



infiTOF

Nitride semiconductors are candidate materials for high-power transistors. To achieve high breakdown voltage performance, the GaN drift layer must be grown with the lowest amount of impurities possible.

Amano Laboratory of Nagoya University studies the vapor phase reaction by in-situ monitoring in a MOVPE reactor using infiTOF¹⁾.

TMG reacts with ammonia to produce methane (CH₄), but NH₂ which is typical fragment of ammonia (NH₃) is interfered because their nominal mass is 16 (m/z16). infiTOF can completely separate these two peaks. This indicated the availability of observing CH₄ signals in the presence of ammonia.

Furthermore infiTOF with high mass resolution can separate H₂O (m/z18.1056), ¹⁵NH₃ (m/z18.02359), NH₄ (m/z18.3437) which have the same nominal mass of 18 (m/z18).

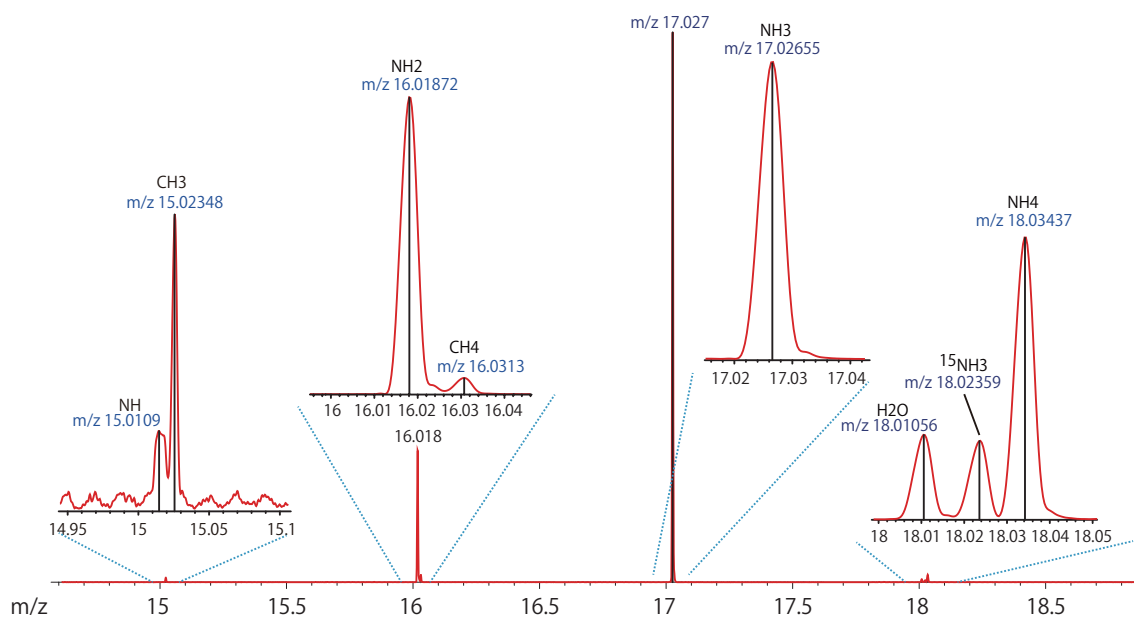


Fig.1 Mass spectrum of reaction products of NH₃, CH₃ & H₂O in reaction gas

1) Shugo Nitta, Kentaro Nagamatsu and Hiroshi Amano et al, Ext. Abstr. IWN2016
 PS1.48 In-Line NH₃ Reactant Analysis on Nitride Semiconductor Metalorganic Vapor Phase Epitaxy via High-Resolution Mass Spectrometry

