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*Nomenclature**

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Answers to Problems

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*Appendix A: Some Thermodynamic Relations**

A.1 Simple, Compressible Substance*

A.1.1 Internal Energy and Specific Heat Capacity at Constant Volume*

A.1.2 Specific Enthalpy and Specific Heat Capacity at Constant Pressure*

A.2 Phase Change and Heat of Phase Change*

A.3 Chemical Reaction and Heat of Reaction*

A.4 References*

*Appendix B: Derivation of Differential-Volume Energy Equation**

B.1 Total Energy Equation*

B.2 Mechanical Energy Equation*

B.2.1 Mass Conservation Equation*

B.2.2 Species Conservation Equation*

B.2.3 Momentum Conservation Equation*

B.2.4 Mechanical Energy Equation*

B.3 Thermal Energy Equation*

B.4 Thermal Energy Equation: Enthalpy Formulation*

B.5 Thermal Energy Equation: Temperature Formulation*

B.6 Conservation Equations in Cartesian and Cylindrical Coordinates*

B.6.1 Cartesian Coordinates, $\mathbf{x} = (x, y, z)$ and $\mathbf{u} = (u, v, w)$ *B.6.2 Cylindrical Coordinates, $\mathbf{x} = (r, \phi, z)$ and $\mathbf{u} = (u_r, u_\phi, u_z)$ *

B.7 Bounding-Surface Energy Equation with Phase Change*

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