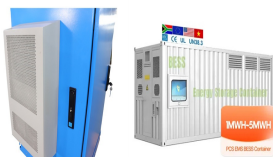


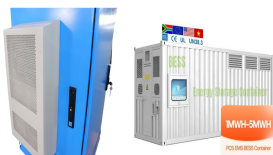
POROUS ENERGY STORAGE IN COAL MATRIX



Does pore structure affect gas adsorption characteristics in coal? A quantitative relationship was established between the pore structure and adsorption capacity to assess the influence of the thermal evolution of pore structure on gas adsorption characteristics in coal. Furthermore, the benefits of coal heating on coalbed gas extraction were analyzed.



What is the role of pore structure in coalbed methane storage and transport? Coalbed methane (CBM) storage and transport are facilitated by an intricate multi-scale pore structure. It is of great significance to study the characteristics of the pore structure and its role in CBM storage and transport in order to enhance CBM extraction, prevent CBM disasters, and improve the efficiency of CO₂ geological storage.



Does coal pore structure depend on petrological features? Numerous studies have demonstrated that the distribution of pores in coal is strongly influenced by coal petrological features. Crosdale et al. (1998) investigated the effects of micro-components of different coal ranks on coal pore structure using isothermal adsorption tests on dried coal samples.



How does pore structure affect adsorption-desorption-diffusion-seepage in the coal matrix? The pore structure is a major factor controlling the transport behavior of adsorption???desorption???diffusion???seepage in the coal matrix. Thus, the first step in identifying the intricate fluid transport mechanisms in micro- and nano-scale pores is applying digital imaging technology to recreate pore structures with several scales and morphologies.



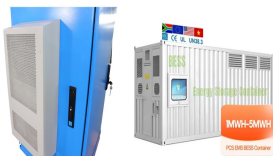
How does pore structure affect fluid flow in coal reservoirs? The multi-scale spatial and morphological distribution of the pore structure of the coal body determines the multi-scale parameter characteristics of the fluid flow in coal reservoirs. The pore structure is a major factor controlling the transport behavior of

POROUS ENERGY STORAGE IN COAL MATRIX



adsorption???desorption???diffusion???seepagein the coal matrix.

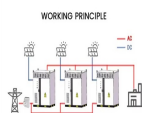
POROUS ENERGY STORAGE IN COAL MATRIX



How can pore structure of coal reservoirs be characterized? Among them, gas adsorption, MIP, NMR and other technologies can quantitatively characterize the pore structure, but the applicability and characterization range of various characterization technologies are different, and a single characterization technique cannot comprehensively and precisely evaluate the pore structure of coal reservoirs.



Coal reservoirs are typically regarded as dual-porous media, comprising coal matrix and fracture network. 1, 2, 3 In gas drainage, free gas within fractures initially flows outward in ???



The pore structure in a coal matrix is a dual-porosity system where fractures and pores coexist and feature scale-invariance properties, which would affect the occurrence and migration of ???



Recent insights in synthesis and energy storage applications of porous carbon derived from biomass waste: A review scientists used this method to simulate the natural ???



The slices in Figure 1 consist of a series of grayscale images, with dark black representing pores and cracks, light black representing coal matrix, and white indicating high-density minerals. From the CT slices, a series of ???

POROUS ENERGY STORAGE IN COAL MATRIX



As a complex porous media, coal commonly contains matrix, clay minerals, numerous pores and small fractures, showing evident material and structural heterogeneity at meso and micro scale. 1 The heterogeneity of ???



Enhancing zinc-ion storage capacity of coal tar-derived porous carbon by functionalization and hierarchical structure design The accelerated progress of electric vehicles and massive energy ???



As a result, this new pore-scale model offers a precise way to assess coal matrix sorption induced deformation and contributes to the knowledge of CBM storage and transport ???