

Supplementary Materials

~Figures~

“Menthol-Plus”: A Major Category of Cigarette Found Among “Concept Descriptor” Cigarettes from Mexico

James F. Pankow, Wentai Luo, Kevin J. McWhirter, Samantha M. Gillette, and Joanna E. Cohen.

List of Supplementary Figures

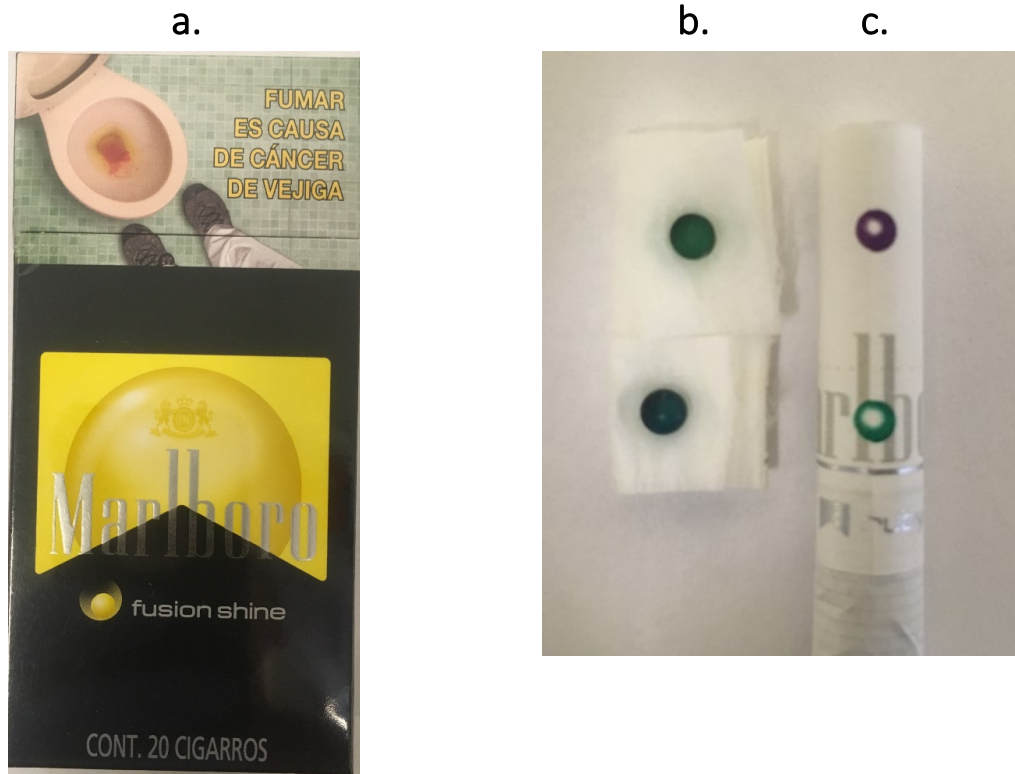
Pack and Filter Photos, and Flavor Bar Charts

- S1.a/b Marlboro "Fusion Shine" – Mexico
- S2.a/b Lucky Strike "Convertibles, Blue" – Mexico
- S3.a/b Lucky Strike "Flow Filter" March – Mexico
- S4.a/b Marlboro "Velvet Fusion Blast" – Mexico
- S5.a/b Marlboro "Double Fusion Velvet" – Mexico
- S6.a/b Lucky Strike "Flow Filter" October – Mexico
- S7.a/b Benson & Hedges "Polar Pearls" – Mexico
- S8.a/b Marlboro "Amber" – Mexico
- S9.a/b Marlboro "Double Fusion Amber" – Mexico
- S10.a/b Pall Mall/XL "Mystery" – Mexico
- S11.a/b Marlboro "Capsula Fresca" – Mexico
- S12.a/b Lucky Strike "Convertibles, Purple" – Mexico
- S13.a/b Pall Mall/XL "Tokyo Midnight" – Mexico
- S14.a/b Marlboro "Ruby Fusion Blast" – Mexico
- S15.a/b Pall Mall/XL "Black Edition/Maui Crepuscule" – Mexico
- S16.a/b Marlboro "Double Fusion Ruby" – Mexico
- S17.a/b Chesterfield "Caps Purple" – Mexico
- S18.a/b Benson & Hedges "Crystal Violet" – Mexico
- S19.a/b Pall Mall/XL "Black Edition/Ibiza Sunset" – Mexico
- S20.a/b Pall Mall "Wave" – Mexico
- S21.a/b Pall Mall/XL "Mykonos Nightfall" – Mexico
- S22.a/b Benson & Hedges "Crystal Blue" – Mexico
- S23.a/b Next "Green" – Canada
- S24.a/b John Player "Choice" – Canada
- S25.a/b Benson & Hedges "Unison" – Canada
- S26.a/b Camel "North, Aqua Filter" – Canada
- S27.a/b Du Maurier "Nano Blue" – Canada

Additional Supplementary Figures

- S28 Triacetin vs. Menthol
- S29 Total Other Flavor Chemicals (TOFCs) vs. Menthol

Figure S1.a. Pack #1. Marlboro “Fusion Shine” (M+4) (Mexico)



- a. Photo of pack (front);
- b. Opened filter showing two crushable flavor capsules (uncrushed);
- b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S1.b. Pack #1. Marlboro "Fusion Shine" (M+4)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFFCs = total non-menthol non-fruit flavour compounds.

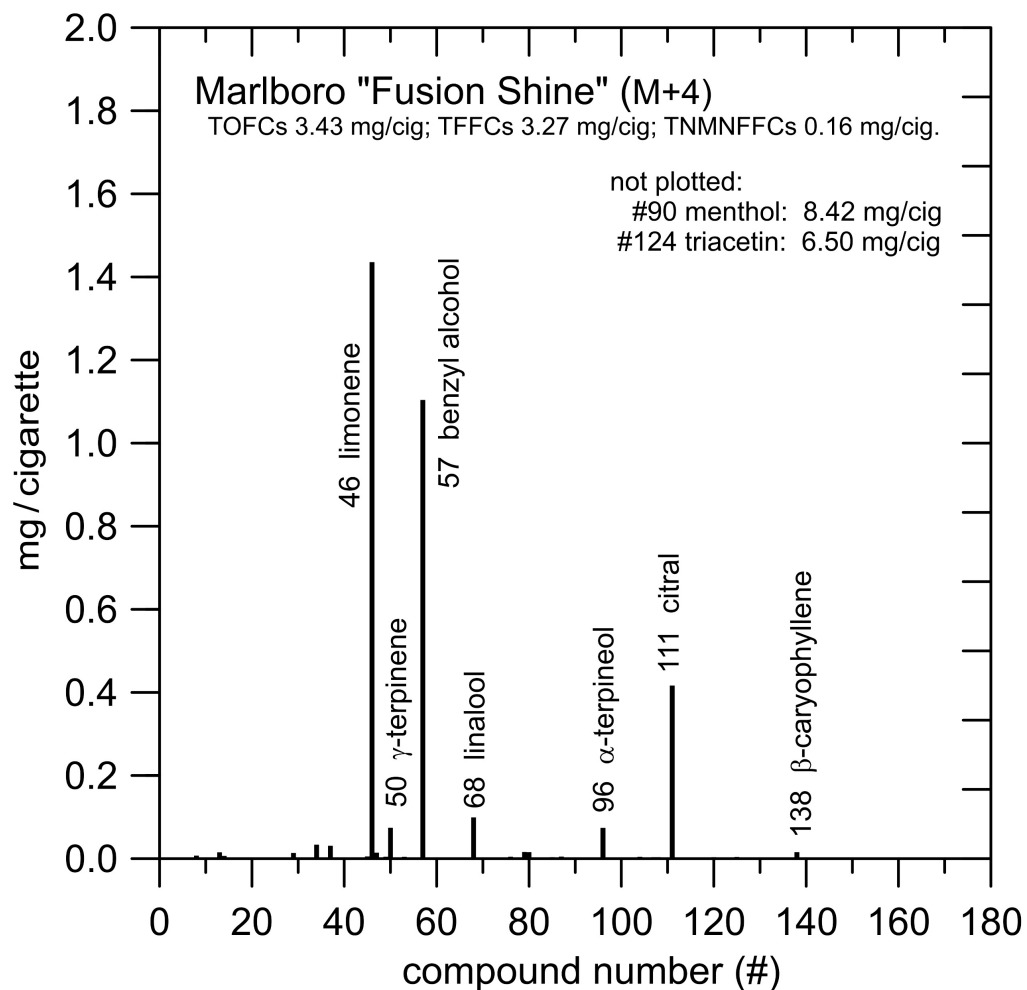
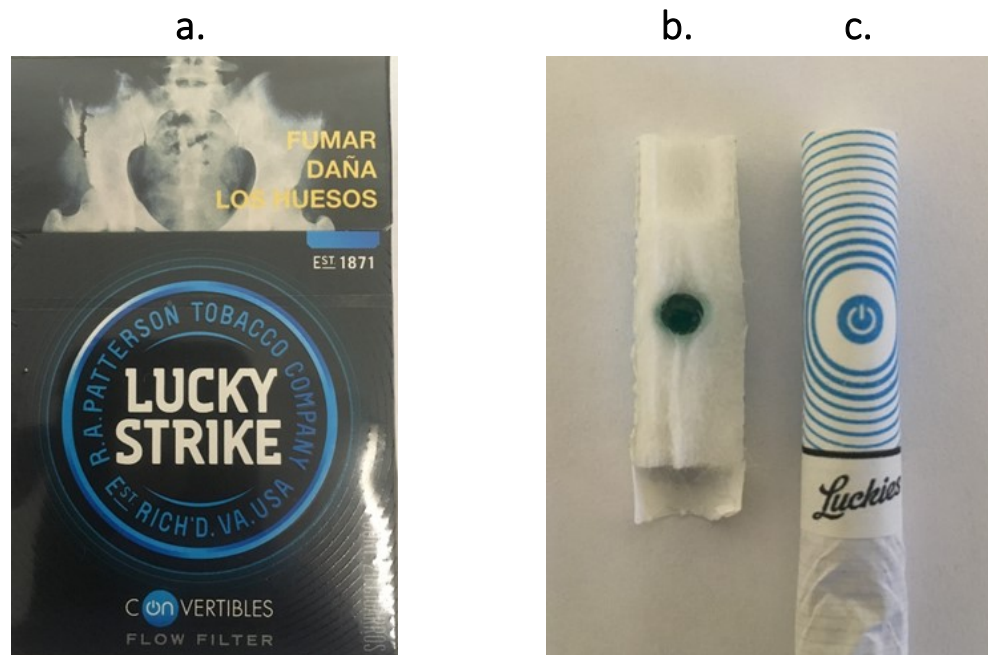


Figure S2.a. Pack #2. Lucky Strike “Convertibles” blue (M+3) (Mexico)



- a. Photo of pack (front);
- b. Opened filter showing one crushable flavor capsule (uncrushed);
- b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S2.b. Pack #2. Lucky Strike "Convertibles" blue (M+3)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFCCs = total non-menthol non-fruit flavour compounds.

