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(19) **United States**(12) **Patent Application Publication**
Graff et al.(10) **Pub. No.: US 2022/0354032 A1**(43) **Pub. Date: Nov. 3, 2022**(54) **ORIENTATION OF MAGNETIC FILLERS TO OPTIMIZE FILM PROPERTIES**(71) Applicant: **3M INNOVATIVE PROPERTIES COMPANY**, St. Paul, MN (US)(72) Inventors: **Michael S. Graff**, Woodbury, MN (US); **Derek J. Dehn**, Maplewood, MN (US); **Paul T. Hines**, St. Paul, MN (US); **Charles L. Bruzzzone**, Woodbury, MN (US); **Bharat R. Acharya**, Woodbury, MN (US); **Ronald D. Jesme**, Plymouth, MN (US); **William J. Kopecky**, Hudson, WI (US); **Jennifer J. Sokol**, Mahtomedi, MN (US); **Sergei A. Manuilov**, Bayport, MN (US)(21) Appl. No.: **17/607,991**(22) PCT Filed: **May 8, 2020**(86) PCT No.: **PCT/IB2020/054388**

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ABSTRACT

A magnetic shielding film includes opposing first and second major surfaces and a plurality of particles dispersed therebetween, each particle having a magnetic permeability, a thickness H along a thickness direction of the particle, and a longest dimension L along a length direction of the particle orthogonal to the thickness direction, L/H greater than or equal to 2, the particles defining a plurality of voids therebetween, the length directions of at least 60% of the particles oriented within 5.5 degrees of a same orientation direction.

