Enhancing shale gas production by promoting pore connectivity between shale matrix and fracs

Publieke samenvatting / Public summary

Aanleiding

While much progress has been made in developing fracturing technology and methods, the permeability of gas shale matrix material is so low that very close fracture spacing is often needed to achieve sufficiently rapid transport of gas from the shale matrix into the induced fractures. More often than not, transport of gas from matrix to fractures is so slow that production is not economic. To improve productivity, it is necessary to find ways of better connecting the fine (nano-micro) scale porosity that characterizes shale matrix material, so that transport to either natural or induced fractures is accelerated. In other words, it is necessary to find ways of promoting pore connectivity within the shale matrix, hence promoting transport from matrix to fractures.

Korte omschrijving

The present project will investigate whether the stress-strain-sorption behaviour and mechanical damage characteristics of gas shales can be employed, alongside fraccing, to achieve the desired increase in matrix permeability. Recent experiments have shown that coupled shrinkagedesorption-damage processes can substantially increase the permeability of coal, and likely have similar effects in shales.

Projectinformatie / Project information

Projectnummer / Project number
TKITOEUpstream-TKI2013-07
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Algemene informatie / General information

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