

# **EXERGOECONOMICS APPLIED TO SUGAR - ALCOHOL INDUSTRY**

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*Abstract. The energy management in the productive process of the sugar and alcohol factories is a challenge and at the same time a fascinating theoretical and practical problem. These factories are an interesting field of study due to from only one raw material: the sugar cane, they supply three products: sugar, alcohol and electric energy, and simultaneously, the fuel for the process: the bagasse. The energy systems today in use for cogeneration are top cycle, steam based. Low pressure steam is employed as working fluid for heat transfer. In the production process, the steam used in the juice evaporation system and in the alcohol distillation determines the energy savings. Some others technology options are determining also, as the use of mechanical mill or diffusers, direct traction or electrical engines, types of evaporators, systems for water extraction of the hydrated alcohol, etc.. At the literature, studies can be found that focus aspects of the problem but not the global one. The present paper discusses the use of the exergoeconomic methodology applied to the global system, in an integral treatment, in order to improve the energy use in the sugar alcohol industry.*

*Keywords. Sugar, alcohol, cogeneration, energy, exergy.*