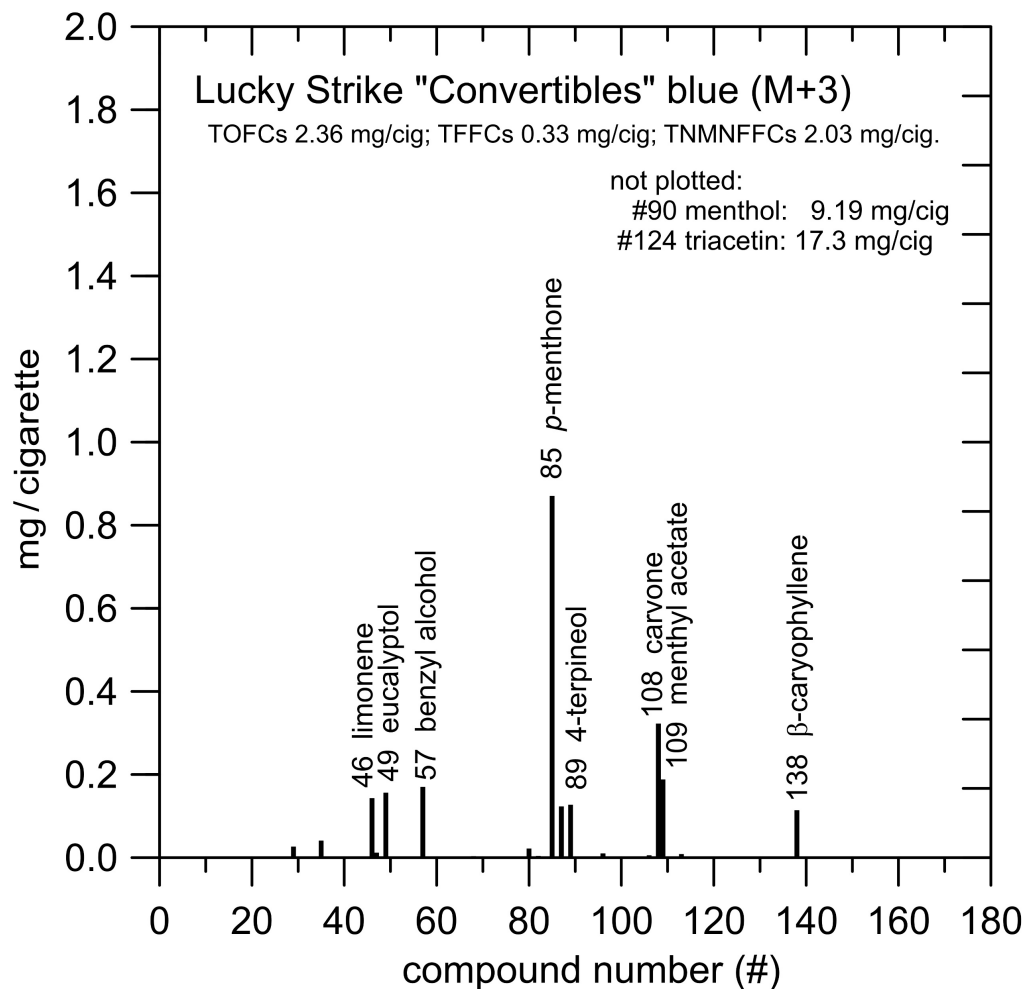
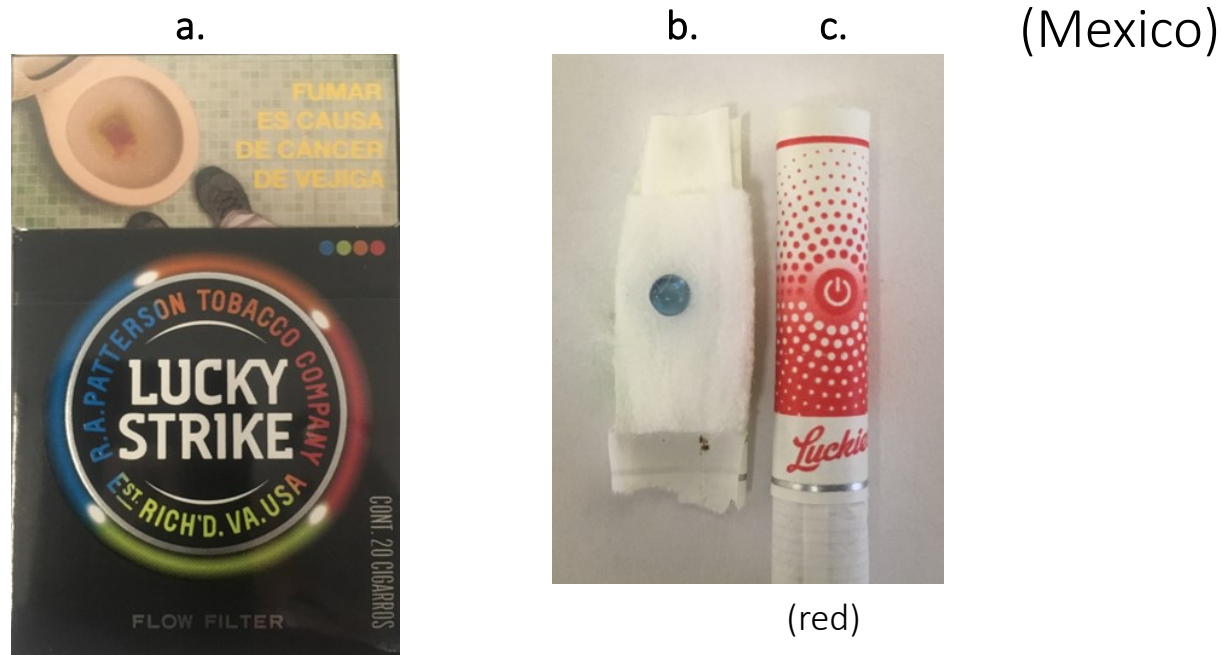


Figure S3.a. Pack #3. Lucky Strike “Flow Filter” March

Sampler Flavour Categories: blue, M+3; orange, M+1+, red, M+1; and green, M+1.



- a. Photo of pack (front);
- b. Opened filter (red version) showing one crushable flavor capsule (uncrushed);
- b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S3.b.1. Pack #3. Lucky Strike "Flow Filter" March/blue (M+3)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFCCs = total non-menthol non-fruit flavour compounds.

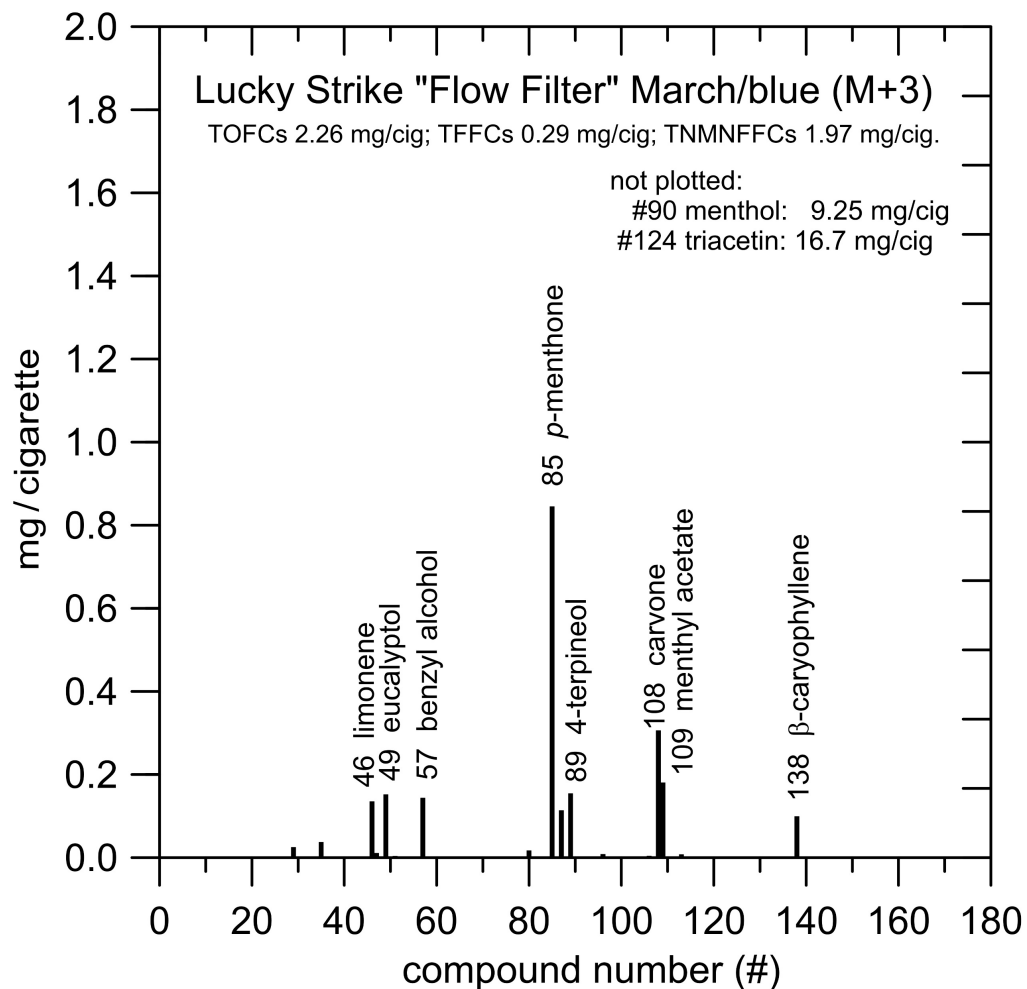


Figure S3.b.2. Pack #3. Lucky Strike "Flow Filter" March/orange (M+1)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFCCs = total non-menthol non-fruit flavour compounds.

