Melting phase relations in the methane-ammonia-water system up to 3 GPa have been obtained in a series of in situ experiments in externally heated diamond anvil cells. The melting temperature of methane clathrate hydrates increases rapidly above pressures of \( \sim 1.5 \) GPa, and does not appear to be significantly affected by the presence of ammonia. The reaction of the hydrate formation at pressures 2 – 3 GPa is kinetically impeded. Our data show that the high-pressure methane hydrate has the maximum melting temperature among the clathrate hydrates studied so far.

Key words: Clathrate Hydrates, Melting Curve, High Pressure