

Zoz
Group

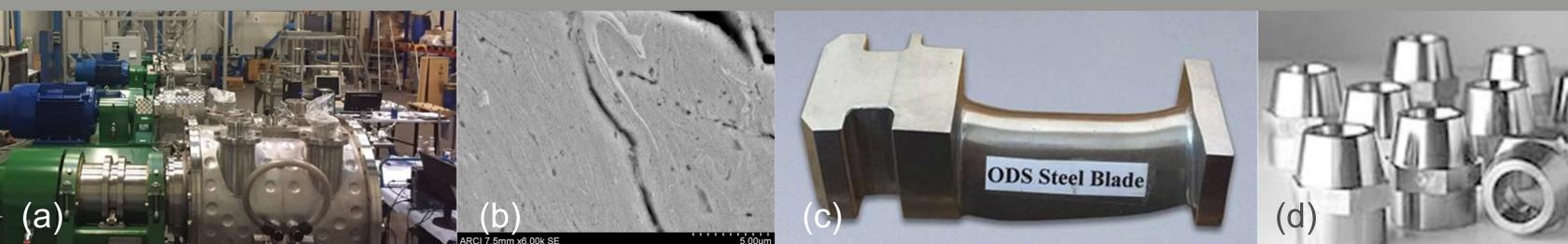


Zoz launching PM2000

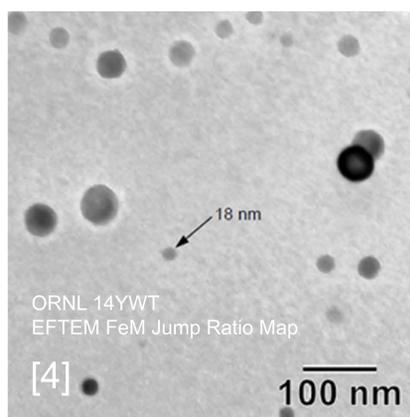
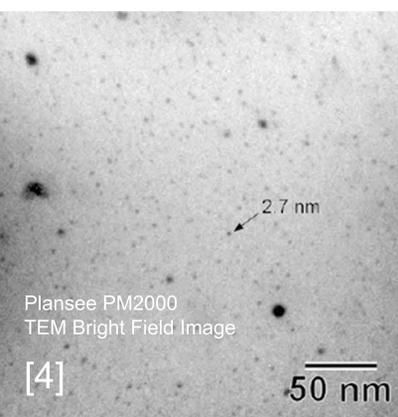
revitalization of Plansee's ODS-19YAT

ODS-20YAI (PM2017-AM) + NFA-14YWT (PM2018)

high-temp. & corrosion-resistant/irradiation-tolerant ODS/NFA-steel/powder from the shelf



Simoloyer® CM08/20/100 (a), Fe-0.03MOx after 4 h Zoz-HKP at ARCI India, grainsize ~15nm (b), ARCI turbine blade (c) and PM2000 burner nozzles [5] (d)



14YWT contains significantly higher number density and smaller size of Ti-, Y-, and O-rich nanoclusters compared to YAG oxide particles in PM2000 (and other commercial ODS alloys) [4]

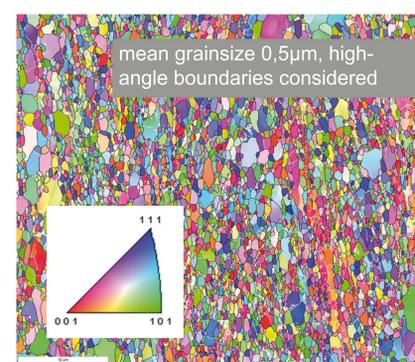
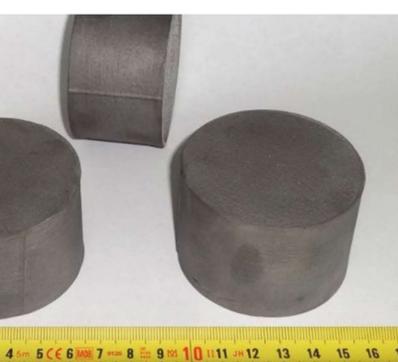
[4] D. T. Hoelzer, Oak Ridge National Laboratory: On the Development of Nanostructured Ferritic Alloys for Advanced Fuel Clad Applications in Nuclear Reactors, OZ-16, 9th International | 9th German-Japanese Symposium on Nanostructures (2016), Wenden, Germany, proc. vol. 9 p-no. V02, S02