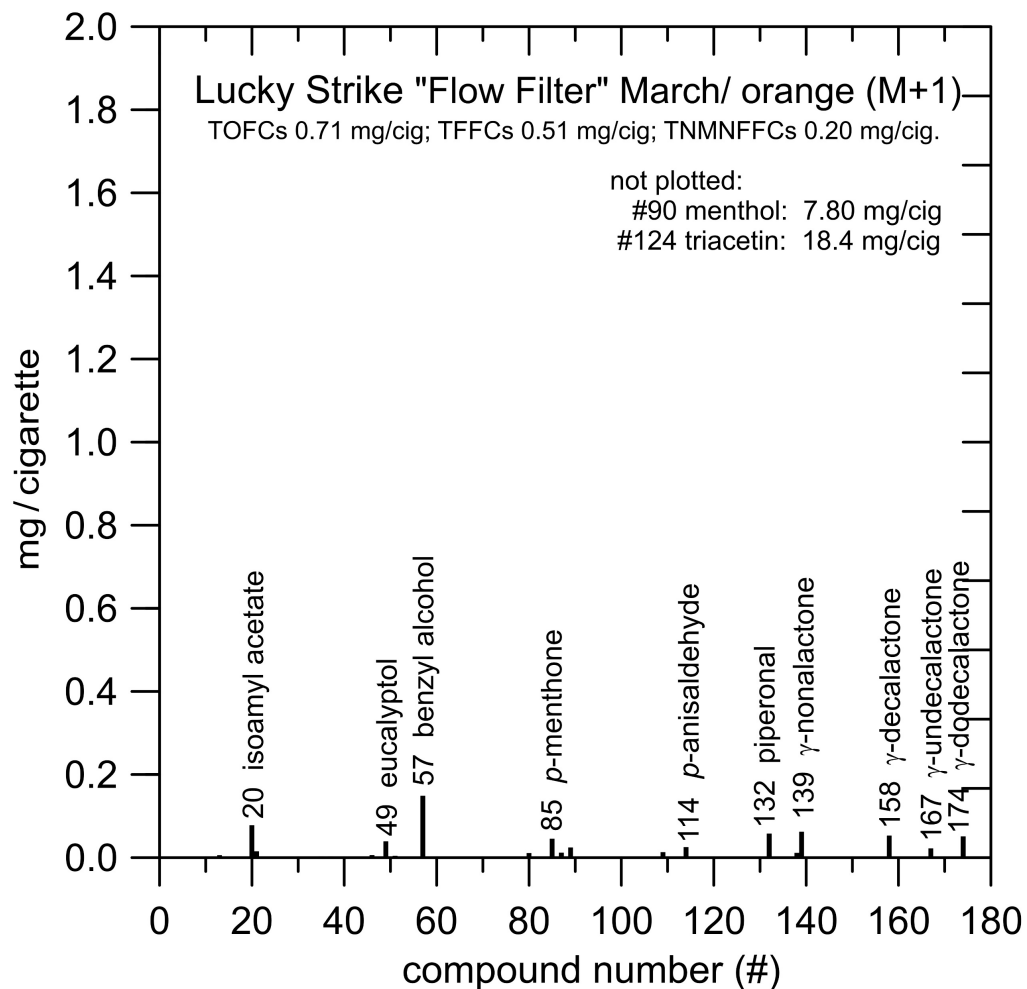


Figure S3.b.3. Pack #3. Lucky Strike "Flow Filter" March/red (M+1)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFCCs = total non-menthol non-fruit flavour compounds.

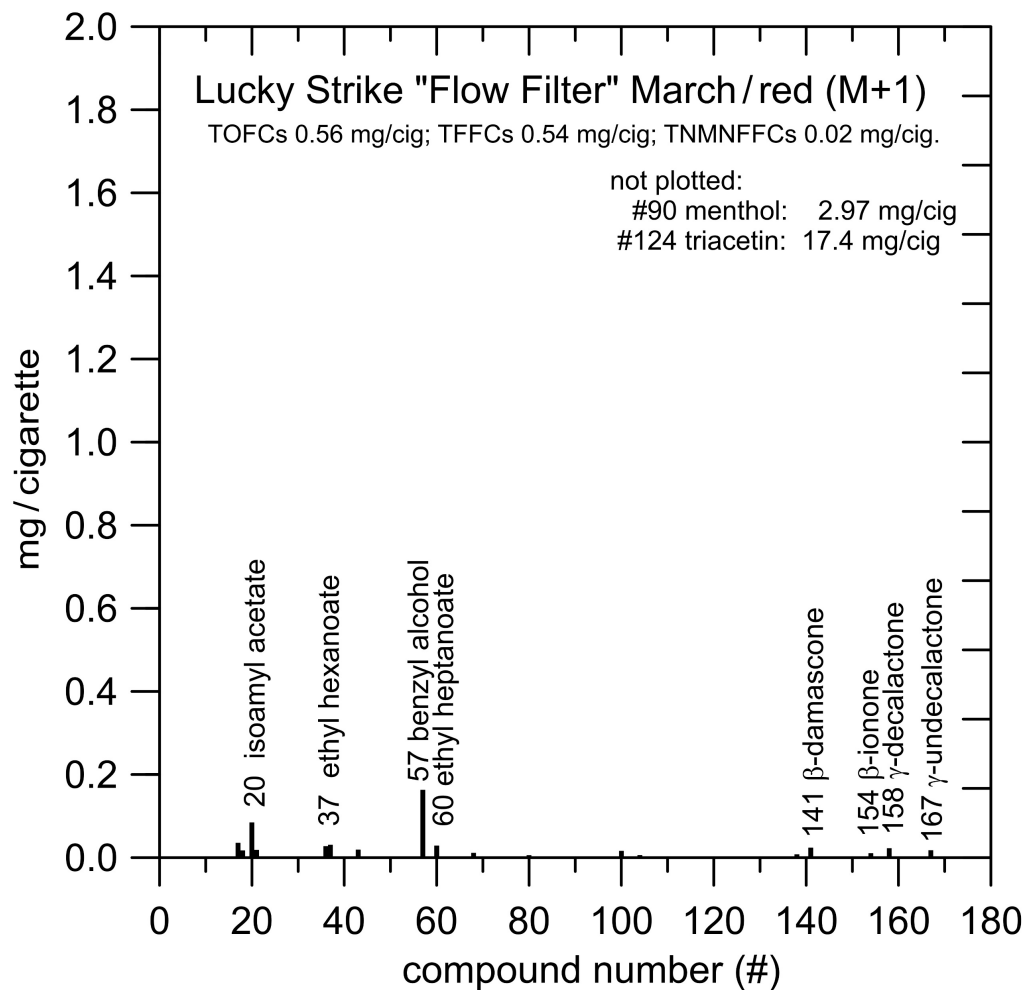


Figure S3.b.4. Pack #3. Lucky Strike "Flow Filter" March/green (M+1)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFFCs = total non-menthol non-fruit flavour compounds.

