The
Knovelized e-Reference

Robert R. Brand
Knovel Corporation
Danbury, CT
Presentation Agenda

• e-Books from a Knovel Perspective
• Knovel Technology
• Searching with an e-Handbook Focus
Why e-Books?

One Solution to Information Overload
Why e-Books?

- Libraries are shrinking or being outsourced.
- 24/7 anywhere
- More up to date than hard copy.
- Search across multiple books.
- Text and databases integrated.
- Added functionality and interactivity.
Classes of e-Books

• 3 Faces
  – e-Journals
  – e-Abstracts
  – e-References

• 2 Views
View I
Academic and Industrial Researcher

- **Primary**
  - e-Journals

- **Secondary**
  - e-Abstracts

- **Tertiary**
  - e-References

- Doctoral Student, Research Professor, R&D Professionals and Librarians
View II
Design Engineer and Bench Chemist

Students, Teachers, Design Engineers, Bench Chemist, Librarians
Knovel Technology

Answers to your Questions

Supported by over 450 e-Titles

Critically acclaimed Scitech Reference books, Handbooks and Databases from distinguished publishers.
Publisher Portals

Each interface DIFFERENT.

NO searching across portals.
Knovel Portal

Search across ALL content.

ONE interface.
How will you use?

- Browse a book
- Keyword search in a book
- Keyword search across ALL books
- Data search across ALL books
Keyword or Data
Vapor Pressure: Phenol

\[ P_{vap} = \exp \left[ C_1 + \frac{C_2}{T} + C_3 \ln(T) + C_4 T^{C_5} \right] \]
You Pick the Units

Export to Excel
### Define 1st Criteria:
- **Category:** hazard-related properties
- **Field Name:** flash point
- **Units:** °C
- **Recommended Units:** °C, °F
- **Operator:** greater than or equal to (>=)
- **Numeric Value:** 100 °C
- **Available Range:** -222.0 - 3640.0 °C

### Define 2nd Criteria: Boolean
- **Category:** physical constants
- **Field Name:** density
- **Units:** g/cm³
- **Recommended Units:** g/cm³, kg/m³, lb/ft³, lb/in³
- **Operator:** is between (>=/<=)
- **Numeric Range:** 1.0 - 1.25 g/cm³
- **Available Range:** 9.23E-5 - 1090.0 g/cm³

