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INFLUENCE OF MOLARITY AND TIME OF POTASSIUM HYDROXIDE ETCHING ON Al-RICH AlGaN LAYER

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ABSTRACT- This work will describe the influence of molarity and time of potassium hydroxide etching on Al-rich AlGaN layer. With potassium hydroxide (KOH) molarity of 5 mol/L, no significant change on the pores formation was observed for 5 and 10 minutes of etching. Nonetheless, there was a possibilty that some of the Ga atoms were eliminated for 10 minutes of etching, resulting in co-existance of AlGaN material with higher Al content. Similar behaviour was also witnessed in the case for 10 mol/L of KOH with 5 and 10 minutes of etching. Nonetheless, well-defined hexagonal patterns were only formed when the etching was conducted using 10 mol/L of KOH for 10 minutes. Such patterns have the potential to increase light extraction efficiency of UV LEDs.

Keywords: Aluminum gallium nitride, KOH etching, KOH molarity, KOH etching time.