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## Evaluation Method for Process Intensification Alternatives

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### Abstract

A method for the comparison of scenarios in the context of Process Intensification is presented, and is applied to cases reported in the literature, as well as several examples taken from selected industrial practices. A step by step calculation of different factors, all relevant in the chemical engineering and cleaning processes is also given. The most important feature of this new method is the simplicity of arithmetic operations, and its robustness for cases where there is limited information to provide a good assessment. The final calculated value, the Intensification Factor, provides an interesting decision-making element that can be weighted by experts, no matter which level of detail or the particular activity is considered (economical, technical, scientific). Additionally, it can contain as many quantitative and qualitative factors as there are available; they are all lumped into a number with a clear meaning: if larger than one the new alternative is superior to the existent; if is smaller than one, the opposite applies. The proposed method is not to be considered only as a tool for experts in the specific process intensification discipline, but as a mean to convince outsiders. Also, it can be used in educational settings, when teaching young professionals about innovation and intensification strategies. A discussion forum has been created to evaluate and improve this method and will be open to professionals and interested researchers that have read this paper.

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