

# DIPPR PROJECT 821

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# PROJECT 821: VAPOR PRESSURES

- **PROGRESS REPORT**
  - **COMPOUNDS COMPLETED - REPORT IN SYSTEM**
  - **PRESENT COMPOUND LIST**
  - **NEW COMPOUND LIST**
    - **EXAMPLES OF RESULTS**

# PROJECT 821: VAPOR PRESSURES

- MEASUREMENTS

Compound	Density	Critical T and $\rho$	VP	Heat capacity
<b>1,4-butanediol</b>	<b>yes</b>	<b>yes</b>	<b>yes</b>	<b>yes</b>
<b>1,3-propanediol</b>	<b>yes</b>	<b>yes</b>	<b>yes</b>	<b>yes</b>
<b>1-nonanol</b>	<b>yes</b>	<b>yes</b>	<b>yes</b>	<b>yes</b>
<b>dodecane</b>	<b>yes</b>	<b>yes</b>	<b>yes</b>	<b>yes</b>
<b>butyl carbitol</b>	<b>yes</b>	<b>??</b>	<b>yes</b>	<b>??</b>
<b>styrene</b>	<b>yes</b>	<b>Guess ?</b>	<b>xxxx</b>	<b>yes</b>

# PROJECT 821: PRESENT COMPOUNDS

**Dihexyl ether**

**Carbitol [2-(2-ethoxyethoxy)ethanol]**

***2-formyl tetrahydrofuran***

***3-formyl tetrahydrofuran***

***2,5-divinyl-1,4-dioxane***

**t-butyl acrylate**

***methylethylketoxime (MEKO)***



***Aldicarboxime***

***[methylthioisobutyraldeoxime (ADO)]***

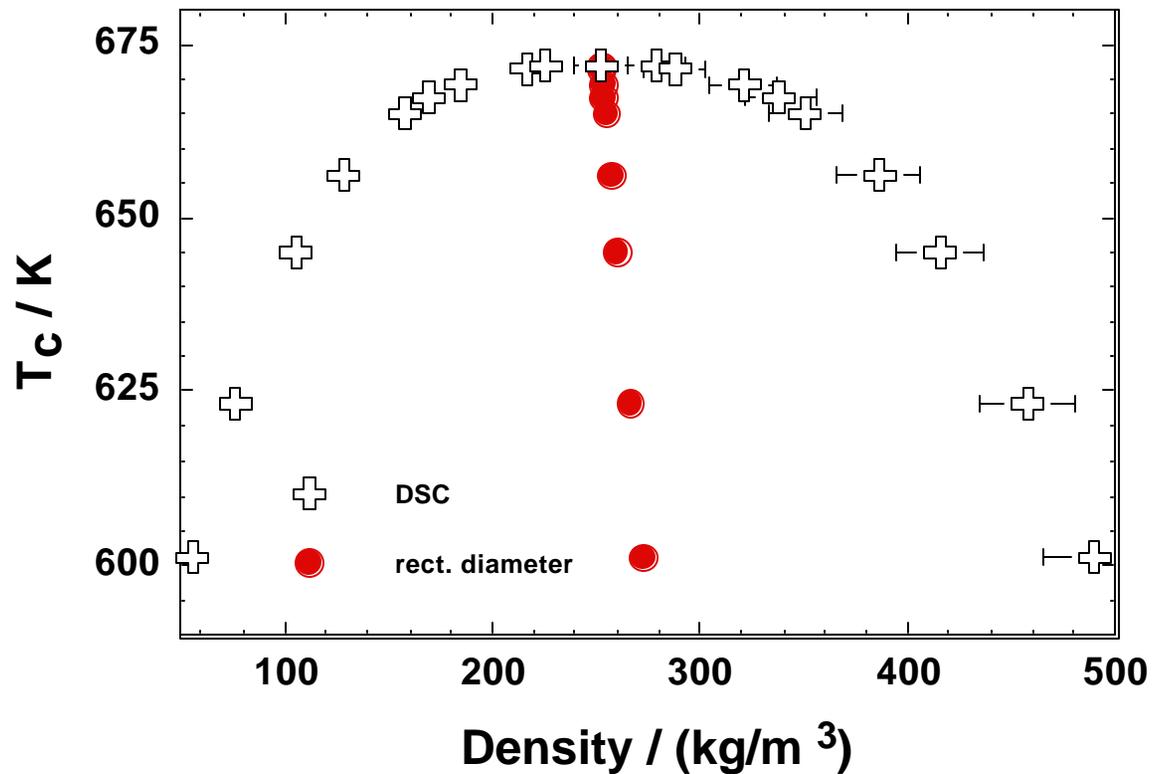


# PROJECT 821: NEW COMPOUNDS

- OXAZOLE
- ETHYLIDENE DIACETATE
  - OTHERS ????