[3] G. R. Odette, University of California Santa Barbara: On the Development and Characterization of a Larger Best Practice Heat of a 14YWT Nanostructured Ferritic Alloy FCRD NFA-1

[7] R. DiDomizio, GE Global Research: The Effects of Processing on Precipitate Distribution and Tensile Properties of a Nanostructured Ferritic Alloy (NFA) OZ-Workshop 2015 at UCB, Dept. of Nuclear Engineering, Berkeley (2015-05-15)

brand	chem. composition (starting mat.)	ID	origin	t. b. on shelf
PM2000	Fe-19Cr-5.5Al-0.5Ti-0.5Y2O3	19YAT	ODS-PM	fine-grain/HIP only, D40xL250mm
PM2017	Fe-20Cr-5.5Al-0.5Y2O3	20YAI	ODS-RR	powder only (AM, ALM, MIM)
PM2018	Fe-14Cr-3W-0.4Ti-0.25Y2O3	14YWT	NFA-GE	powder only, sheets as of 2023

chemical (basic) compositions for on shelf (a) powder and bulk (b) bulk only (c) powder and bulk

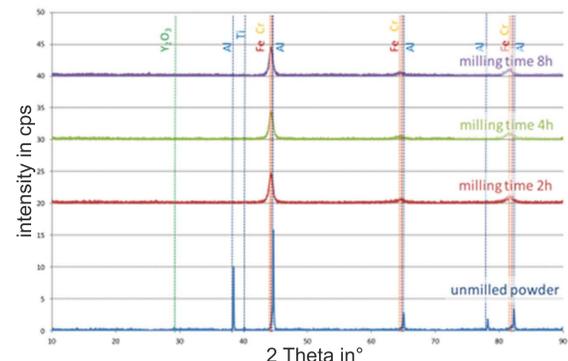
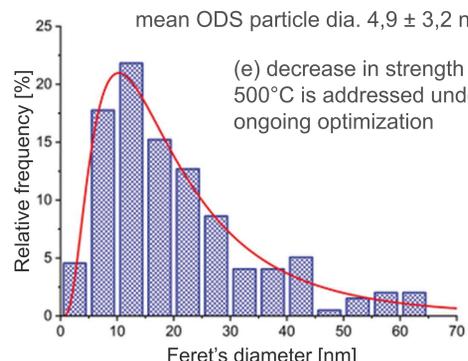
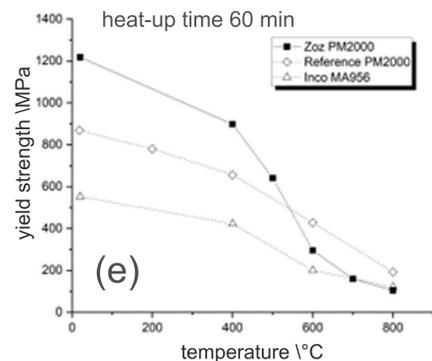


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E. Simondon, H. U. Benz

A cooperative initiative in materials technology: Increasing the Technical Readiness Level of innovative oxide dispersion strengthened materials (2020)



images
M. Duerschnebel (KIT)



V727-05c-2h-vac, SPS-sintered, forging press, deformation 3x 5mm = 15mm, 30 cycles/min, 2s for ea. 5mm deformation step, 1.100°C under air.

reduction of processing time possible by use of HKP Simoloyer® → fully alloyed after only 2 hours (note: usually 20-40 hours are required)



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Current Status of ODS Alloys - dedicated to Professor Shigeharu Ukai

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Oct. 27 – Nov. 01, 2019, San Diego, USA