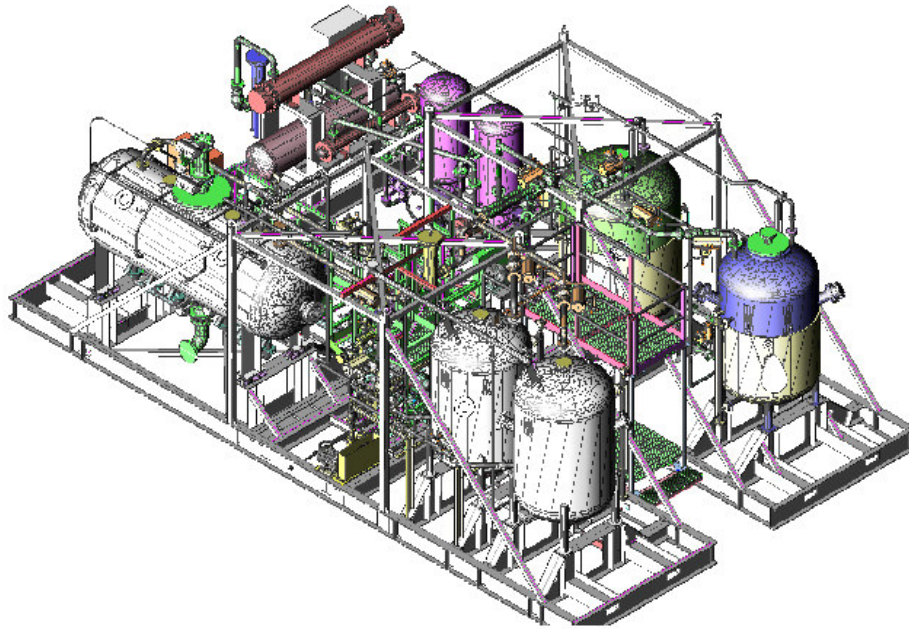


**EI Job Number: 206044**  
**Application: Solvent Extraction of Essential Oils**  
**Solvent: unoderized propane**

**Products: essential oils; variable feedstock is allowed**  
**Country: USA**  
**Capacity: 10 ton (short ton) per day**

#### **A Snapshot...**

Ely Energy was contracted to design and build a 10ton/day oil seed solvent extraction process. Traditional solvent extraction systems use hexane as the solvent, however, concerns exist with the use of hexane. In 2001, the U.S. Environmental Protection Agency issued regulations on the control of hexane emmissions. In addition, the EPA classified hexane as a Group D substance, not classifiable as to human carcinogenicity.



Our mission was to use an alternative to hexane that could provide better results and ultimately prove to be a more efficient and “friendly” solvent.

The ultimate design is illustrated in above. The extraction unit of the system receives fresh *oil bearing vegetable matter* (OBVM) through an opening at the top. The weight of the OBVM is measured by load cells. The meal is then dispersed within the extractor by a mechanical device and processed. After multiple wash cycles, the propane is removed and recovered via an LPG pumping system. Heat is then introduced and the LPG vapor is recovered via a compressor. The propane portion of the design is a closed loop system. A complete extraction cycle requires approximately 3 hours.