### Define 3rd Criteria: Boolean
- **Category:** physical constants
- **Field Name:** melting point
- **Units:** °C
- **Recommended Units:** °C, K
- **Operator:** greater than or equal to (>=)
- **Numeric Value:** -10 °C
- **Available Range:** -309.0 - 8800.0 °C
<table>
<thead>
<tr>
<th>No.</th>
<th>Material or Substance Name</th>
<th>Molecular Formula</th>
<th>Molecular Weight</th>
<th>Beilstein Ref.</th>
<th>Density (g/cm³)</th>
<th>Refractive Index</th>
<th>Melting Point (°C)</th>
<th>Boiling Point (°C)</th>
<th>Flash Point (°C)</th>
<th>Solubility in 100 Parts Solvent (wt%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>Acetanilide</td>
<td>CH₃CONHC₆H₅</td>
<td>135.17</td>
<td>12, 237</td>
<td>1.219₁⁴</td>
<td></td>
<td>114</td>
<td>304-305</td>
<td>173</td>
<td>0.56 25% 25% acet; 29% alc; 2% bz; 27% chl; 5% eth</td>
</tr>
<tr>
<td>25</td>
<td>Acetoacetanilide</td>
<td>CH₃COCH₂CONHC₆H₅</td>
<td>177.20</td>
<td>12, 518</td>
<td>1.260₂⁰</td>
<td></td>
<td>85</td>
<td>dec</td>
<td>185</td>
<td>s alc; hot bz; adds; alkalis; chl; eth</td>
</tr>
<tr>
<td>162</td>
<td>6-Aminodiphenylmethane</td>
<td>(C₆H₅)₂CHNH₂</td>
<td>183.25</td>
<td>12, 1323</td>
<td>1.065₃⁴</td>
<td>1.5950₂⁰</td>
<td>34</td>
<td>304</td>
<td>&gt;110</td>
<td>s alc; hot sz; adds</td>
</tr>
<tr>
<td>175</td>
<td>N-(2-Aminoethyl) morpholine</td>
<td>HOCH₂C(NH₂)(C₂H₅)</td>
<td>130.19</td>
<td>27, 370</td>
<td>0.992</td>
<td>1.4755₂⁰</td>
<td>25.6</td>
<td>205</td>
<td>175</td>
<td>s alc; hot sz; adds; bz; acet; adds</td>
</tr>
<tr>
<td>179</td>
<td>2-Amino-2-ethyl-1,3-propanediol</td>
<td>HOCH₂C(NH₂)(C₂H₅)</td>
<td>119.16</td>
<td>4, 4, 850</td>
<td>1.099₂⁰</td>
<td>1.490₂⁰</td>
<td>38</td>
<td>152</td>
<td>&gt;110</td>
<td>misc alc; s alc</td>
</tr>
<tr>
<td>223</td>
<td>4-(Aminomethyl) pyridine</td>
<td>H₄NCH₂(C₂H₅)H₂</td>
<td>108.14</td>
<td>22, 4131</td>
<td>1.065</td>
<td>1.5515₂⁰</td>
<td>-8</td>
<td>230</td>
<td>108</td>
<td>s alc</td>
</tr>
<tr>
<td>224</td>
<td>2-Amino-3-methylpyridine</td>
<td>H₂N(CH₃)(C₂H₅)H</td>
<td>108.14</td>
<td>22, 342</td>
<td>1.073</td>
<td>1.5823₂⁰</td>
<td>32-34</td>
<td>222</td>
<td>111</td>
<td>v s alc; v s alc; eth</td>
</tr>
<tr>
<td>231</td>
<td>1-Aminonaphthalene</td>
<td>(C₁₀H₈)NH₂</td>
<td>143.18</td>
<td>12, 1212</td>
<td>1.13</td>
<td></td>
<td>48-50</td>
<td>301</td>
<td>157</td>
<td>0.17 25% v s alc; eth</td>
</tr>
</tbody>
</table>
This book provides a complete overview of the tools and techniques required to do a quantitative analysis of the risk associated with the immediate impact of potential episodic accident events such as fires, explosions, and the release of acutely toxic material.

Table of Contents

2.1 Source Models
Example 2.1: Liquid Discharge through a Hole in a Tank

Input Data:
- Tank pressure above liquid: 0.1 barg
- Pressure outside hole: 0 barg
- Liquid density: 490 kg/m³
- Liquid level above hole: 2 m
- Hole diameter: 10 mm

Excess Head Loss Factors:
- Entrance: 0.5
- Exit: 1
- Others: 0
- TOTAL: 1.5

Calculated Results:
- Hole area: 7.86E-05 m²
- Equation terms:
  - Pressure term: -20.4082 m²/s²
  - Height term: -19.6 m²/s²
  - Velocity coefficient: 1.25
- Exit velocity: 5.7 m/s
- Mass flow: 0.22 kg/s

Figure 2.8: Spreadsheet output for Example 2.1: Liquid discharge through a hole in the tank.

Example 2.2: Liquid Trajectory from a Hole. Consider again Example 2.1. A stream of liquid discharge from a hole in a tank will stream out of the tank and impinge the ground at some distance away from the tank. In some cases the liquid stream can shower over any diking designed to contain the liquid.

(a) If the hole is 3 m above the ground, how far will the stream of liquid stream away from the tank?
(b) At what point on the tank will the maximum discharge distance occur? What is this distance?

Solution:
(a) The geometry of the tank and the stream is shown in Figure 2.9. The distance away from the tank the liquid stream will impact the ground is given by:

\[ h = \frac{2gH}{v_f^2} \]
Wise Words...

“Information when analyzed becomes intelligence.”
— Dr. Anthony Trippe
Vertex Pharmaceuticals

“Knovel synthesizes information into knowledge”
— Christopher Forbes
knovel Corporation
Last Words...

“During the Internet age, we’ve forgotten that professional librarians know how to find information better than anyone – especially better than computer programmers.”

— John C. Dvorak

PC Magazine

October 15, 2002

From the movie “It’s a Wonderful Life.”