

Pinching Dynamics, Extensional Rheology, and Stringiness of Saliva Substitutes

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Submitted on Dec 03, 2023; Revised on Feb 7, 2024

Table S1: Zero-shear viscosity, apparent extensional relaxation time, terminal extensional viscosity, and terminal Trouton ratio for Fusayama-Meyer artificial saliva (FM_S) thickened with typical polysaccharide thickening agents.

Rheology of Thickened Saliva Substitute (FM _S)					
Thickener	wt. %	η_0 (Pa·s)	λ_E (ms)	η_{E^∞} (Pa·s)	Tr^∞ (Pa·s)
NaCMC (250 kDa)	0.5	0.009	--	0.9	96
	1.0	0.048	0.7	1.2	25
NaCMC (700 kDa)	0.5	0.15	1.7	2.1	14
	1.0	3.6	2.1	2.7	0.8
HEC (720 kDa)	0.5	0.20	1.2	0.8	4
	1.0	4.3	2.1	2.9	0.7

Table S2: Ingredient listed by the manufacturers for the five dry mouth treatments (DMTs) that are focus of an investigation into their shear and extensional rheology response.

Substitute	High-viscosity solvents	Macromolecular Additives	Other
OR _A	glycerin, propylene glycol	HEC, poloxamer 407	xylitol, sorbitol, sodium benzoate, caprylyl glycol, 1,2-hexanediol, hydroxyacetophenone, sodium phosphate, disodium phosphate
OR _B	glycerin, propylene glycol	HEC, poloxamer 407	xylitol, sorbitol, sodium benzoate, sodium phosphate, disodium phosphate, potassium sorbate, cetylpyridinium choride
OR _S	propylene glycol	HEC, poloxamer 407, lysozyme	xylitol, sodium benzoate, mutanase, zinc gluconate, lactoferrin, lactoperoxidase, potassium thiocyanate, aloe vera, calcium lactate, glucose oxide, dextranase, hydrogenated starch hydrolysate, benzoic acid
OR _O	glycerin, propylene glycol	NaCMC, NaHA, poloxamer 407	xylitol, sodium benzoate, cetylpyridinium choride, benzoic acid
MS _E	--	NaCMC	sorbitol, sodium chloride, magnesium choride, calcium chloride, potassium chloride, dihydrogen phosphate

Figure S1: Radius evolution for three replicate trials of pinching videos obtained via dripping-onto-substrate (DoS) rheometry for the dry mouth treatments from Biotene (OR_B) and Oral-B (OR_O).

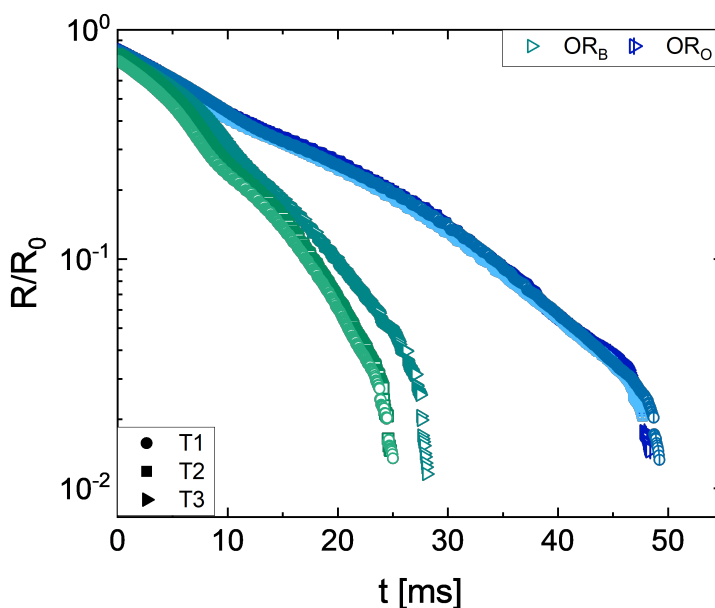


Figure S2: Apparent surface tension plotted as a function of surface age for two dry mouth treatments from Amazon (OR_A) and Oral-B (OR_O), obtained via maximum bubble tensiometry.

