

Ingrain's technology adds
VISUAL AND QUANTITATIVE
understanding of pore
space, organics, fractures
and heterogeneities.

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*One or more of the products and/or services of Ingrain, Inc. are covered by at least United States Patent No. 6,516,080 and/or other patents/applications in the United States and/or in other countries. 05.15.13

INGRAIN



Digital Rock Physics for
SHALE PLAYS

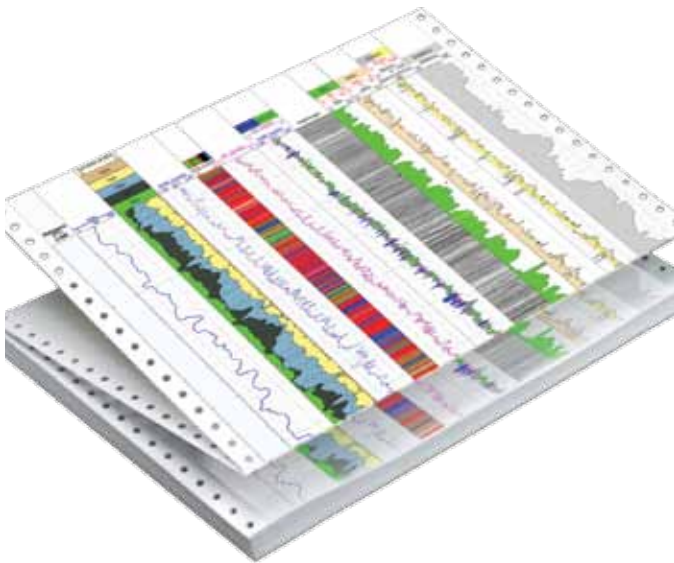
**FIND & DEVELOP YOUR MOST
PRODUCTIVE ROCK**

CoreHD® and CoreHD® Plus

(Logs of porosity, lithology, permeability, brittleness, organic matter)

CoreHD® is Ingrain's breakthrough technology platform for high-definition, dual-energy CT imaging and logging of whole core.

- › Characterize rock types and flow units.
- › Quickly optimize the number and location of core plugs for advanced rock properties analysis.
- › Upscale ShalePay™ rock property data to whole core log scale.

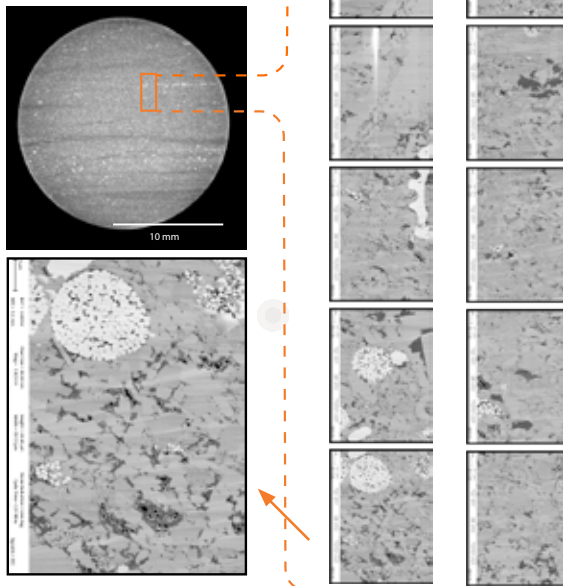


Ingrain's CoreHD® Suite provides early visibility into the critical properties of whole core through continuous, high-resolution rock property logs in relevant timeframes.

ZoneID™

(Porosity, TOC, Mineralogy)

- › Screening process to ensure representative samples for the subsequent 3D fluid flow analysis.
- › Visualize & quantify porosity, porosity associated with organic matter and trends.

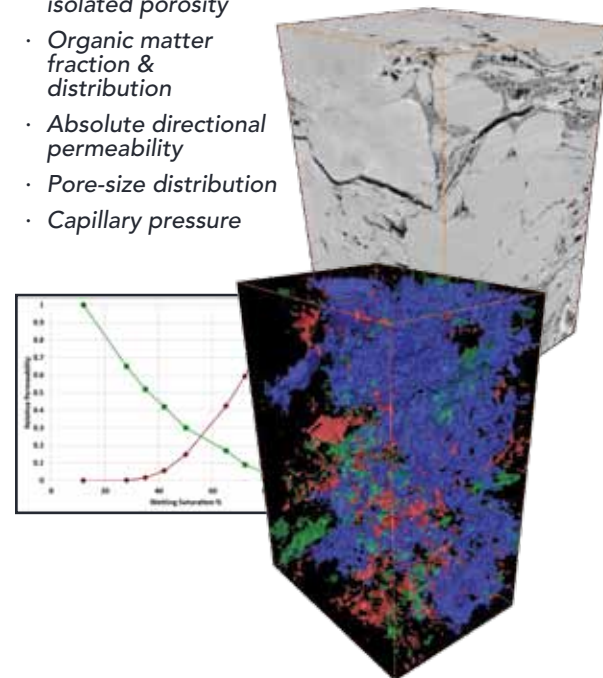


PoreHD™

(Directional Permeability, SCAL)

- › Nanometer-scale 3D imaging of pores and matrix.
- › Simulate fluid flow through the pore space using computational fluid dynamics method.
- › Characterize pore space & organic matter.

- Connected & isolated porosity
- Organic matter fraction & distribution
- Absolute directional permeability
- Pore-size distribution
- Capillary pressure



THE **ShalePay**™ **ADVANTAGE**

- › Understand reservoir quality & potential for better reservoir productivity
- › Significantly shorter turnaround time: days not months
- › Rich understanding of tight rock properties
- › Extensive experience in complex reservoir types
- › Sensitivity analysis for more effective completions and recovery
- › Create a digital "fingerprint" of your shale to compare them to our most productive zones