



USE OF CFD IN THE EVALUATION OF TEMPERATURE EVOLUTION IN THE LIQUEFACTION OF LEMON BAGASSE

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In this work, the time evolution of thermal profile inside the liquefaction vessel fed with water steam (125 °C) as heat source was investigated to evaluate the influence of the amount of solvent on heat transfer and how temperature and time of reaction influences the lemon bagasse polyol yield.

The analysis of liquefaction process was done by two different ways: (i) experimental transient liquefaction and (ii) numerical CFD simulations considering two computational domains.

Table1: Liquefaction conditions to obtain the polyol

Samples	Polyol 1	Polyol 2	Polyol 3
Solvent/biomass (%wt)	2:1	3.5:1	5:1
Time (min)	30	60	90

Liquefaction temperatures are limited to the thermal conductivity of the system and. The experimental results are consistent with the transient thermal CFD profiles. Therefore, CFD model, even presenting some oscillations, can be used for estimation and analysis of liquefaction process.

