CO2 injectivity, or the rate at which CO2 can be effectively injected into subsurface reservoirs, depends on a multitude of factors. Geological and reservoir parameters such as permeability, porosity, and lithology significantly influence injection rates. High-permeability formations facilitate faster CO2 flow, while variations in reservoir characteristics, including layering, faults, and fractures, can impact CO2 distribution and flow patterns. Reservoir heterogeneity must be carefully understood to accurately predict injection rates. Pressure management is crucial to prevent reservoir overpressurization, induced seismicity, or CO2 leakage. Additionally, maintaining CO2 in a supercritical state from the wellhead to the injection point minimizes phase transitions, vaporization, and hydrate formation, ensuring efficient injection. Injection pump and well design must also be optimized to handle the desired rate at pressure and temperature. Achieving optimum injectivity requires balancing these factors to maximize both rate and volume. Injecting too rapidly may fill the reservoir prematurely or cause skin issues, reducing injectivity. Therefore, a comprehensive understanding of reservoir capacity and injection parameters is essential to ensure efficient and sustainable CO2 sequestration.