

Improved control in elimination of white impurities on graphene by chemical vapor deposition (CVD).

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Abstract

Fabrication of graphene by chemical vapor deposition (CVD) is one of the most preferred production technique [1][2]. However, it still faces some challenges, like particulate contamination which is sometimes referred to as white impurities [2][3][4]. These occur when quartz tubes are used in CVD process. The source of these impurities and the method to reduce them, were investigated. Results reveal that the white impurities are silicate, formed as a result of the phase transition of quartz at temperature of about 850 (degree Celsius) and above in presence of copper vapor and oxygen gas [3][5]. This work proposes a special substrate configuration in CVD furnace to suppress the contamination during the graphene fabrication process.

References

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Figures

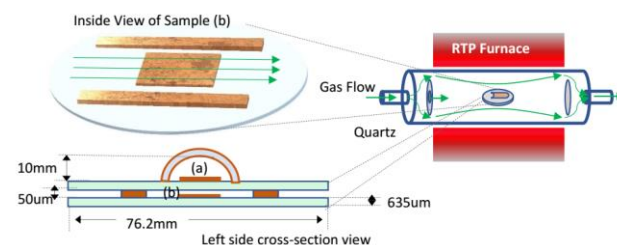


Figure 1: Configuration of copper samples (a) and (b) for graphene synthesis in RTP furnace.

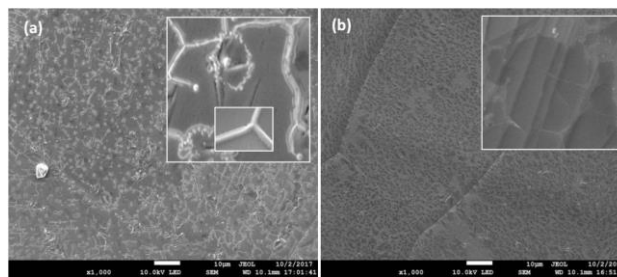


Figure 2: The effect of sandwiching the sample on the contamination concentration. (a) sample.a with a cover at 10mm over. (b) sample.b with a cover at 25um over.