

Alpha Gas in Production of Unconventional Gas

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Alpha gas is catalytic gas generated in marine shales during production. It is distinct from in-place gas, 'Beta Gas', generated over geologic time. Beta gas is near thermodynamic equilibrium while alpha gas is removed from equilibrium and progresses to dryer gas further removed from equilibrium over time of production. Shales exhibit high levels of catalytic activity under laboratory conditions, which we believe is residual activity, only a fraction of the natural activity in the subsurface. We therefore anticipate very high levels of natural activity in organic-rich shales typically targeted for unconventional gas production. The experimental evidence for natural catalytic activity in marine shales, the dynamics of gas generation at ambient temperatures, and the evidence for alpha gas in production will be discussed.