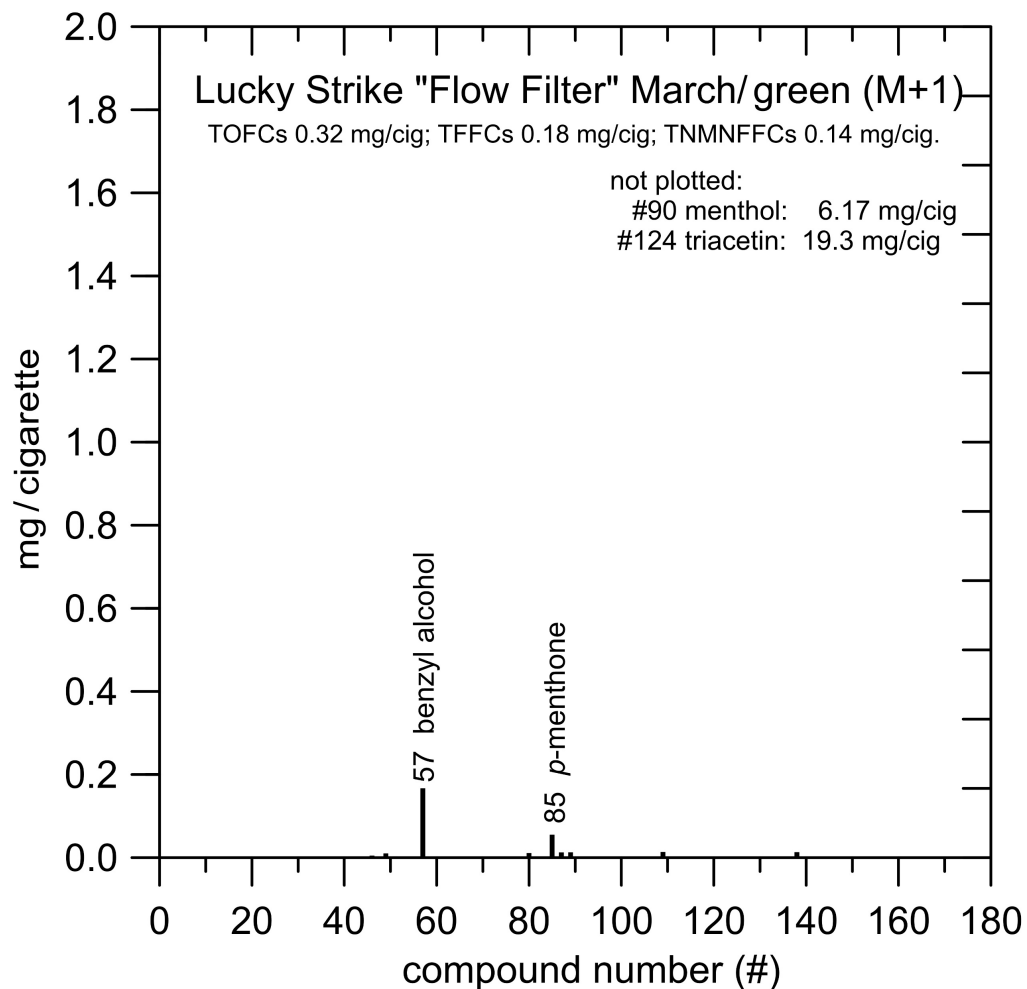
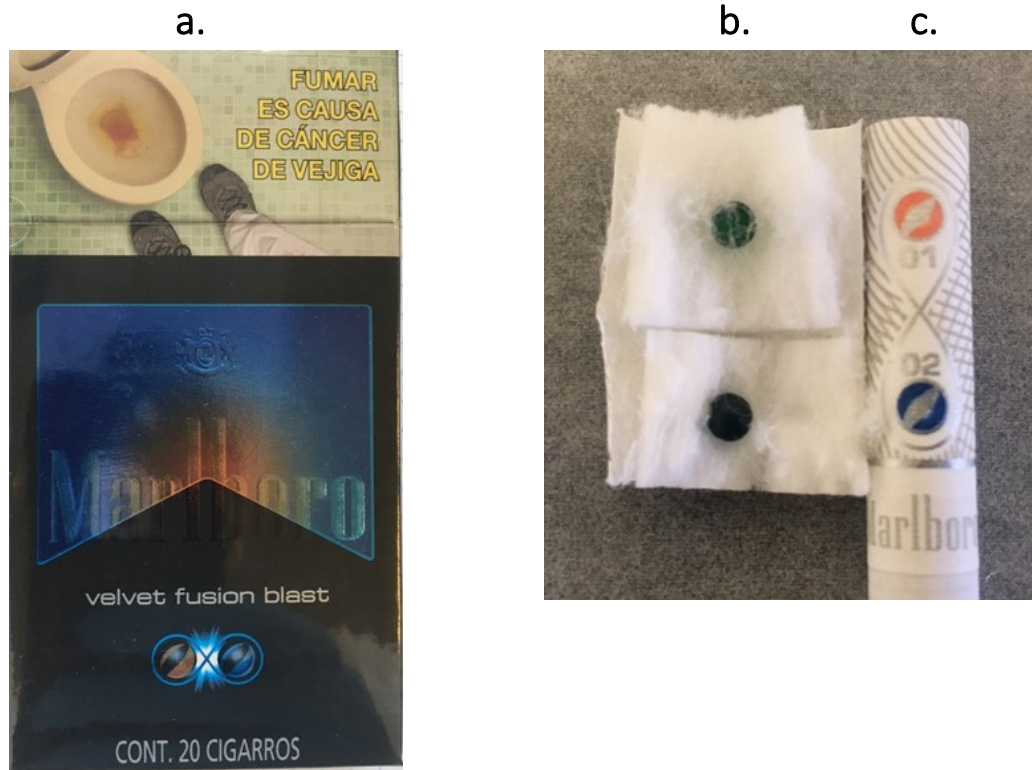


Figure S4.a. Pack #4. Marlboro “Velvet Fusion Blast” (M+2) (Mexico)



- a. Photo of pack (front);
- b. Opened filter showing two crushable flavor capsules (uncrushed);
- b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S4.b. Pack #4. Marlboro "Velvet Fusion Blast" (M+2)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFCCs = total non-menthol non-fruit flavour compounds.

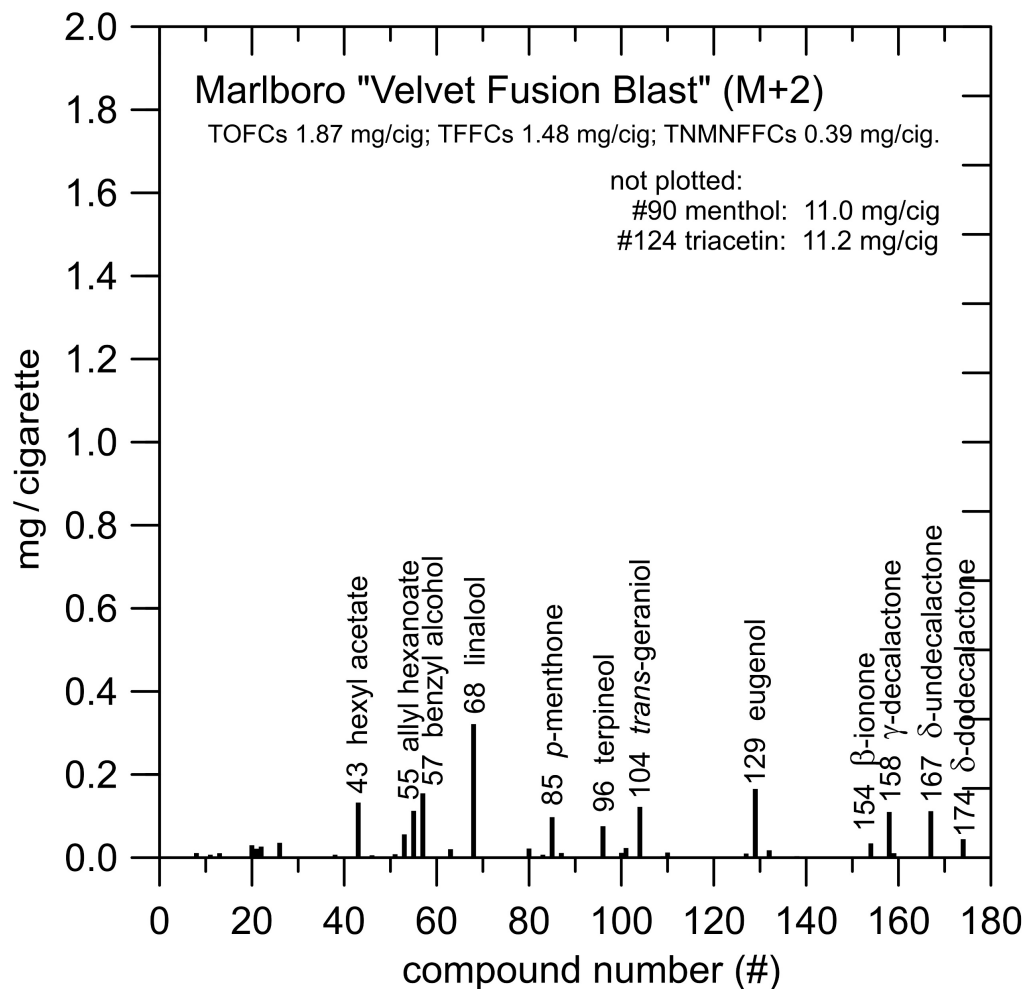
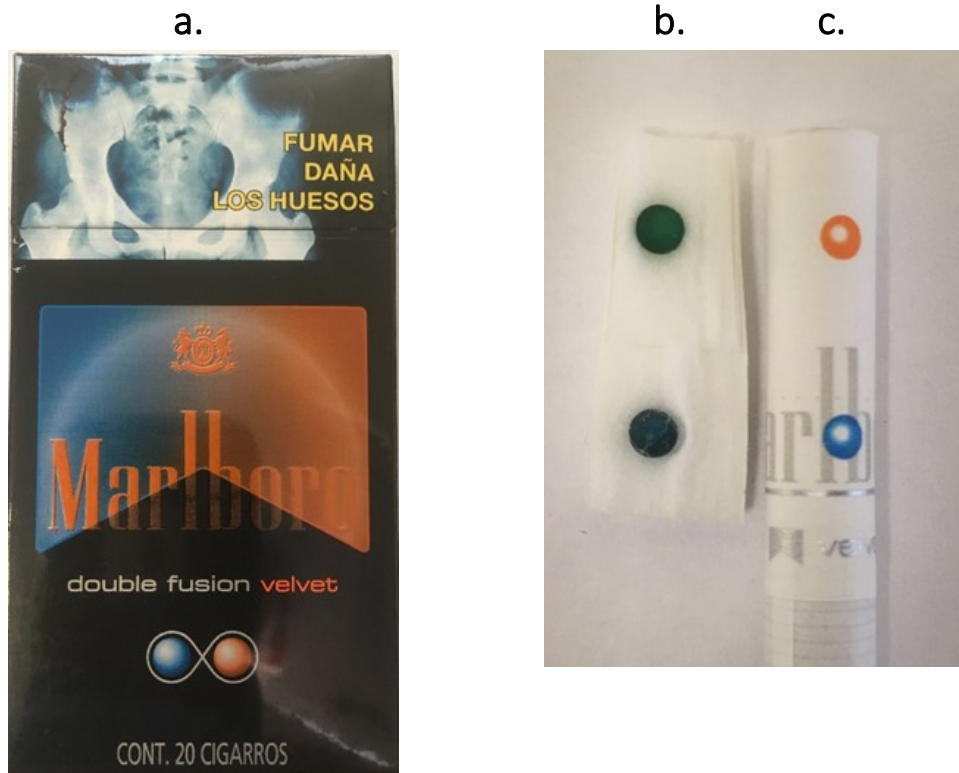


Figure S5.a. Pack #5. Marlboro “Double Fusion Velvet” (M+2)
(Mexico)



- a. Photo of pack (front);
- b. Opened filter showing two crushable flavor capsules (uncrushed);
- b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S5.b. Pack #5. Marlboro "Double Fusion Velvet" (M+2)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFCCs = total non-menthol non-fruit flavour compounds.

