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## MODELING & ANALYSIS OF SHELL & TUBE HEAT EXCHANGER

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**ABSTRACT:-** The present work compares the polymer heat exchangers to the current technology in metallic heat exchangers. A review of state of the art of polymer heat exchangers is presented and technological problems are identified. In current metallic heat exchangers copper tube is used for transferring the heat, some heat losses are noticed due to high thermal conductivity of copper. The thermal expansion coefficient of copper tube is also high, so when the high temperature is achieved, changes in shape and size of the copper tube was observed. The chemical treatment process is done for removing the chocking defect, copper metal reacts with the chemical, therefore its strength decreases. The simulation models was developed and used to explore the thermal hydraulic, packing and weight tradeoffs associated with polymer heat exchangers. Finally, predicted results are helpful to provide essential background for deciding if and where to allocate resources to more detailed analysis and prototype development.

**Keywords:**—composite material, heat exchanger, polymer, copper tube



## METHODS OF BALANCING FOR UNBALANCED TRANSPORTATION PROBLEM: REVIEW

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**ABSTRACT:-** Transportation model plays an important role in logistics and supply chain management for reducing cost and improving service. The goal is to find the most cost effective way to transport the goods. The transportation cost is an important element of the total cost structure for any business. Transportation problem is a linear programming problem. However, a separate algorithm is designed to find out an optimal solution.

One of the major requirements of a transportation algorithm is that model is to be balanced. The conventional method to convert unbalanced model into equivalent balanced model involves considerable amount of computational work. This drawback can be overcome by one new method which reduces amount of computational work. In new method studied, the cost coefficients of dummy cells are such that these cells should be selected as last option in the development of basic feasible solution. The only care what is to be taken in this case is that the dummy cells should not be used in the calculation of objective function. This new strategy is referred as Penalty strategy. The paper provides a review on two different methods of balancing.

**Keywords**— transportation, unbalanced, model