



US 20240215144A1

(19) **United States**

(12) **Patent Application Publication**
BLACKMAN et al.

(10) **Pub. No.: US 2024/0215144 A1**

(43) **Pub. Date: Jun. 27, 2024**

(54) **PLASMA CYCLONE REACTOR**

Publication Classification

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(51) **Int. Cl.**
H05H 1/34 (2006.01)

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(52) **U.S. Cl.**
CPC **H05H 1/3478** (2021.05); **H05H 1/3468**
(2021.05)

(21) Appl. No.: **18/288,349**

(22) PCT Filed: **Apr. 26, 2022**

(86) PCT No.: **PCT/EP2022/061061**

§ 371 (c)(1),

(2) Date: **Oct. 25, 2023**

(30) **Foreign Application Priority Data**

Apr. 28, 2021 (SE) 2150543-3

(57) **ABSTRACT**

There is provided a reactor wherein the reactor is a cyclone reactor, and wherein at least one volume (V_h) inside the reactor is adapted to be heated by a plasma torch to a temperature of at least 3000° C. Advantages include that the calcination is quicker with a more uniform heat transfer to all particles. The calciner can be made more compact. The temperature difference in the process ΔT increases, which also improves the efficiency of the process. The calcination process can be made essentially kinetically controlled. The elevated temperatures of the heat treated material reduce recombination reactions.