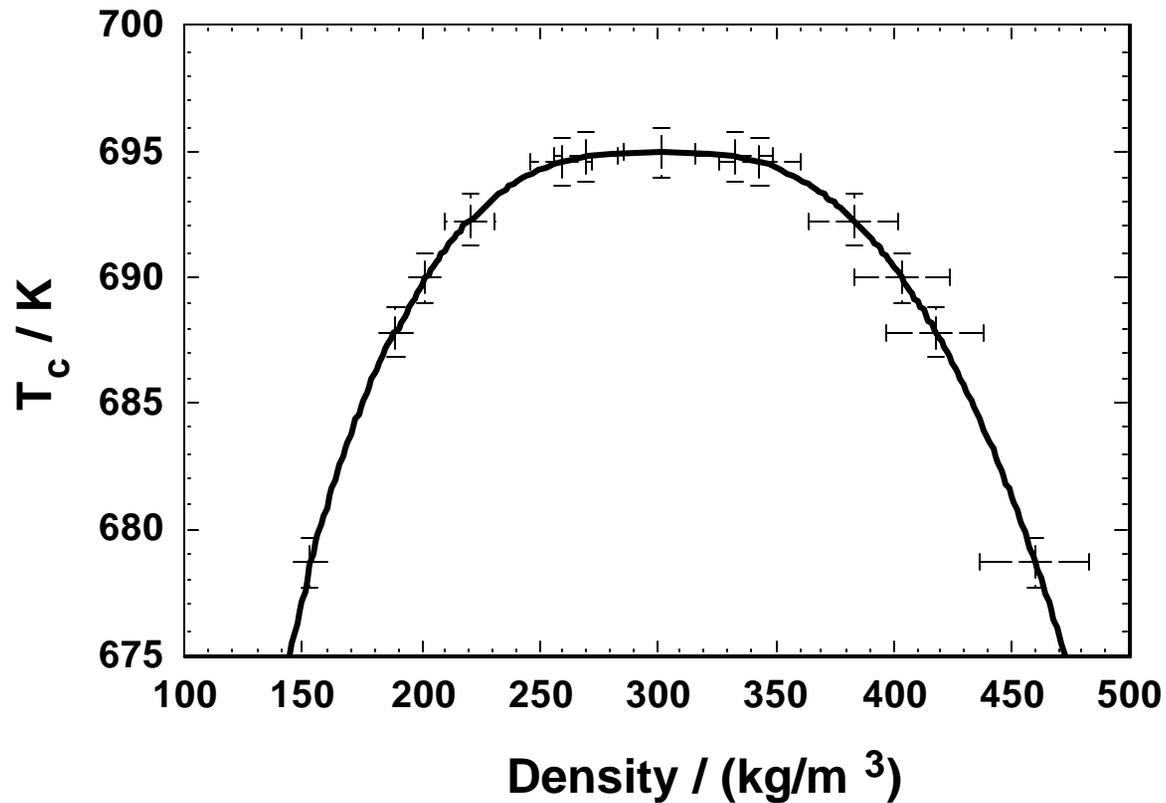
# PROJECT 821: RESULTS

## 1-NONANOL



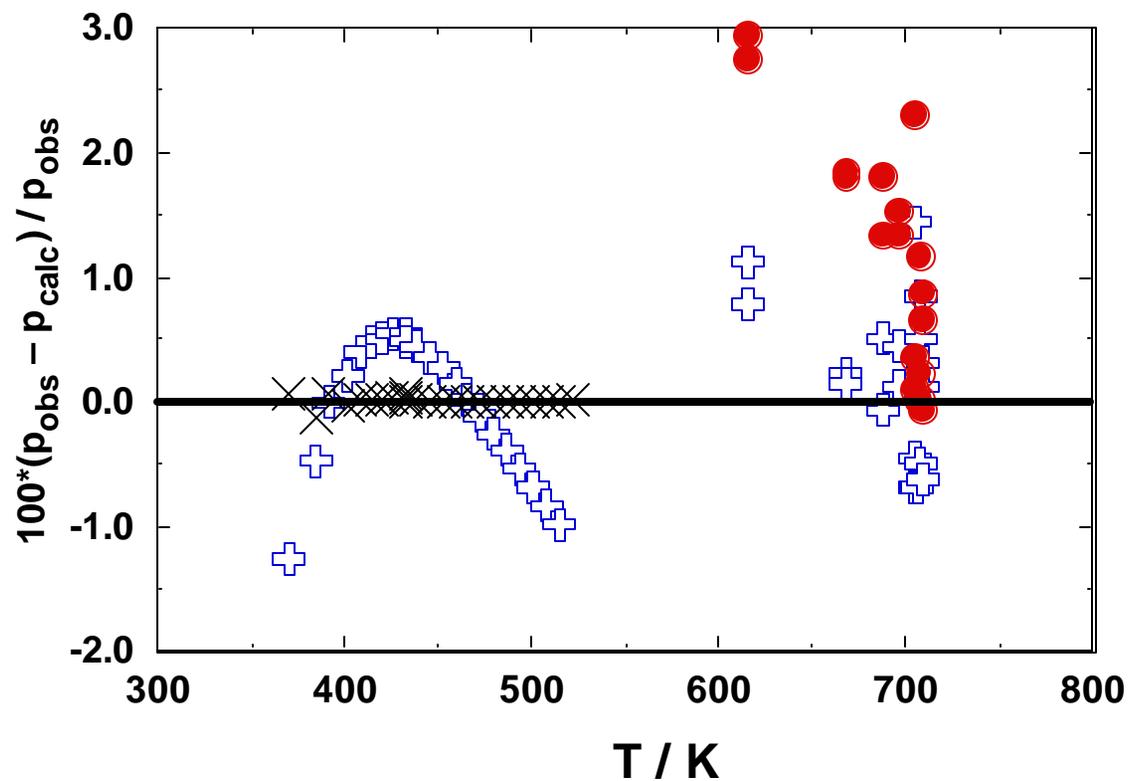
# PROJECT 821: RESULTS

## BUTYL CARBITOL



# PROJECT 821: DISCUSSION SLIDE

## 2-(2-AMINOETHYLAMINO)ETHANOL



# PROJECT 871: ENERGIES OF COMBUSTION

- **PROGRESS REPORT**

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# PROJECT 871: COMPOUNDS COMPLETED

**Malonic acid**

**Malononitrile**

***Methoxyacetone***

**Propylene glycol monomethyl ether**

**Propylene glycol mono-n-butyl ether**

**Dipropylene glycol monomethyl ether**

# PROJECT 871: PRESENT COMPOUNDS

***Methylthioisobutyraldehyde***

**Oct-4-yne**

**2,2,7,7-tetramethylocta-3,5-diyne**



**Diethylphthalate**

**Dibutylphthalate**

# PROJECT 871: NEW COMPOUNDS

OAK RIDGE NATIONAL LABORATORY  
U. S. DEPARTMENT OF ENERGY



# PROJECT 871: RESULTS

**MALONIC ACID**      $\mathbf{D_cU_m^o - 862.0 \pm 0.5}$

**$\text{kJ}\cdot\text{mol}^{-1}$**

**MALONONITRILE**      $\mathbf{D_cU_m^o - 1654.2 \pm 0.3}$

**$\text{kJ}\cdot\text{mol}^{-1}$**

# PROJECT 821/871: HIGHLIGHTS

- 6 papers covering the years 1996, 1997, and 1998 in review for the Journal of Chemical Engineering Data
  - Over 150 compounds studied in lifetime of the 2 Projects
  - Measurement used throughout the industry particularly in Process Simulation

# PROJECT 821/871: HIGHLIGHTS (2)

- Fifth edition “Chemical Engineers Bible” The Properties of Gases and Liquids by B. E. Poling, J. M. Prausnitz, and J. P. O’Connell
- Property Databank used in industry by engineers in process design. The previous seven DIPPR publications are highlighted in the References to the database as sources of reliable and accurate property measurements.