NON-ROUND PARTICLES
BREAKAGE SIMULATIONS
GPU AND CPU PROCESSING

www.rocky-dem.com
ROCKY is a powerful, 3D Discrete Element Modeling (DEM) program that quickly and accurately simulates the granular flow behavior of different shaped and sized particles within a conveyor chute, mill, or other materials handling equipment.

Mining and manufacturing organizations are choosing ROCKY DEM software to evaluate their bulk material handling systems because it simulates granular flow quickly, accurately, and with more similarity to real-world conditions than ever before. With its ability to create realistic shapes that settle and compact just like actual particles, and its variable sticky and dust-like conditions, ROCKY can replicate nearly any type of material handling environment imaginable.

FEATURES

• Streamlined Calculations
• Double-Precision Processing, Now with GPU Capabilities
• Large Particle Size Distributions
• Non-Round Particle Shapes
• Sticky and Dry Contact Rheologies
• 3D Surface Wear Modification
• Animated & Vibrating Boundaries
• Easy CAD Geometry Import and Simulation Setup
• Graphical and At-a-Glance Wear and Power Data
• FEA Integration with ANSYS
• 360° Wraparound Movie View Transitions
KEY BENEFITS

- Increases equipment life and capacity
- Eliminates blockages and belt punctures
- Decreases spillage and product degradation
- Reduces dust, noise, and equipment power
- Defines ore trajectories
- Optimizes belt tracking
- Minimizes liner wear and maintenance

ROCKY AND ANSYS COUPLING

There is an increasing need to design protective structures that can withstand or mitigate the impulsive loading due to the impact of a particle or bulk of solids. A reliable predictive model to determine the behavior of bulk solids and their effect on equipment structures can solve, or even avoid completely, many of these problems.

In a particle-to-structure interaction (PSI), ROCKY provides load-sets (stresses generated by the solids within the equipment) to be used in a structural analysis tool (e.g., ANSYS) in order to estimate the structural response on the equipment. ROCKY has a fast and accurate method of coupling the DEM and FEM methods on non-coincident meshes.
APPLICATIONS

Besides chute and mill designs, you can use ROCKY to evaluate all of the following types of material handling systems:

- plugged chutes
- belt and apron feeders
- vibrating feeders
- bins and bunkers
- stockpile reclains
- shovel arms
- moving gates
- rod mills
- screw conveyors
- excavators
- and many more!
The only commercial code that uses truly non-round particles and accurate breakage simulations, calculated quickly with GPU processing.

**NON-ROUND PARTICLES**
ROCKY uses truly non-spherical particle models that behave like real-world particles, which produces more realistic results.

**BREAKAGE SIMULATIONS**
ROCKY simulates breakage by calculating the fracture of each particle based upon the energy generated from impact or friction.

**GPU AND CPU PROCESSING**
ROCKY’s new use of the GPU accelerates the computational workload, especially when processing simulations with many particles.

**EASY TO USE**
A flexible, hierarchical interface, customizable parameters, and programmable scripts and macros make ROCKY simulations simple to set up, run, and iterate upon. ROCKY can also easily import CAD geometries and export data to the most popular Finite Element Analysis (FEA) programs available in the market, including direct integration with ANSYS packages.

**REALISTIC**
ROCKY simulates more than 5 million particles in nearly limitless shapes and size distributions. Shapes like faceted polyhedrons, briquettes, and cylinders compact, settle, and behave just like real-world particles. Coupled with variable wet, dry, and dust-like properties, ROCKY is capable of giving you more realistic results.
LOCATIONS

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