

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2024/0179826 A1 Knight et al.

May 30, 2024 (43) **Pub. Date:**

(54) PLASMA TORCH DEVICE COMPONENT **MONITORING**

(71) Applicant: Edwards Limited, Burgess Hill, Sussex

Inventors: Gary Peter Knight, Clevedon Somerset

(GB); Erik Wagenaars, York Yorkshire (GB); Neil Condon, Burgess Hill Sussex (GB); Simone Magni, Clevedon

Somerset (GB)

(21) Appl. No.: 18/553,417

(22) PCT Filed: Mar. 30, 2022

(86) PCT No.: PCT/GB2022/050798

§ 371 (c)(1),

(2) Date: Sep. 29, 2023

(30)Foreign Application Priority Data

Apr. 1, 2021 (GB) 2104741.0

Publication Classification

(51) Int. Cl. H05H 1/34 (2006.01)H05H 1/00 (2006.01) (52) U.S. Cl. CPC H05H 1/3425 (2021.05); H05H 1/0037 (2013.01)

(57)ABSTRACT

Aspects relate to monitorable plasma torch device components and in particular to monitoring and predictive maintenance of one or more such monitorable plasma torch device components. One aspect provides a monitorable plasma torch device component, the component comprising: a component body and a sacrificial component located in an erosion zone of the component body. The sacrificial component comprises material which differs from the plasma torch device component body and which, on exposure to a plasma torch in a plasma torch device, generates electromagnetic radiation distinct from that of the plasma torch device component body. The distinct electromagnetic radiation generated is indicative of erosion of the monitorable plasma torch device component in the erosion zone. Such a monitorable plasma torch device component can facilitate effective component monitoring which allows for ameliorative action to be taken in the event that degradation of the device component is detected.

