

Definitions, reference standards and evaluation protocols used for outer-tier descriptors on the White Wine Mouthfeel Wheel™.

- Discrete Sensations -

Outer-tier descriptors	Definition	Intensity terms/levels and scale anchor terms	Standard & evaluation
Sweetness	-	Low, medium, high	Oral: 30 g/L sucrose (Sigma-Aldrich) in water (corresponds to anchor term sweetness at 2.5 cm)
Acidity	Sourness	Levels 1-4	Oral: 1,2,3 & 4 g/L of tartaric acid (Fischer™) in aqueous solution (corresponds to “Levels 1,2,3 & 4”, respectively)
Saltiness	-	Low to moderate	Oral: <i>Moderate</i> = 1.5 g/L NaCl in aqueous solution
Tingle	A sense of irritation usually associated with carbonation	Low to high	‘ <i>Slight</i> ’ = Moderately carbonated mineral water (bottle cap partially unscrewed for 24 hrs to release some CO ₂) (No Name® brand, Zehrmart Inc, St Catharines) ‘ <i>Tingle</i> ’ = Moderately carbonated mineral water opened immediately prior to serving (No Name® brand, Zehrmart Inc, St Catharines)
Pucker	A <i>reflex</i> sensation of mouth surfaces coming together and releasing in an attempt to lubricate the mouth	Low to high	Conceptual
Mouth-water	A reflex reaction characterized by excess production of saliva	Low to high	Conceptual
Expansion	The rate of mousse evolution and de-evolution in the mouth	Evolution: slow to fast De-evolution: slow to fast	Conceptual
Volume	The sense of fullness created by the mousse in the mouth	Low to high	Conceptual
Persistence	How long mousse is retained in the mouth	Short to long	Conceptual
Weight	The sensation of ‘body’ when the	Light to heavy	a concentration series of 0.5 g/L, (‘ <i>light</i> ’), 1 g/L

	wine is stationary in the mouth		(<i>'moderate'</i>) and 2 g/L (<i>'heavy'</i>) of carboxymethyl cellulose (Sigma-Aldrich) in aqueous solution
Viscosity	Varying degrees of viscosity from thin through to thick	Thin to thick	a concentration series of 0 g/L (<i>'thin'</i>), 0.5 g/L, 1 g/L, 2 g/L, & 3 g/L (<i>'thick'</i>) of carboxymethyl cellulose (Sigma-Aldrich) in aqueous solution
Warm and Hot	Differing intensity of heat sensation	Warm to hot	<i>Warm</i> : 13% v/v ethanol (LCBO, Canada) solution <i>Hot</i> : 15% v/v ethanol (LCBO, Canada) solution
Silk, Satin, & Chamois	A surface texture of varying degrees of softness/smoothness	Low/light (satin) Moderate (silk) High/heavy (chamois)	2 x 3.5 cm strips of silk fabric, satin fabric, and chamois cloth
Fine Emery, Medium Emery & Sharp	An increasing degree of roughness in surface texture	Low (fine emery) Moderate (medium emery) High (sharp)	2 x 3.5 cm strips of fine and medium emery paper (respectively, 600 grit and 220 grit Norton® all purpose sandpaper, Home Dept™, St Catharines)
Talc, Chalky, Plaster & Grainy	Particulate sensations ranging from fine through to coarse particles	Fine (talc) to coarse (grainy)	Talc powder: Johnson and Johnson® baby powder (Shoppers Drugmart™, St Catharines) Chalk: standard blackboard chalk Plaster: dry gypsum powder (Home Dept™, St Catharines) Grainy: sand from Vanwagners beach, Hamilton Ontario
Numbing	Loss of sensation in the mouth	Low, moderate, & high	Conceptual
Baby Oil, Sunflower Oil & Olive Oil	Mouth-coat sensation	Light (baby oil) Moderate (sunflower oil) Heavy (olive oil)	Baby oil (<i>'light'</i> mouthcoat): Johnson and Johnson® baby oil (Shoppers Drugmart™, St Catharines) Sunflower oil (<i>'moderate'</i> mouthcoat): Unico® sunflower oil (Zehrmart Inc, St Catharines) Olive oil (<i>'heavy'</i> mouthcoat): Bertoli® extra virgin olive oil (Zehrmart Inc, St Catharines)
Bitterness	-	Low, moderate & high	0.05g/L of quinine sulphate in aqueous solution =

			<i>moderate</i> bitterness intensity
Dry & Parching	An overall drying sensation as experienced by the loss of moisture in the mouth. Parching refers to the excess removal of moisture from the mouth	Low, medium, high, parching	A concentration series of 0.05 g/L, 0.1 g/L, 0.25 g/L and 0.5 g/L alum sulphate in aqueous solution, representing <i>low, medium, high, and parching</i> drying sensations, respectively
Short, Medium & Long	The persistence of any oral sensation	Short, medium & long	Conceptual

- Integrated Sensations -

Outer-tier descriptors	Definition	Reference Standard Composition	Evaluation Protocol
Fresh Meringue, Solid Meringue, Whipped Cream & Dessert Mousse	A sensation of fullness & the dynamic feeling of expansion typically associated with sparkling wines	<i>Fresh Meringue</i> : beat the whites of 2-3 fresh eggs until stiff peaks form <i>Solid Meringue</i> : Meringue nests <i>Whipped Cream</i> : Cool Whip® <i>Dessert Mousse</i> : Chocolate mousse	Assess orally. Bite down gently, and move the standard slowly around your palate
Pressed Foam, Velvet, Small Marshmallow & Large Marshmallow	An overall sensation of smoothness, volume & depth. <i>Pressed Foam, Velvet, Small Marshmallow & Large Marshmallow</i> are listed in increasing order of volume & fullness	<i>Pressed foam</i> : 3 cm width x 3 cm length x 0.3cm depth <i>Velvet</i> : 3 cm width x 3 cm length x 0.2 cm depth <i>Small marshmallow</i> : 2 cm x 2 cm x 2 cm <i>Large marshmallow</i> : 4 cm x 4 cm x 4 cm	<i>Foam</i> : assess using finger & thumb; push along the foam gently while stroking at the same time <i>Velvet</i> : stroke with nap while wiggling the fabric around between forefinger & thumb <i>Marshmallows</i> : apply gentle pressure all over while moving marshmallow around hand
Cloying	High sweetness with a thick & persistent sensation experienced in the back of the throat	Koolaid® jammers fruit punch, or other high sugar non-alcoholic fruit beverage	Assess orally. Move sample around your mouth and swallow
Cleansing	An overall clean, refreshing sensation on the finish of the palate	Lemon water standard (1 lemon quartered & combined with 1 L of filtered water and steeped for 10 min)	Assess orally.
Rich	Integrated with depth & significant complexity & fullness		

Round	Integrated with depth, reasonable complexity & fullness & without any specific oral sensation dominating
Creamy	An impression of mouth-coating, softness & fullness
Supple	A soft, gentle, & frictionless impression with moderate to full body
Integrated	An impression that oral sensations are combined in good proportion
Neutral	Simple integration of oral sensations
Disjointed	Lack of integration of oral sensation(s)
Insipid	Thin & lacking in complexity
Harsh	A rough & grating impression
Aggressive	A prolonged & significant impression of harshness across the palate

Acknowledgement: these tables are based on information first reported in: Pickering, G.J. and DeMiglio, P. (2008). The white wine mouthfeel wheel: a lexicon for describing the oral sensations elicited by white wine. *Journal of Wine Research*, 19 (1), 51-67. Follow [this link](#) to the article