The bearing is one of the most important components of rotating machines. Nevertheless, in normal conditions of use, it is subject to fatigue which creates a defect called a rolling fatigue spalling. In this work, we present a follow-up of the thrust bearing fatigue on a test bench. Vibration analysis is a method used to characterize the defect. In order to obtain the fatigue curve more adjusted, we have studied the vibration level according to statistical indicators: the Root Mean Square value (RMS value), which is one of the best indicators to show the evolution of the bearing degradation. The approach follows the working of the bearing until the degradation with an on line acquisition of vibration statements in form of time signals. With the signal treatment, we obtain the values of the vibration amplitudes which characterize the vibration state of the bearing. Consequently, these values allow us to plot the fatigue curves. During our experimental work, this operation is applied for a batch of thrust bearings for which we have obtained similar fatigue curves where the evolution trend follows a regression model from the detection of the onset of the first spall. The result of this work will contribute to predict the working residual time before failure