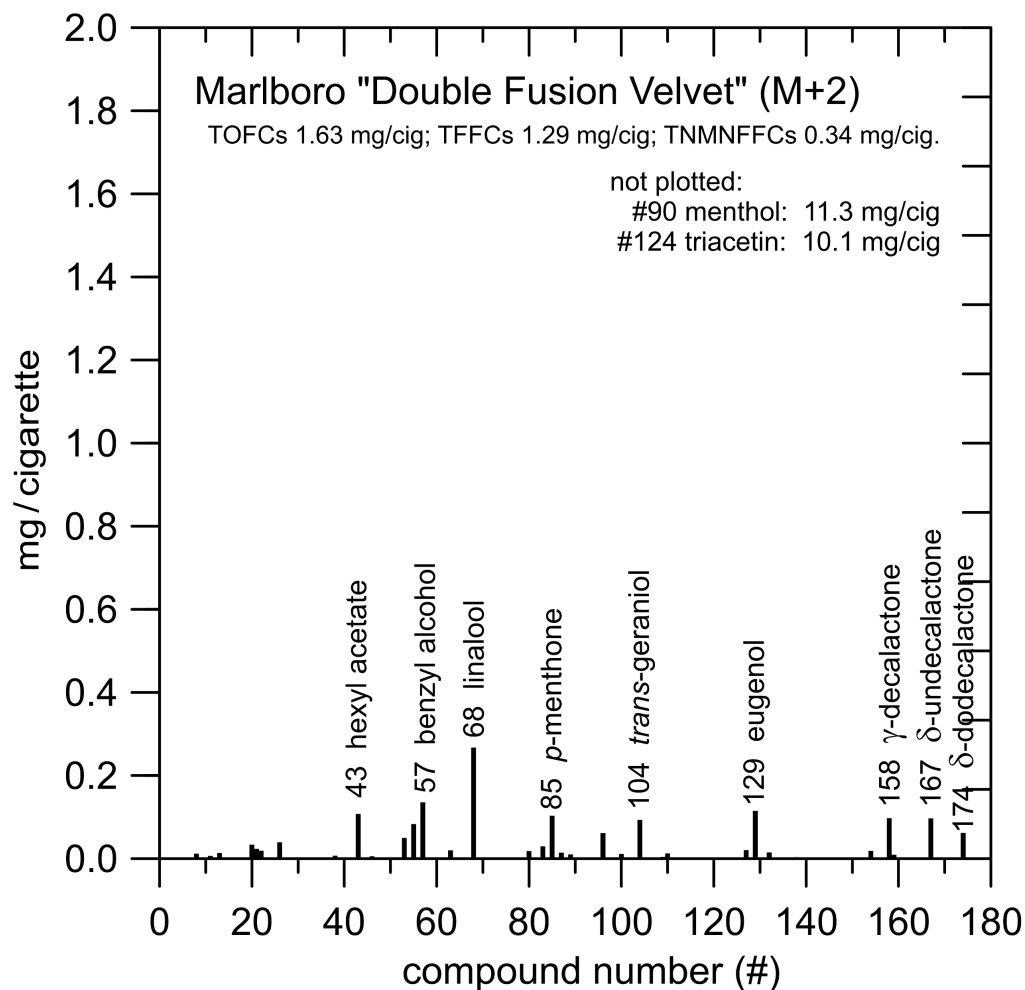
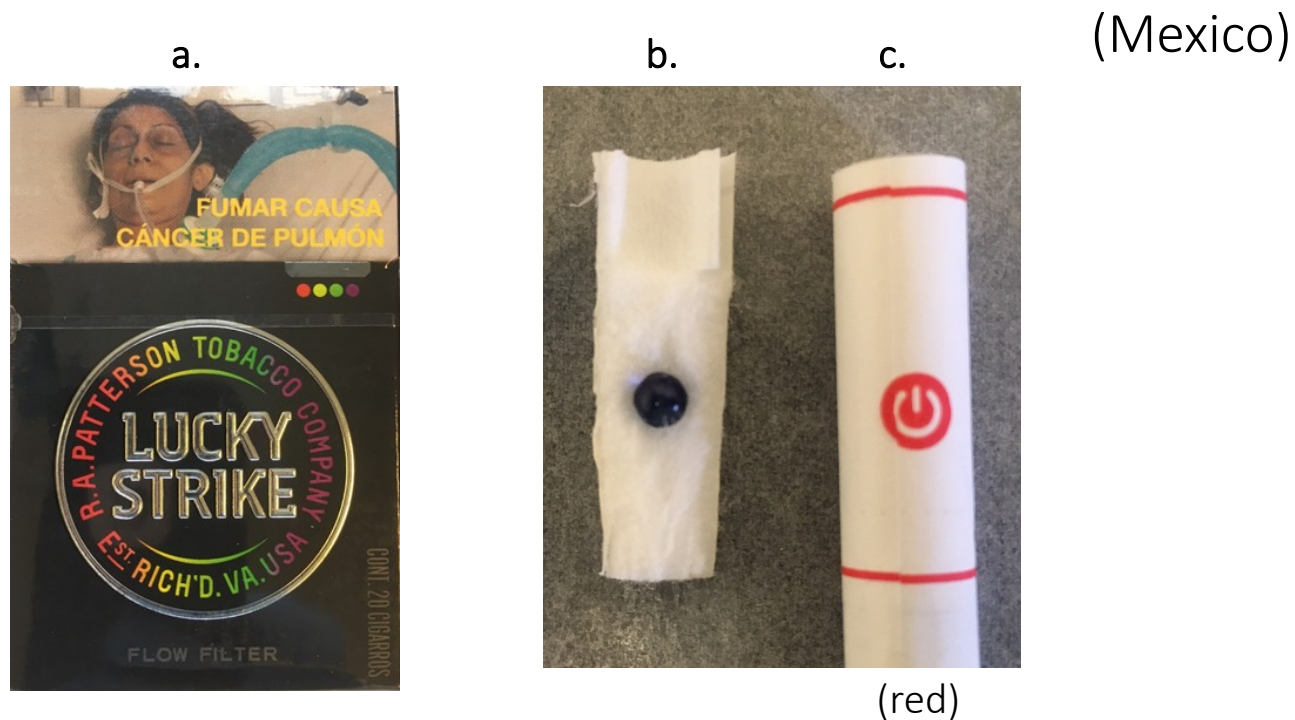


Figure S6.a. Pack #6. Lucky Strike “Flow Filter” (October)

Sampler Flavour Categories: light green, M+2; purple, M+1; red, M+1+; and green, M+1.



- a. Photo of pack (front);
b. Opened filter (red version) showing one crushable flavor capsule (uncrushed);
b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S6.b.1. Pack #6. Lucky Strike "Flow Filter" October/lit. green (M+2)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFCCs = total non-menthol non-fruit flavour compounds.

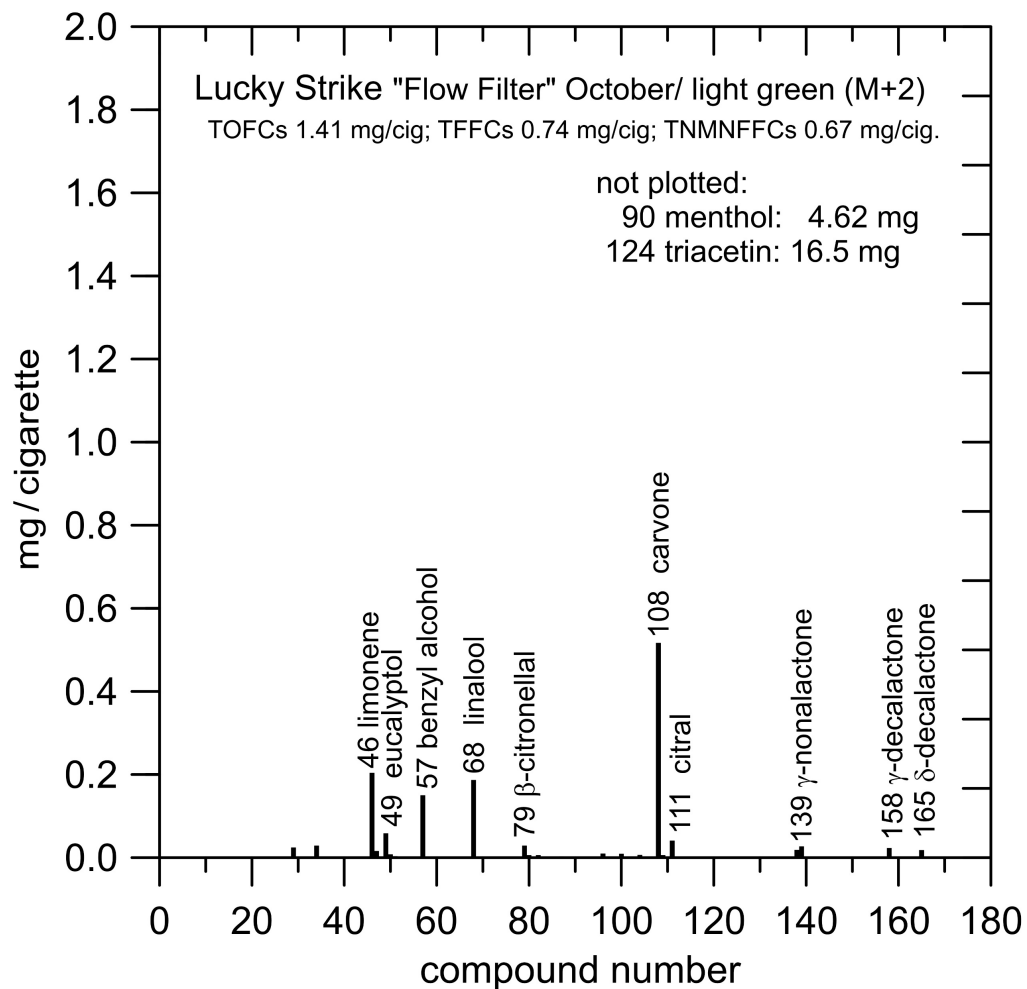


Figure S6.b.2. Pack #6. Lucky Strike "Flow Filter" October/purple (M+1)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFCCs = total non-menthol non-fruit flavour compounds.

