

Of the list below, which solvent is the most energy intensive to prepare?

- a) THF
- b) Hexanes
- c) DMF
- d) Ethanol

The challenge with calling a solvent “green” comes from varying ways to look at the solvent. For example, is a solvent green just because it is derived from a biomass source? Is it green just because it is benign to humans and the environment? Is it green due to low energy costs in its production? what class of solvents will be responsible for the greatest reduction in environmental damage. All of these must be taken into consideration.

In 2011, Philip G. Jessop wrote a fantastic piece in *Green Chemistry* entitled Searching for Green Solvents, in which he examines all these factors and discusses the use of green solvents in sustainability focused journals. He also discusses the challenges for people to adopt green solvents in their work.

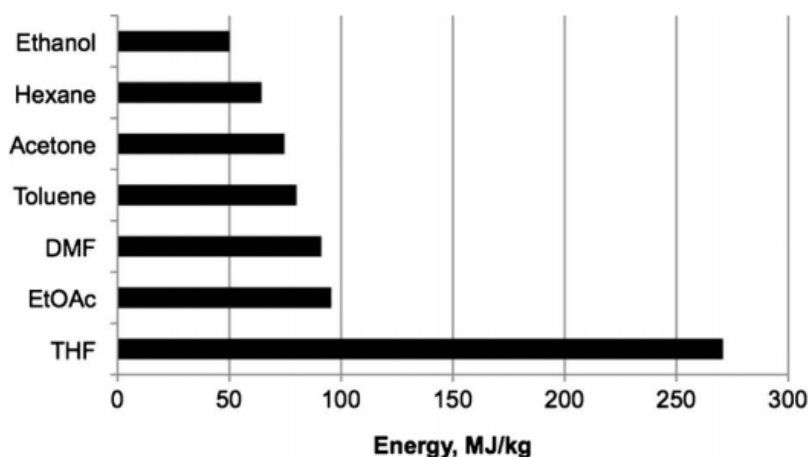


Fig. 5 The energy required to manufacture 1 kg of solvent.²²

When viewed from a purely energy of production point of view, THF is by far the most detrimental solvent.

References:

- 1) Searching for green solvents, Jessop, P. *Green Chem.*, **2011**, *13*, 1391-1398.
- 2) What is a green solvent? A comprehensive framework for the environmental assessment of solvents, Capello, C.; Fischer, U.; Hungerbuhler, K.; *Green Chem.*, **2007**, *9*, 927-934.