NuFuel-MMSNF 2019 Workshop

Diogo Ribeiro Costa

Industrial Ph.D. student

Supervisors:
Pär Olsson (KTH)
Janne Wallenius (KTH)
Magnus Limbäck (Westinghouse)
Simon Middleburgh (Bangor University)

2019-11-05

Paul Scherrer Institute (PSI)

Sintering behaviours of UN-UO_2 composite fuels prepared by spark plasma sintering

Diogo Ribeiro Costa[1,3], Marcus Hedberg[2], Antoine Claisse[3], Mattias Puide[3], Denise Adorno Lopes[3], Simon C. Middleburgh[4]
[1]KTH Royal Institute of Technology, Stockholm, Sweden; [2]Chalmers University of Technology, Göteborg, Sweden; [3]Westinghouse Electric Sweden AB, Västerås, Sweden; 4 Bangor University, Bangor, United Kingdom.

UN has been considered a potential accident tolerant fuel (ATF) mainly due to its high thermal conductivity. Composite fuels like UN-UO_2 have been proposed so as to combine the good properties of both fuels.

An innovative UN-UO_2 composite fuel concept is proposed so as to combine the good properties of both fuels. Mixtures of 30 wt% of UN microspheres and UO_2 powder were sintered using the spark plasma sintering method.

The sintering behaviours at 1100ºC and 1500ºC, as well as the sintered densities are presented and discussed in this study.

Acknowledgments

Financial support

UN microspheres

Employment
Industrial Ph.D.
Supervision

SPS Facility