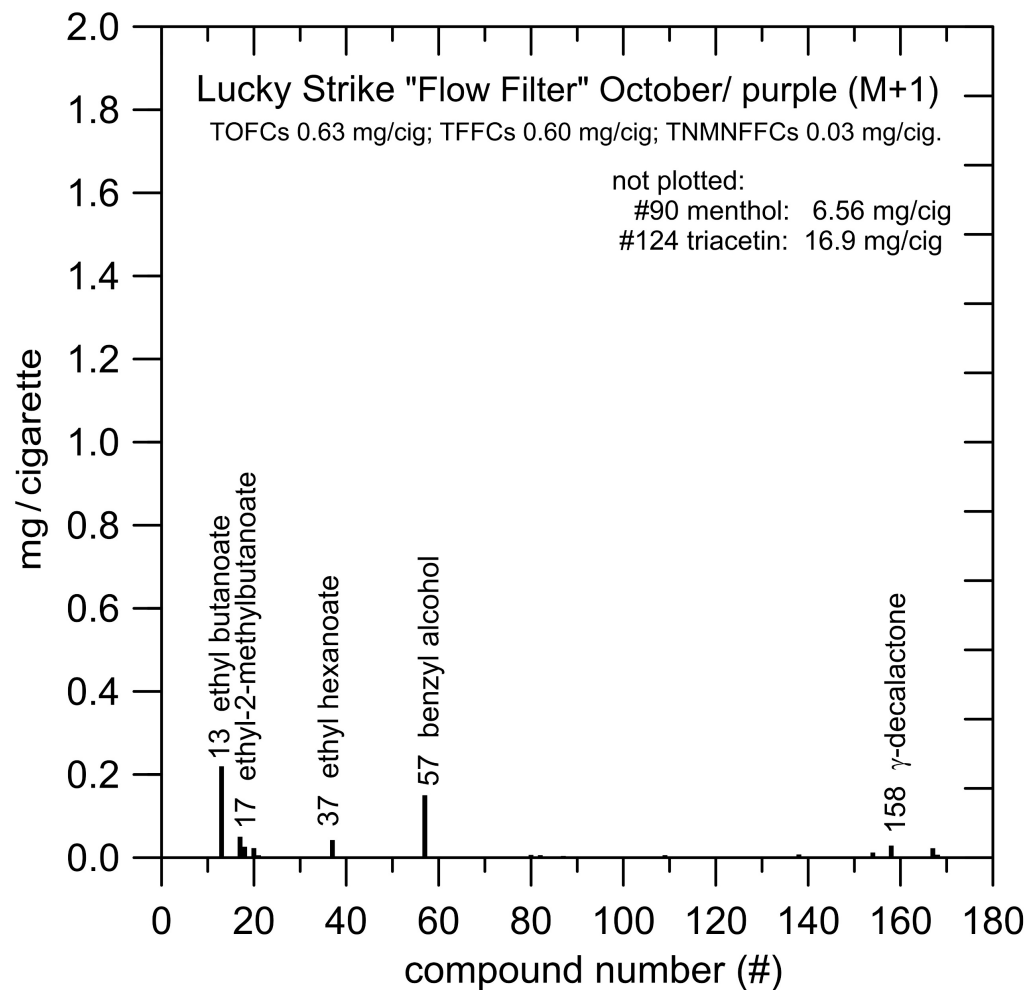


Figure S6.b.3. Pack #6. Lucky Strike "Flow Filter" October/red (M+1)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFFCs = total non-menthol non-fruit flavour compounds.

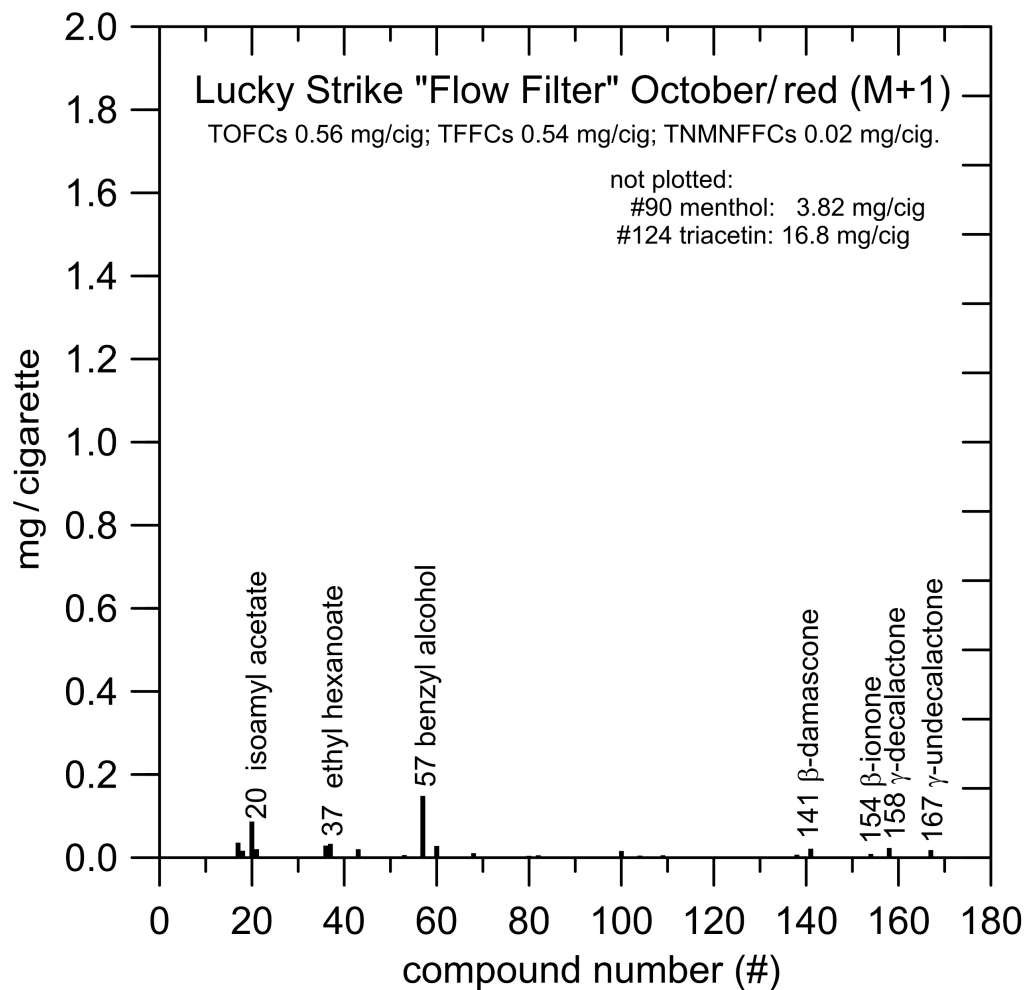


Figure S6.b.4. Pack #6. Lucky Strike "Flow Filter" October/green (M+1)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFFCs = total non-menthol non-fruit flavour compounds.

