

# SHIZEN CONVERSION & SEPARATION TECHNOLOGY (SHIZEN)

- Prof. Dr. Tomoya Tsuji, Professor (Head of iKohza)
- Dr. Mariam Firdhaus binti Mad Nordin, Senior Lecturer
- Dr. Pramila a/p Tamunaidu, Senior Lecturer
- Dr. Nabilah binti Zaini, Senior Lecturer
- Ir. Dr. Tan Lian See, Senior Lecturer
- Dr. Norhuda binti Abdul Manaf, Senior Lecturer
- Ir. Ts. Dr. Kiew Peck Loo, Senior Lecturer

## NUMBER OF STUDENTS

- Ph.D : 5 students
- Master: 4 students
- Bachelor: 14 students

## RESEARCH KEYWORDS

Sustainable energy, Biofuels, New materials, Utilization of wastes, Thermodynamic models, Process design & control, Apparatus and assembly design

## OUTLINE OF IKOHZA

Separation and reaction process are designed from a view point of physical properties and phase equilibrium. Shizen Ikohza also provides precise physical properties for various industries. Research area is now expanded to development of high performance materials.

## CURRENT RESEARCH

### RESEARCH 1: SUSTAINABLE ENERGY & FUELS

1st and 2nd Generation biodiesel Syngas from biomaterials  
DME, E10-20 gasoline Highly purified oil & gas (sulfur & mercury free)



### RESEARCH 2: NEW MATERIALS

Refrigerants, Spray propellants, Hydrogen storage medium,  
Extract by use of hot compressed water, Bio- & synthetic polymers  
and monomers,



**Corncob**



**Bioplastic**



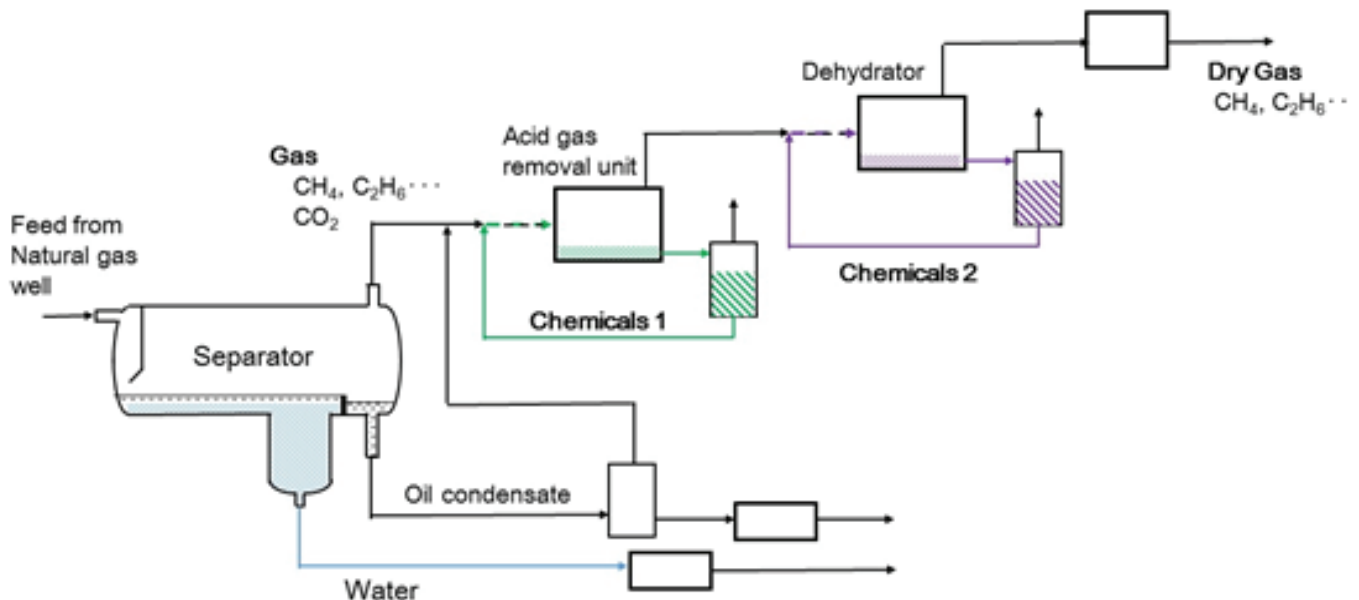
**Bioplastic Products**

- **RESEARCH 3:** Design of Chemical Process and Control based on mathematical models / physical properties / phase equilibria



### MERIT OF THE TECHNOLOGY

- 1) Optimization of Oil & Gas processing units



- 2) Intelligent platform for process simulation Optimization for given reaction and separation process from view point of material / energy balances by using commercialized software and own data / thermodynamic models

### POSSIBLE INDUSTRY APPLICATION

- Providing apparatus for physical property measurements
- Measurement and Prediction models for physical properties and phase equilibria
- Development of flowsheet based on industrial data and thermodynamic model (We had more than 25 collaboration / researches with Industries)

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