CT Data Collection Checklist For Digital Rock Physics

1. What is the estimated effective grain size?	D_{eff} = μm
2. Calculate your REV (representative elemental volume).	REV = D_{eff} x 5 = μm
3. What is the estimated dominant throat size?	D_D = μm
☐ Is the FOV (field of view) greater than REV?	FOV = mm
☐ Is the voxel size smaller than D_D/10?	Voxel size = μm
☐ Is the signal to noise ratio high enough to segment the image?	Segmentation Good / Bad

Further reading:

Saxena et al., References and benchmarks for pore-scale flow simulated using micro-CT images of porous media and digital rocks, Adv. Water Resour., 109, 2017, p. 211-235

Saxena et al., Imaging and computational considerations for image computed permeability: Operating envelope of Digital Rock Physics, Adv. Water Resour., 116, 2018, p. 127-144

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TOOLS & RESOURCES

- Deep Dive Workshop Series – Digital Rock Analysis
- GeoDict – The digital material laboratory by Math2Market
- Digital Rock Physics by Dr. Jens-Oliver Schwartz (GeoDict User Meeting 2020 presentation recording)
- Workshop: Digital Core Analysis (parts 1-3) using GeoDict 2022
- Blog article: How to Improve the Signal-to-noise Ratio of X-ray CT Images
- Blog article: How to Improve the Resolution of X-Ray CT Images
- Digital Rocks Portal – Sample digital rock image files

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