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HEAT EXCHANGER MATERIAL SELECTION BY USING *MCDM Solver*

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ABSTRACT

Engineers in design process are often faced with a various selection problems. One of them is materials selection which plays an important role in engineering design. Knowledge of material properties, cost, design considerations and their influences are mandatory for design and manufacturing of different types of thermo-mechanical components. Therefore material selection process becomes a complex and time consuming task. Selection of the most appropriate material involves the study of a large number of factors, such as thermal, mechanical, electrical, chemical and physical properties as well as cost considerations and machinability of available materials. Heat exchanger is a design part which takes heat from one fluid and passes it to a second. Selection of the most suitable material for a heat exchanger is a multi-criteria decision making (MCDM) problem with diverse objectives. In order to help decision makers in solving this type of problems a decision support system named MCDM Solver is proposed.

Keywords: Material selection, Heat exchangers, Multi-criteria decision making, MCDM Solver, decision support system