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# Elementary Principles Of Chemical Processes Solutions

## Chapter 4

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the basic principles and  
calculation techniques used in the  
field of chemical engineering,  
providing a solid understanding  
of the fundamentals of the  
application of material and  
energy balances. Packed with  
illustrative examples and case  
studies, this book: Discusses  
problems in material and energy  
balances related to chemical  
reactors Explains the concepts of  
dimensions, units, psychrometry,  
steam properties, and  
conservation of mass and energy  
Demonstrates how MATLAB®  
and Simulink® can be used to  
solve complicated problems of  
material and energy balances  
Shows how to solve steady-state  
and transient mass and energy  
balance problems involving  
multiple-unit processes and  
recycle, bypass, and purge  
streams Develops quantitative  
problem-solving skills,  
specifically the ability to think  
quantitatively (including numbers  
and units), the ability to translate  
words into diagrams and  
mathematical expressions, the  
ability to use common sense to  
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use of approximations and  
reasonable assumptions to  
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practice in effective teaching techniques. The text is in use at more than 4 out of 5 chemical engineering programs in the US.

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components of an  
engineering  
calculation, processes  
and process variables,  
fundamentals of  
material balances,  
single and multiphase  
systems, energy and  
energy balances,  
balances on nonreactive  
processes, and more.