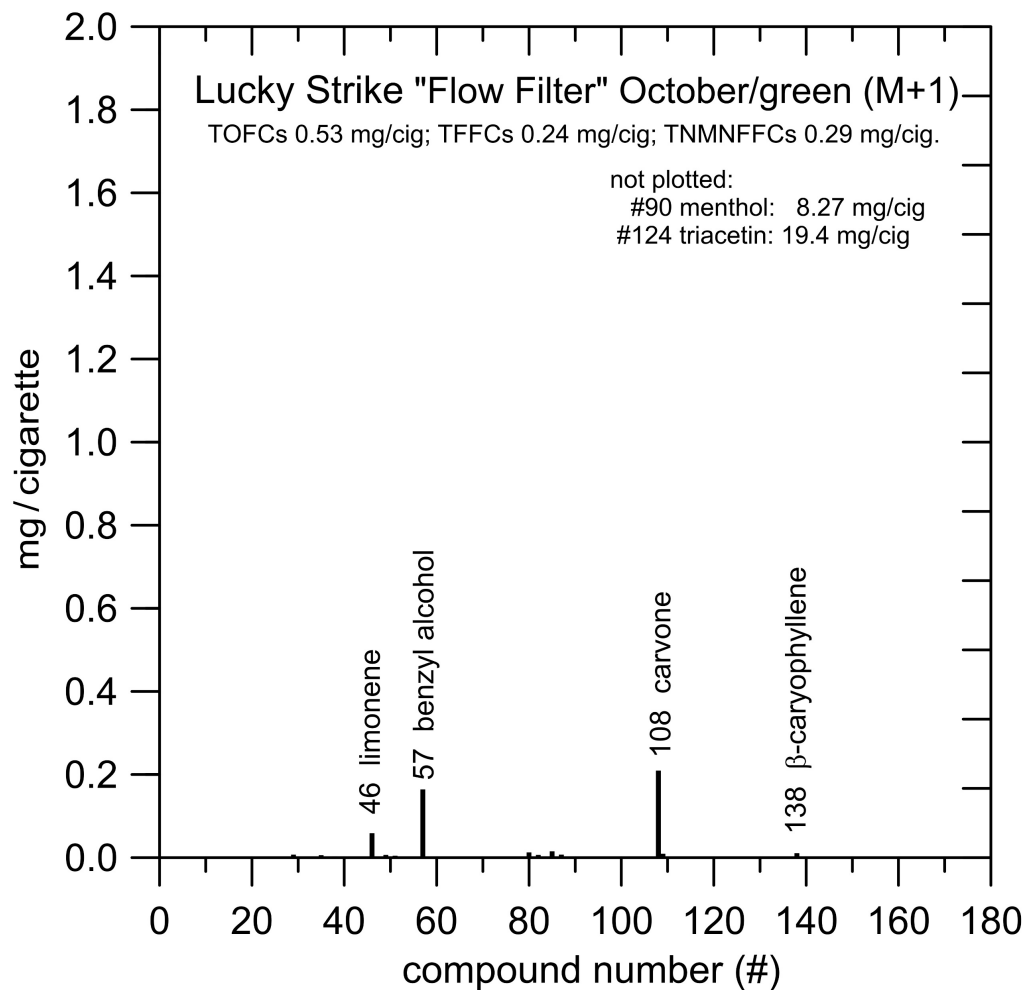
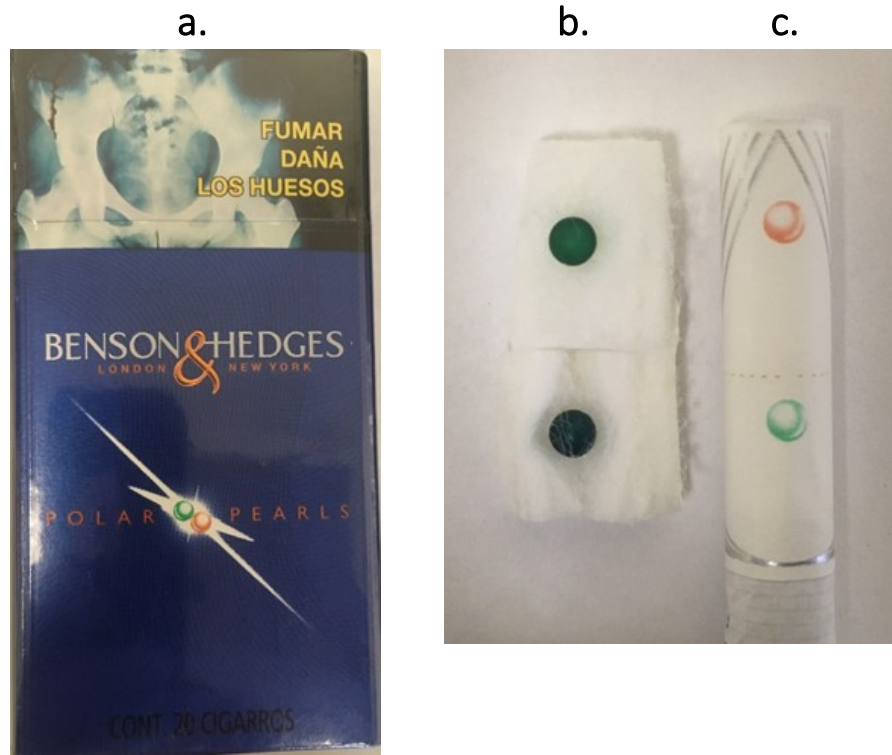


Figure S7.a. Pack #7. Benson & Hedges “Polar Pearls” (M+2) (Mexico)



- a. Photo of pack (front);
- b. Opened filter showing two crushable flavor capsules (uncrushed);
- b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S7.b. Pack #7. Benson & Hedges "Polar Pearls" (M+2)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFCCs = total non-menthol non-fruit flavour compounds.

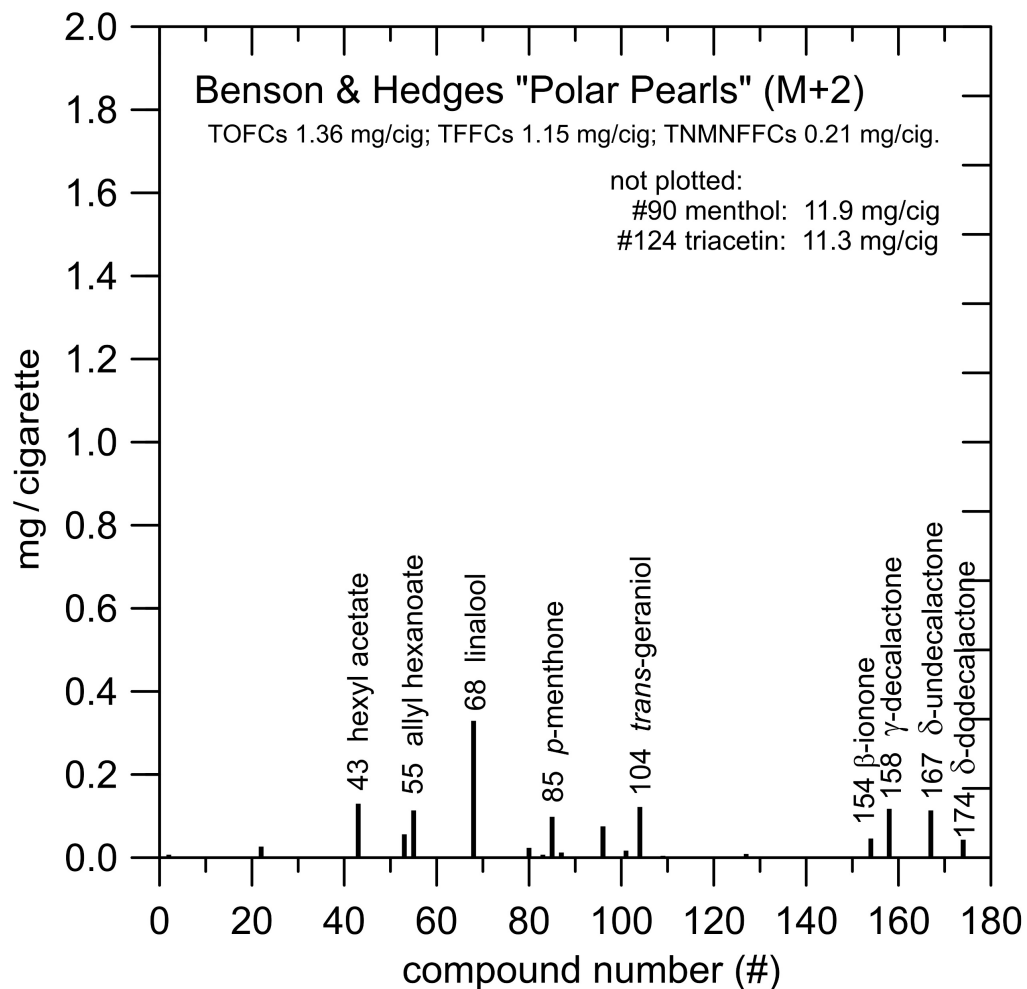
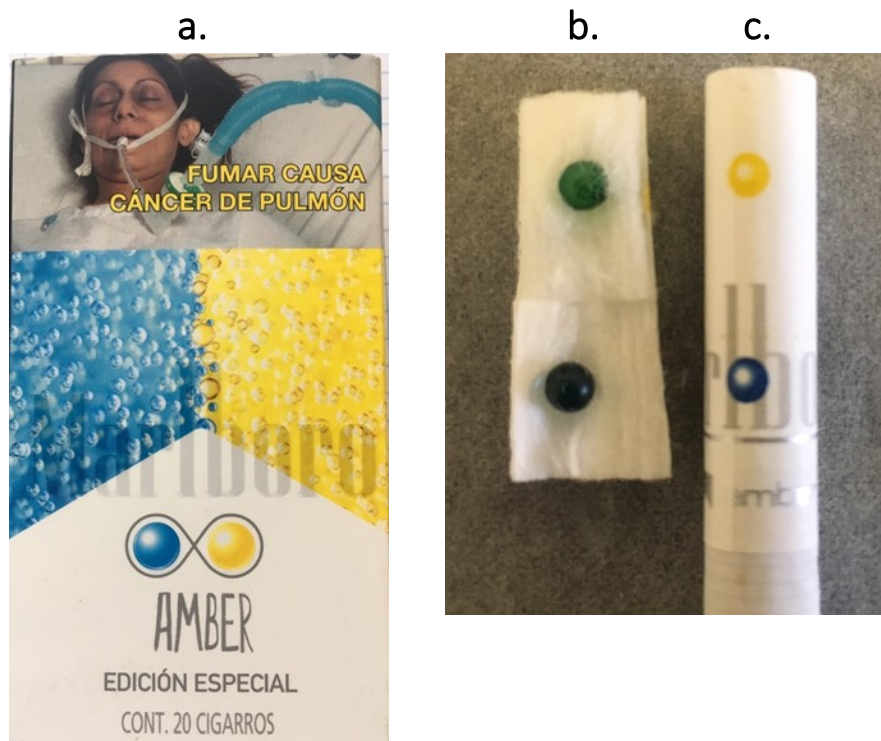


Figure S8.a. Pack #8. Marlboro “Amber” (M+2) (Mexico)



- a. Photo of pack (front);
- b. Opened filter showing two crushable flavor capsules (uncrushed);
- b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S8.b. Pack #8. Marlboro "Amber" (M+2)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFCCs = total non-menthol non-fruit flavour compounds.

