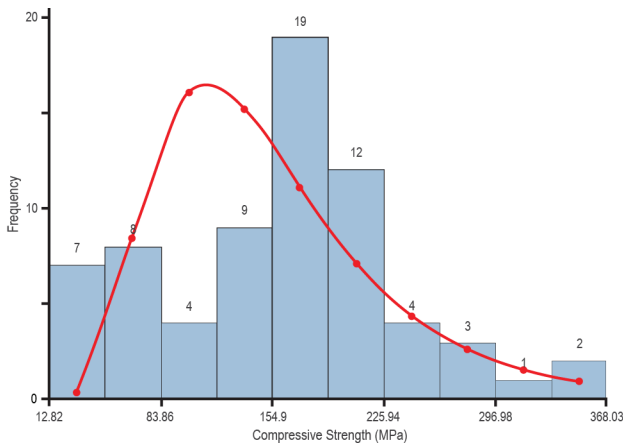




# RocData

## Rock, Soil, and Discontinuity Strength Analysis



Compressive Strength histogram in RocProp

### What is RocData?

RocData is a versatile toolkit for the analysis of rock and soil strength data, and the determination of strength envelopes and other physical parameters.

RocData includes RocProp, a database of intact rock properties that runs as a standalone application. RocData utilizes four of the most widely used strength models in geotechnical engineering: Generalized Hoek-Brown, Mohr-Coulomb, Barton-Bandis, and Power Curve. The material strength properties determined by RocData can be used as input for numerical analysis programs like RS2 and Slide2.

## Program Highlights

### Strength Criteria

- Strength criteria include linear Mohr-Coulomb and non-linear Generalized Hoek-Brown, Barton-Bandis and Power Curve. These can be applied in the analysis of intact rock, rock mass, soil, or discontinuity (joint) strength data. RocData is highly interactive and allows you to easily test different strength parameters and observe how they impact a failure envelope. Input parameters can be estimated from built-in charts and tables. Equivalent Mohr-Coulomb parameters are calculated for non-linear envelopes.

### Curve Fitting of Test Data

- Strength test data from triaxial or direct shear tests can be entered to determine the "best fit" strength envelope and associated parameters (e.g. cohesion and friction angle) for a rock or soil. The data can be obtained from lab tests of intact samples, or field data from insitu rock mass tests. Failure envelopes are plotted in both shear-normal and principal stress space. RocData results can be used as input for numerical analysis programs such as Slide2 and RS2.

### RocProp Database

- RocData includes RocProp, a database of intact rock properties which currently contains over 600 test records from worldwide sources. The data includes rock type, geographical location, compressive and tensile strength, elastic properties, Hoek-Brown parameters and shear wave velocity parameters. The database can be searched and filtered in various ways, and allows users to create charts, generate statistical information, and add their own data in a user database.

## Plans & Pricing

**Personal License:** Locked to one computer.

- Lease: **USD \$395/year**  
Leased annually. Includes Maintenance+.
- Perpetual: **USD \$795**  
Purchased outright. Includes 12 months of Maintenance+.

**Flexible License:** Installed on any number of machines. The license file sits on the server.

- Lease: **USD \$595/year**  
Leased annually. Includes Maintenance+.
- Perpetual: **USD \$1,195**  
Purchased outright. Includes 12 months of Maintenance+.

## Maintenance+

Maintenance+ is our enhanced maintenance and support services subscription, purchased annually at 20% of the license cost.

With Maintenance+ Continuous Software you get access to all feature releases, enhancements, and bug fixes throughout the year and as soon as they're available. You also have access to convenient License Services, the support of our experts, and exclusive learning offerings.

Find more details: [rocscience.com/software/rocdta](http://rocscience.com/software/rocdta)

Contact us at [software@rocscience.com](mailto:software@rocscience.com)

## Additional Output Parameters

- Hoek-Brown: rock mass tensile strength, compressive strength, deformation modulus
- Mohr-Coulomb: uniaxial compressive strength, alpha angle
- Power Curve: uniaxial compressive strength, tensile strength

## Analysis of Test Data

- Triaxial or direct shear test data
- Lab or field (rock mass) data
- Curve fitting methods: Modified Cuckoo, Levenberg-Marquardt, Simplex, Linear Regression, user-defined
- Error summation: vertical, basic, parabolic tensile, Generalized Fairhurst
- Absolute and relative best fit residuals
- Data entry—in spreadsheet, from clipboard, import file (.roc, .rlb, .txt., .csv)
- Tensile cut-off options
- Data uncertainty analysis

## Estimating Input Parameters

- GSI calculator
- Estimation of input parameters from built-in charts and tables: GSI, mi, sigci, D, C, phi, JRC, JCS, phir

## Equivalent Mohr-Coulomb Parameters

- Equivalent cohesion and friction angle for non-linear criteria
- User-defined stress range
- Instantaneous (tangential)
- Cohesion and friction angle

## Exporting Results

- One click export to Excel
- Copy to clipboard
- Export image file (.jpg, .bmp, .gif, .png)
- Export Slide2 shear-normal function

## Failure Envelope Plots

- Principal stress plot ( $\sigma_1$ ,  $\sigma_3$ )
- Shear-normal plot ( $\tau$ ,  $\sigma_N$ )
- Linearized principal stress plot ( $(\sigma_1 - \sigma_3)/2$ ,  $\sigma_3$ )
- Interactive plot display
- Stress sampler
- Instantaneous Mohr-Coulomb sampler
- Equivalent Mohr-Coulomb envelope for non-linear criteria
- Display test data on plots
- Multiple materials
- Formatting and customization of plots

## Info Viewer

- Save as HTML
- Copy to clipboard
- Open in Browser

## RocProp Database

- Primary database of intact rock properties (600+ records) search and filter by rock type, data type, geographical coordinates etc.
- Charting and statistics
- User database
- Link to Google Maps
- Export to Excel

## Strength Criteria

- Mohr-Coulomb
- Generalized Hoek-Brown
- Barton-Bandis
- Power Curve

## Stress Units

- Metric (MPa, kPa, tonnes/m<sup>2</sup>)
- Imperial (psi, psf, ksi, ksf, tons/ft<sup>2</sup>)