In this article, a framework for the joint modelling of default and recovery risk in a portfolio of credit risky assets is presented. The model especially accounts for the correlation of defaults on the one hand and correlation of default rates and recovery rates on the other hand. Nested Archimedean copulas are used to model different dependence structures. For the recovery rates a very flexible continuous distribution with bounded support is applied, which allows for an efficient sampling of the loss process. Due to the relaxation of the constant 40% recovery assumption and the negative correlation of default rates and recovery rates, the model is especially suited for distressed market situations and pricing of super senior tranches. A calibration to CDO tranche spreads of the European iTraxx portfolio is performed to demonstrate the fitting capability of the model. Applications to delta hedging as well as base correlations are presented.