Abstract: This thesis deals with chance constrained stochastic programming problems. The first chapter is an introduction. We formulate several stochastic programming problems in the second chapter. In chapter 3 we present the theory of α-concave functions and measures as a basic tool for proving convexity of the problems formulated in chapter 2 for the continuous distributions of the random vectors. We use the results of the theory to characterize a large class of the continuous distributions, that satisfy the sufficient conditions for the convexity and to prove convexity of concrete sets. In chapter 4 we present sufficient conditions for the convexity of the problems and we briefly discuss the method of the p-level efficient points. In chapter 5 we solve a portfolio selection problem using Kataoka's model.