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Chemical Analysis of Water and the Resource of Br, K Prospects of Oilfield Brines from Ordovician and Carboniferous in Tarim, China

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China is lack of bromine and potassium seriously. Oilfield brines is the headline goal of bromine and potassium resources exploration. Applicants grab 24 oilfield brines samples from various wells of Ordovician and 22 samples from Carboniferous in Tarim basin were acquired. Chemical analyses were developed for understanding origin and resources potential of oilfield brines from Ordovician and Carboniferous. Ionic composition indicate that of 24 samples in Ordovician, the content of Br in 8 samples distributed in various wells and layers exceed industrial grade (200 mg/l), as well as the content of KCl in 5 samples exceed industrial grade (0.5%); and of 22 samples in Carboniferous, the content of Br in 13 samples distributed in various wells and layers exceed industrial grade, but the content of KCl in all samples may not reach industrial grade. With the huge water yield, the data represents good Br resource prospects of oilfield brines in Ordovician and Carboniferous in Tarim, and oilfield brines in Ordovician have good KCl resource prospects. After the Parameter of $(Br/Cl) \times 103$, C_{mg}/C_{cl} , C_{Na}/C_{cl} , $K/Cl \times 103$ and K/Br were analyzed, oilfield brines from Ordovician and Carboniferous can be classified into 3 types: sedimentary transformation, dissolution-filtration, and composite formation mechanism of sedimentary transformation and the dissolution and filtration of solid salts. In addition, oilfield brines of Ordovician in part originated from dissolution of potash minerals, which indicate the possibility in the search for solid potash from Paleozoic in the Tarim Basin.

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