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**Wiederin et al.**(10) **Pub. No.: US 2022/0353983 A1**(43) **Pub. Date: Nov. 3, 2022**(54) **INDUCTIVELY COUPLED PLASMA TORCH  
STRUCTURE FOR LOW COOLING GAS  
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**Kevin Wiederin**, Omaha, NE (US)(21) Appl. No.: **17/725,989**(22) Filed: **Apr. 21, 2022****Related U.S. Application Data**(60) Provisional application No. 63/179,715, filed on Apr.  
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63/179,827, filed on Apr. 26, 2021.**Publication Classification**(51) **Int. Cl.****H05H 1/24** (2006.01)**H01J 49/10** (2006.01)**H05H 1/28** (2006.01)(52) **U.S. Cl.**CPC ..... **H05H 1/2465** (2021.05); **H01J 49/105**  
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**ABSTRACT**

An inductively coupled plasma (ICP) torch is described that facilitates laminar flow of a cooling gas introduced by a plurality of input ports between an outer tube and an inner tube configured to surround an injector for introduction of an aerosolized sample to a plasma. A system embodiment includes, but is not limited to, an inner tube; and an outer tube surrounding at least a portion of the inner tube to form an annular space, the outer tube defining a plurality of inlet ports for introduction of a cooling gas into the annular space as a laminar flow via each inlet port of the plurality of inlet ports.

