

Abstract Submitted  
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**The turbulent/non-turbulent interface in viscoelastic fluids** JOO MELO, CARLOS B. DA SILVA, Inst Superior Tecnico (IST), IDMEC TEAM — The dynamics of the enstrophy in shear free turbulent/non-turbulent interfaces (TNTI) is analysed through direct numerical simulations (DNS) using the Finitely Extensible Nonlinear Elastic constitutive equations closed with the Peterlin approximation (FENE-P). The Reynolds number and the Deborah number of the DNS range between  $116 \leq Re_\lambda \leq 182$  and  $0.11 \leq De \leq 1.23$ , respectively. A new term emerges in the enstrophy transport equation for viscoelastic fluids - the *viscoelastic production* - which competes with the enstrophy diffusion and enstrophy production for the build up of enstrophy near the TNTI, particularly for high Deborah numbers. While for low Deborah numbers the viscoelastic production contributes to a depletion of vorticity inside the turbulent region, this effect is reversed at the higher Deborah number configurations.

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