



US 20240213944A1

(19) **United States**

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

(10) **Pub. No.: US 2024/0213944 A1**

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

(54) **METHOD FOR MANUFACTURING A
SUBSTRATE FOR A RADIOFREQUENCY
FILTER**

Publication Classification

(51) **Int. Cl.**

H03H 3/02 (2006.01)

H10N 30/00 (2006.01)

H10N 30/05 (2006.01)

H10N 30/073 (2006.01)

H10N 30/853 (2006.01)

(52) **U.S. Cl.**

CPC **H03H 3/02** (2013.01); **H10N 30/05**

(2023.02); **H10N 30/073** (2023.02); **H10N**

30/10516 (2023.02); **H10N 30/8542** (2023.02);

Y10T 29/42 (2015.01)

(71) Applicant: **Soitec**, Bernin (FR)

(72) Inventors: **Djamel Belhachemi**, Saint Martin
D'heres (FR); **Thierry Barge**, Bernin
(FR)

(21) Appl. No.: **18/597,647**

(22) Filed: **Mar. 6, 2024**

Related U.S. Application Data

(63) Continuation of application No. 17/042,016, filed on
Sep. 25, 2020, now Pat. No. 11,979,132, filed as
application No. PCT/IB2019/000204 on Mar. 27,
2019.

Foreign Application Priority Data

Mar. 29, 2018 (FR) 1800258

(57)

ABSTRACT

A method for manufacturing a substrate for a radiofrequency filter by joining a piezoelectric layer to a carrier substrate via an electrically insulating layer, wherein the method comprises depositing the electrically insulating layer by spin coating an oxide belonging to the family of SOGs (spin-on glasses) on the surface of the piezoelectric layer to be joined to the carrier substrate, followed by an anneal for densifying the electrically insulating layer before joining the piezoelectric layer to the carrier substrate via the electrically insulating layer.

