The ASTM Computer Program for Chemical Thermodynamic and Energy Release Evaluation

CHETAH® Version 10.0 User Guide

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VERSION 10.0 PREPARED FOR ASTM COMMITTEE E27

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**Foreword**

ASTM Committee E27 has been responsible for the computer program CHETAH since it was first introduced in 1974. Although there is no official ASTM standard practice or guide designation for this program, the committee has worked diligently to build an extensive, reliable, and traceable database and associated application software. The committee continues to coordinate, review, and test further refinements to CHETAH.

To provide more complete documentation on the use of CHETAH, Appendixes A and B in this manual were adapted from internal Dow Chemical Company reports released to ASTM Committee E27.07. The consensus of the committee is that the techniques outlined in these two appendixes are useful in exploiting the full power of CHETAH.

The latest version was largely prepared by a team at the University of South Alabama in close coordination with Committee E27.
Acknowledgments

The development of CHETAH has taken place over the years with the generous support and invaluable technical assistance of a great many people too numerous to list. However, special acknowledgement is in order for Dr. William Seaton, who for many years spearheaded the continued development of the program.

With many omissions, others who have made major contributions to the program include Dave Fruip (Dow), Carol Davies (Dow), Gary Buckley (Cameron University), Eli Friedman (Eli Friedman and Associates), G. Hertel (University of South Florida), Josee Audet (Meck), Jeff Niemeyer (Lilly), Donna Loftin (University of South Alabama), Srinath Balaraman (University of South Alabama), Malcolm Chase (National Institute of Standards and Technology), and Larry Britton (retired).

Special thanks to the graduate assistants who helped support CHETAH and participated in the early-stage development of this version: Akilesh Akula, Rahul Badaru, and Bharatan Vijaykumar. A major code rewrite was undertaken by independent consultant Dan Detman with the support of ASTM funding. Dan accomplished a translation of the program from Visual Basic to a Microsoft Access application.

In addition, Dr. Kevin West (University of South Alabama) and two graduate students, Reggie Ross and Weisin Chai, were involved in a project related to database development supported by Pfizer Inc. This project was also beneficial to CHETAH 10.0.

CHETAH 10.0 represents an upgrade from the Visual Basic language to an application based on Microsoft Access. The coding for this new version was accomplished by Dan Detman, with content input from several ASTM E27 committee members.