

# A Review of Research on the Source of Quartz Cements in Sandstone Reservoirs

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**Abstract:** Cementation is one of the essential cause that why sandstone reservoirs are compacted. Currently, there is no final conclusion about the quartz cements' source, which derived internally to the cemented sandstone or externally. And that there are not enough attentions to the source of quartz cements, especially on the source of noncrystalline SiO<sub>2</sub> and external sources. Based on predecessor's fruits, we summarized and discussed achievements on sources and the diagenetic period of quartz cements in sandstone reservoirs. What's more, we tried to explore the contribution of various sources for quartz cements. This study shows that they are main sources of quartz cements, such as dissolution and transformation of feldspar, illitization and chloritization of smectites, pressure solution and stylolite, and dissolution of noncrystalline SiO<sub>2</sub>. While external sources of quartz cements may be contained adjacent sandstones, deep buried sandstones, intrusive masses of granites, basement rocks, and so on. In addition, during the early diagenesis to the middle diagenesis, they could be the main source of quartz cements, for instance, dissolution of feldspar, illitization and chloritization of smectites, pressure solution and stylolite. While kaolinization and illitization of K-feldspar may provide the main SiO<sub>2</sub> source for quartz cements during the middle diagenesis to the late diagenesis. However, the source of noncrystalline SiO<sub>2</sub> and external sources could provide SiO<sub>2</sub> during the whole diagenetic period. There are much work can be done to reappraise it.

**Keywords:** sandstone reservoirs; quartz cements; diagenesis; sources of SiO<sub>2</sub>