

Medium Brown Color Maintenance Shampoo Gel Using Carbopol[®] ETD 2020 Polymer

This color shampoo formula, used for temporary highlights or color maintenance, gives easy application through a gel form. The use of **Carbopol[®] ETD[™] 2020 polymer** allows for the thickening of this shampoo. Salt can not be used as it significantly decreases the uptake of the dyes onto the hair. The amphoteric surfactants, recommended for use with cationic hair dyes, are also more difficult to thicken with salt.

Ingredient /INCI-CTFA Name	Weight, %	Function	Trade Name (Supplier)
PART A			
1. Deionized Water	41.85	Diluent	
2. Acrylates/C10-30 Alkyl Acrylate Crosspolymer	0.90	Rheology Modifier	Carbopol[®] ETD 2020 polymer (Noveon, Inc.)
3. Sodium Hydroxide (18%)	0.05	Neutralizer	
4. Propylene Glycol (and) Diazolidinyl Urea (and) Methylparaben (and) Propylparaben	0.45	Preservative	Germaben [®] II (ISP)
PART B			
5. Deionized Water	15.00	Diluent	
6. Disodium EDTA	0.05	Chelator	Versene [™] NA (Dow Chemical)
7. Butylene Glycol	5.00	Solvent	
8. Sodium Cocoamphoacetate	15.00	Surfactant	Miranol [®] Ultra C37 (Rhodia)
9. Cocamidopropyl Betaine	3.00	Surfactant	Proteric CAB (Protameen)
10. Polyquaternium-39	0.80	Hair Conditioner	Merquat [®] Plus 3330 (Calgon)
11. Sodium Hydroxide (18%)	0.25	Neutralizer	
PART C			
12. Deionized Water	10.00	Diluent	
13. Basic Brown 17 / CI 12251	0.25	Dye	Arianor [®] Sienna Brown (Tri-K/Warner Jenkinson)
14. Basic Blue 99 / CI 56059	0.125	Dye	Arianor [®] Steel Blue (Tri-K/Warner Jenkinson)
15. Basic Red 76 / CI 12245	0.125	Dye	Arianor [®] Madder Red (Tri-K/Warner Jenkinson)
16. Dimethicone Copolyol	0.20	Hair Conditioner	Dow Corning [®] 193 Surfactant (Dow Corning)
PART D			
17. Decyl Glucoside	4.00	Surfactant	Plantaren [®] 2000 (Henkel Cospha)
18. Deionized Water	3.00	Diluent	
19. Mica (and) Titanium Dioxide	0.20	Pearlizing Agent	Timiron [®] MP-149 Diamond Cluster (Rona)

PROPERTIES:

Appearance	Dark brown, viscous gel
pH	7.0 - 7.4
Viscosity, initial (cP)*	2,800 - 3,500
Viscosity, final (cP)**	3,500 - 4,500
Yield Value (dynes/cm ²)	150 - 250
Stability	Passed one month at 45°C

* Brookfield RVT @ 20 rpm, #4 spindle

** Viscosity will develop over the course of 1-3 days at room temperature

PREPARATION PROCEDURE:

1. Disperse **Carbopol® ETD 2020 polymer** in rapidly agitating deionized water. Reduce mixing speed when polymer is fully wet.
2. Add sodium hydroxide and continue mixing. Dispersion will thicken at this point.
3. Add Germaben® II and mix until homogeneous.
4. Pre-combine ingredients # 5-10 of PART B with good mixing. Add PART B to PART A slowly while mixing.
5. Add sodium hydroxide to desired pH.
6. Dissolve Arianor® dyes in deionized water of PART C. Do not heat above 60°C.
7. Add dimethicone copolyol to PART C and add PART C to batch while mixing.
8. Add decyl glucoside to batch and mix until homogeneous.
9. Disperse Timiron® in deionized water, add to batch and mix until homogeneous.
10. Adjust pH to 7.0 - 7.4 with sodium hydroxide if necessary.

Consumer Use Instructions:

1. Shampoo color into hair. Wait 5 minutes before rinsing.

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