

Chapter 1

Test 2: Antioxidant COA

COA — Antioxidant Liquid Premix for all SKUs (100 ml)

Field	Specification / Result / Method
Product identity	<p>Palatant-Antioxidant Liquid Premix — Amber liquid with enhanced antioxidant system for all SKUs; mild savory aroma.</p> <p><i>Packet volume:</i> 100.00 ml (use 1 bottle per 10 kg wet food production run = 1 ml per 100 g pouch).</p>
Composition (per 100 ml bottle)	<p>Rosemary extract 28.00 ml (primary antioxidant)</p> <p>Sunflower lecithin (food-grade) 27.00 ml (phospholipid emulsifier)</p> <p>Grape seed extract concentrate 24.00 ml (proanthocyanidins, antioxidant synergy)</p> <p>Citric acid aqueous solution (25% w/v) 10.00 ml (pH buffer, chelator)</p> <p>Mixed tocopherols ($\alpha : \beta : \gamma : \delta = 1.0:0.3:6.0:2.0$) 10.00 ml (Vit E source)</p> <p>Glycerol monostearate (GMS, q.s.) 1.00 ml (emulsifier carrier)</p>
Analytical specifications	<p>Appearance: Amber to dark amber viscous liquid; Odor: Mild savory with herbal note, no rancidity.</p> <p>Viscosity (25°C): 60–180 mPa·s (Brookfield viscometer).</p> <p>Moisture (Karl Fischer): $\leq 0.3\%$; pH (1% solution): 5.0–6.5 (citric acid adjusted).</p> <p>Peroxide value (PV): ≤ 3.0 meq O₂/kg (AOCS Cd 8b-90, stricter for high-PUFA).</p> <p>Anisidine value: ≤ 15 (AOCS Cd 18-90).</p> <p>Vitamin E (dl-α-tocopherol equiv): ≈ 8 IU per 100 g wet food pouch (post-retort with 20% loss).</p> <p>Total polyphenols (grape seed): ≥ 80 mg GAE per 100 ml (Folin-Ciocalteu method).</p>
Microbiology	<p>Total plate count (TPC): $\leq 1 \times 10^3$ cfu/ml (ISO 4833).</p> <p>Yeast and mould: $\leq 1 \times 10^2$ cfu/ml (ISO 21527).</p> <p><i>Salmonella</i> spp.: Not detected per 25 ml (ISO 6579).</p> <p><i>E. coli</i>: Absent per 10 ml.</p>
Contaminants & safety	<p>Pb ≤ 2 mg/kg; Cd ≤ 1 mg/kg; As ≤ 2 mg/kg; Hg ≤ 0.1 mg/kg (ICP-MS).</p> <p>Histamine: ≤ 50 mg/kg; Mycotoxins: ND (not detected).</p> <p>Pesticide residues: ND; 3-MCPD/GEs: ≤ 1 mg/kg.</p> <p>Citric acid: Food-grade, non-GMO; Complies with E330 specification.</p>
Functional performance	<p>Oxidative stability (Rancimat at 110°C): ≥ 10 hours (enhanced vs Palatant A).</p>

Note: 100 ml provides organic extracts, mixed tocopherols, lecithin, antioxidants and dietary Vit E for both CatCore and DogCore lines.