulation produced with palm fat showed the least changes in the structure after the ageing process.