Shale Gas Ethane-Propane Problems to be Solved

I. The investment cost and economy of scale required for a new ethane to ethylene cracker are too high to be of commercial interest.

II. The investment cost and economy of scale required for a new propane to propylene dehydrogenation plant are also too high to be of commercial interest.

III. Since ethylene and propylene are gases current cracking and dehydrogenation technologies require significant downstream investment and risk to insure full unit capacity utilization required for good economics.
“KPT LLC Technical Team Solution”
Simple Proprietary Process to Economically Convert Natural Gas Ethane to Ethanol and/or Propane to Isopropanol

Natural Gas

Ethane

Ethanol

Ethylene

Key Innovation:
Selective Oxidation

Known Ultra Low Cost Technology

Natural Gas

Propane

Isopropanol

Propylene
**Why It Will Work:**

1. The historical problems of oxidation selectivity, catalyst usage/cost, productivity and control have been solved. Continuous lab demonstration is underway.

2. The unique ability to selectively and economically oxidize ethane to ethanol and propane to isopropanol with a low investment and reduced economy of scale requirement is a “game changing” technology.

3. Moreover the technology makes utilization of shale gas ethane and propane to produce ethanol and isopropanol respectively cost advantaged and commercially viable.
**Customer Value Proposition:**

Major chemical companies considering building an ethane cracker or propane dehydrogenation plant should be interested because the process:

- a. Provides a low cost means to potentially lower either ethylene or propylene production cost by up to 5 cents per pound.
- b. Lowers the financial risk of building a new cracker.
- c. Lowers the downstream investment required by traditional technologies.

**KPT LLC Funding Needs: Phase I = $75K, Phase II = $240K**

1. Support Process Development @ MATRIC
2. Support development of IP and licensing packages.
3. Support process development, design and economics.