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1 **Supplementary Material Captions for**  
2 **Resistive-force theory of slender bodies in viscosity**  
3 **gradients**

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7 (Received xx; revised xx; accepted xx)

8 **Movie 1:** The long-time behaviour of a filament with aspect ratio  $b/a = 10^{-4}$  settling under  
9 a constant viscosity gradient with  $\tilde{\kappa}_x = 0.01$ ,  $\tilde{\kappa}_y = 0.01$ .

10 **Movie 2:** The long-time behaviour of a filament with aspect ratio  $b/a = 10^{-4}$  settling under  
11 a constant viscosity gradient with  $\tilde{\kappa}_x = 0.01$ ,  $\tilde{\kappa}_y = -0.01$ .

12 **Movie 3:** The long-time behaviour of a filament with aspect ratio  $b/a = 10^{-4}$  settling under  
13 a constant viscosity gradient with  $\tilde{\kappa}_x = 0.01$ ,  $\tilde{\kappa}_y = 0$ .

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