

# *Application of material big data in plant engineering, maintenance and inspection*

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This paper describes applications of a large database of material properties for metallic and non-metallic materials, such as polymers, ceramics, composites and foams, in plant engineering, maintenance and inspection. Properties relevant for consideration in this field include mechanical and physical characteristics at various temperatures, from cryogenic to over 1000 degrees centigrade, together with corrosion, environmental influences and phenomena such as creep and aging. All this data needs to be readily available through the lifecycle of a chemical or power plant, with the ability to efficiently support material replacement and reverse engineering. Besides the engineering background of the importance of materials in the industry, the paper will present examples of use cases in power equipment engineering, energy, and oil and gas.