

Abstract Submitted  
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**Nitrogen fixation by plasma processing**<sup>1</sup> CEZAR GAMAN, Dublin City University, Ireland, GARY J. LANIGAN, Teagasc, Ireland, MILES M. TURNER, Dublin City University, Ireland — In another presentation at this meeting, we show that a plasma process can in principle accomplish nitrogen fixation (or, more specifically, nitric oxide synthesis) with an energy efficiency of approximately 20 %. However, energy efficiency appears as fundamentally in conflict with yield (understood as molar conversion efficiency). In this presentation we discuss the experimental conditions required to achieve both high efficiency and high yield. This essentially requires highly efficient excitation of vibrationally excited states of nitrogen in conjunction with several other conditions. For preference, these conditions must be achieved in a way consistent with processing large quantities of material, since the outcome of the process, nitrate fertiliser, is required in industrially large amounts.

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