SUMMARY

The robust capacitated international sourcing problem with a finite capacity is about selecting a set of suppliers to satisfy a demand of products in a set of plants which are located in different countries.

This paper analyzes different priority strategies in order to generate initial solutions applying the TABU search algorithm to the ROCIS problem. The aforementioned solutions are used to choose the suppliers to incorporate to an initial solution.

The first strategy used establishes a priority to the suppliers which have a lesser fixed cost and higher production capacity, whereas the second strategy incorporates the expected value of the cost of sending the products from the provider to all the plants.

The first strategy imposes a disadvantage due to the fact that the shipping cost is not considered and even if the second strategy does consider it, the mechanism used turns out to be very pessimistic.

This document suggests modifying the mechanism that incorporates the shipping cost so that the only plants considered are those whose shipping cost is cheaper. In order to validate the previous condition, two alternative models are proposed.

The experimental results show that one of the strategies that were tested renders a 3.32% reduction of consumed resources when solving the instances, and a 21.05% of the required resources in order to reach the best solution. In addition to the previously mentioned reduction, solution quality is increased by 1.14%.

Since the results are most promising, research continues currently in order to apply these strategies in the improvement of development of the ROCIS solution using path relinking.