Global climate change is one of the major challenges facing society today. A major source of global climate change is the anthropogenic release of greenhouse gases into the atmosphere, primarily caused by the burning of fossil fuels. A viable way to mitigate greenhouse gas emissions is geologic CO₂ storage (GCS), which stores CO₂ in geologic formations as stable carbonate minerals. CarbFix I, a collaborative industrial-academic pilot project that began in 2007, has successfully demonstrated GCS in basaltic rocks in Southwest Iceland. The CarbFix II Project seeks to expand upon CarbFix I by significantly increasing the amount of CO₂ injected into the subsurface, and by co-injecting other greenhouse gases such as H₂S. The conservative tracer SF₅CF₃ is used to track the transport of injected CO₂. Because of the geothermal conditions at the project site, SF₅CF₃ is not remaining stable and therefore cannot be used as a reliable conservative tracer. This project seeks to understand the stability of SF₅CF₃ by conducting several experiments to measure the rate of SF₅CF₃ degradation under various temperature and geothermal conditions.