

Ion transport dynamics in porous media

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Abstract

The transport of ions plays a crucial factor in the durability of building materials. For concrete, corrosion due to transport of chloride is a major degradation mechanism. ASR is another damage mechanism where ion transport plays a central role. While various models are available to describe transport of ions, there is lack of reliable data at hand to verify them. Here we present a Nuclear Magnetic Resonance (NMR) setup dedicated to quasi-simultaneously and non-destructively measure ^1H , ^3Li , ^{23}Na and ^{35}Cl . We will discuss the transport of ions during various experiments, such as diffusion, drying and wick-action. The key parameter in these processes is the Peclet number which will be discussed.