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ASTHMA88/PC

Axi-Symmetric Transient Heating and Materials Ablation Code for PC

The **ASTHMA88/PC** program has been developed for computing the 2-D -Symmetric transient thermochemical response of decomposing materials subject to hyperthermal convective and radiative environments. The **ASTHMA88/PC** code employs an implicit/explicit, finite-difference computational procedure with a fixed two-dimensional grid whose layout is independent of the physical axes. The numerical modeling includes equations for mass and energy conservation and material decomposition; the flow of pyrolysis gas through the porous, decomposing solid; the calculation of material properties as a function of temperature and material state; general ablating surface and back wall/side wall boundary conditions, and a comprehensive surface energy balance which accounts for convection and radiation absorption, re-radiation, in-depth condition, surface ablation, pyrolysis gas flow, transpiration effects, and thin-layer mechanical removal or surface melting. Validation studies demonstrate excellent agreement with other standard thermochemical analysis codes (i.e. CMA [1-D, decomposing] and ASTHMA81 [2-D, non-decomposing])

The **ASTHMA88/PC** code can handle multiple decomposing and non-decomposing, anisotropic materials in simple or complex two-dimensional Axi-Symmetric configurations. Surface boundary conditions may be described in three options:

1. Simple specified temperature and recession
2. Specified heat flux with no recession
3. General thermochemical model incorporating both equilibrium and non-equilibrium computations, for any material exposed to any convective and/or radiative environment.

We at Galaxy Advanced Engineering (GAE), Inc. have taken the steps to produce the PC version, i.e. **ASTHMA88/PC**. Currently the program is operating on PC or 100% compatibles under PC/DOS or MS/Windows95/98/2000/XP/ME/7/Vista and NT operating system. To obtain this code please contact our company or call us on 650-740-3244