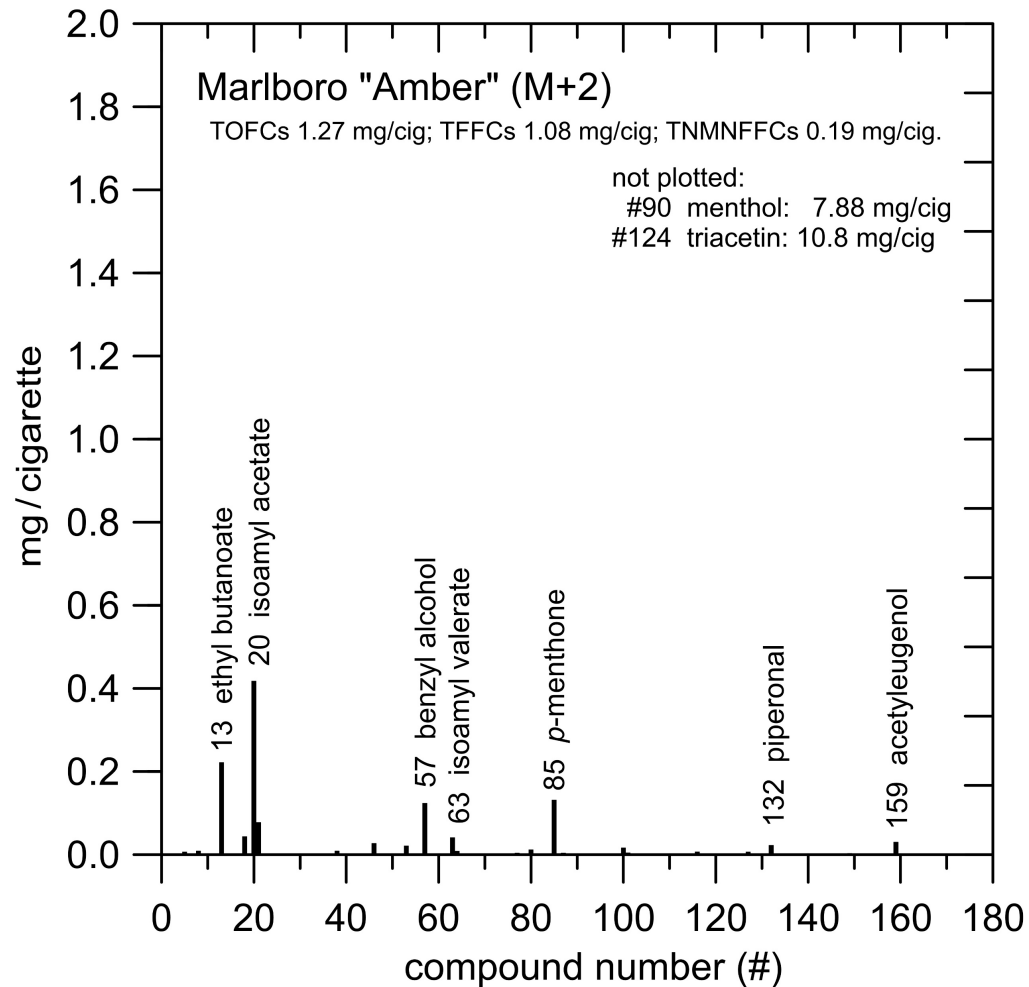
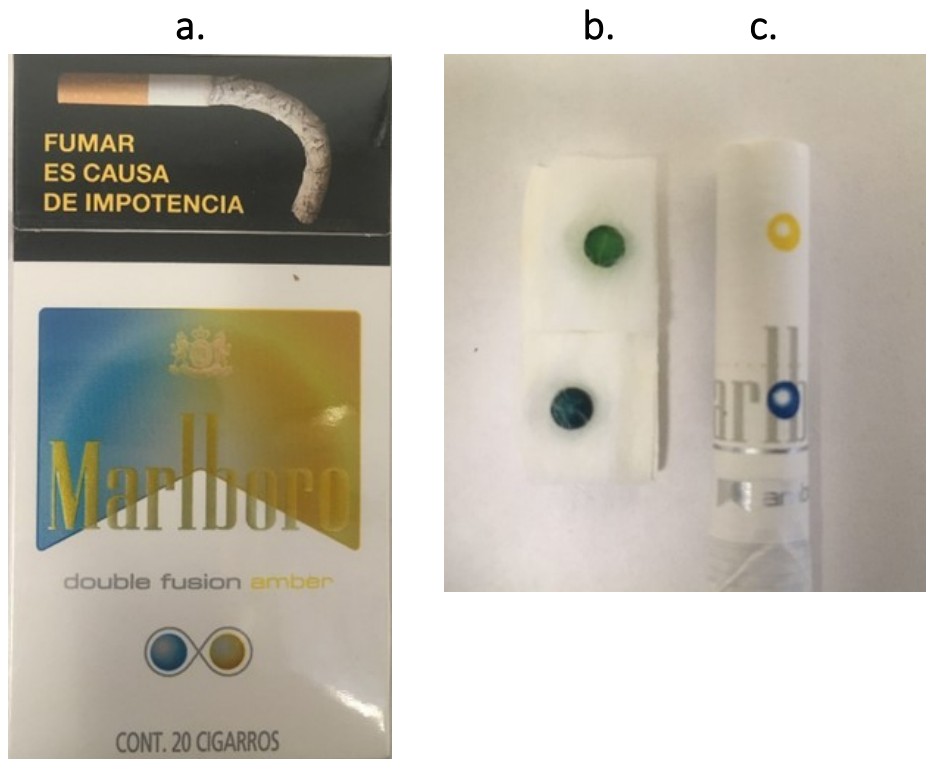


Figure S9.a. Pack #9. Marlboro “Double Fusion Amber” (M+2) (Mexico)



- a. Photo of pack (front);
- b. Opened filter showing two crushable flavor capsules (uncrushed);
- b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S9.b. Pack #9. Marlboro "Double Fusion Amber" (M+2)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFCCs = total non-menthol non-fruit flavour compounds.

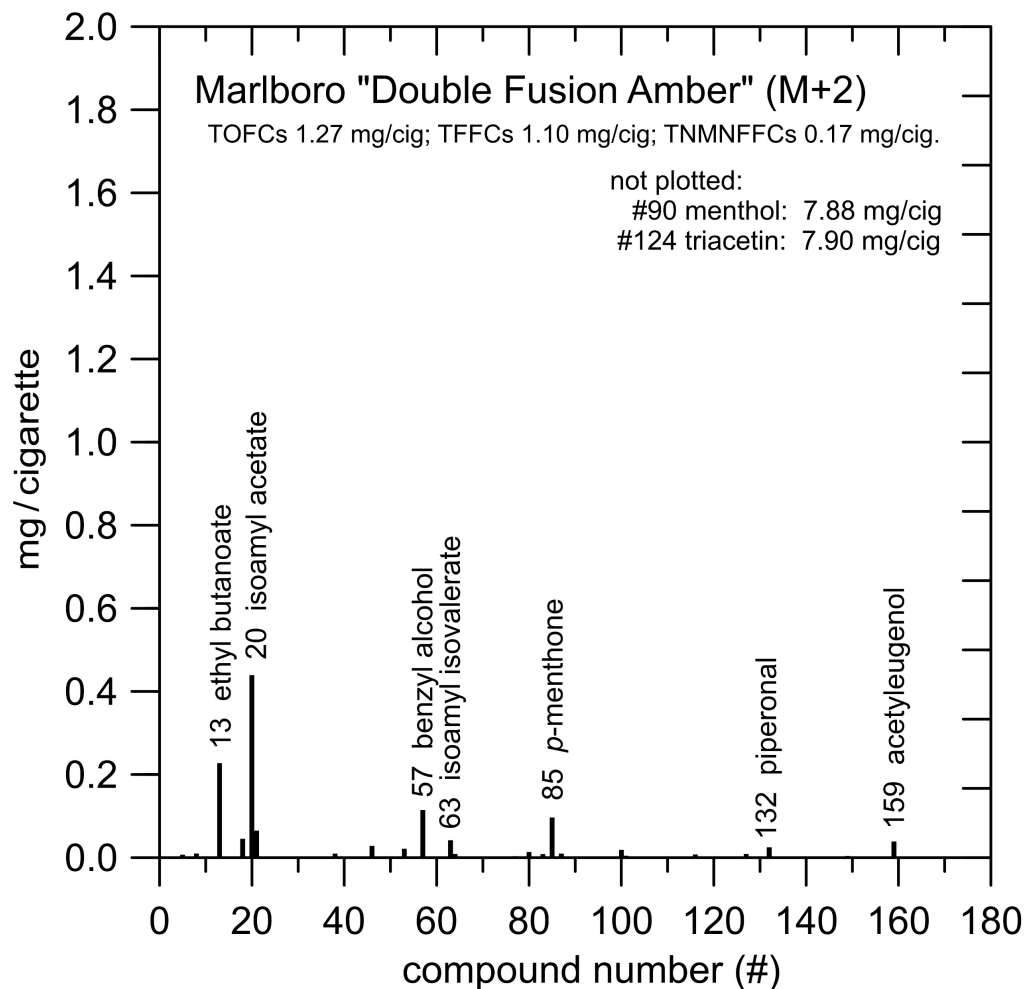


Figure S10.a. Pack #10. Pall Mall/XL “Mystery” (M+2)
(Mexico)



- a. Photo of pack (front);
- b. Opened filter showing two crushable flavor capsules (uncrushed);
- b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S10.b. Pack #10. Pall Mall/XL "Mystery" (M+2)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFCCs = total non-menthol non-fruit flavour compounds.

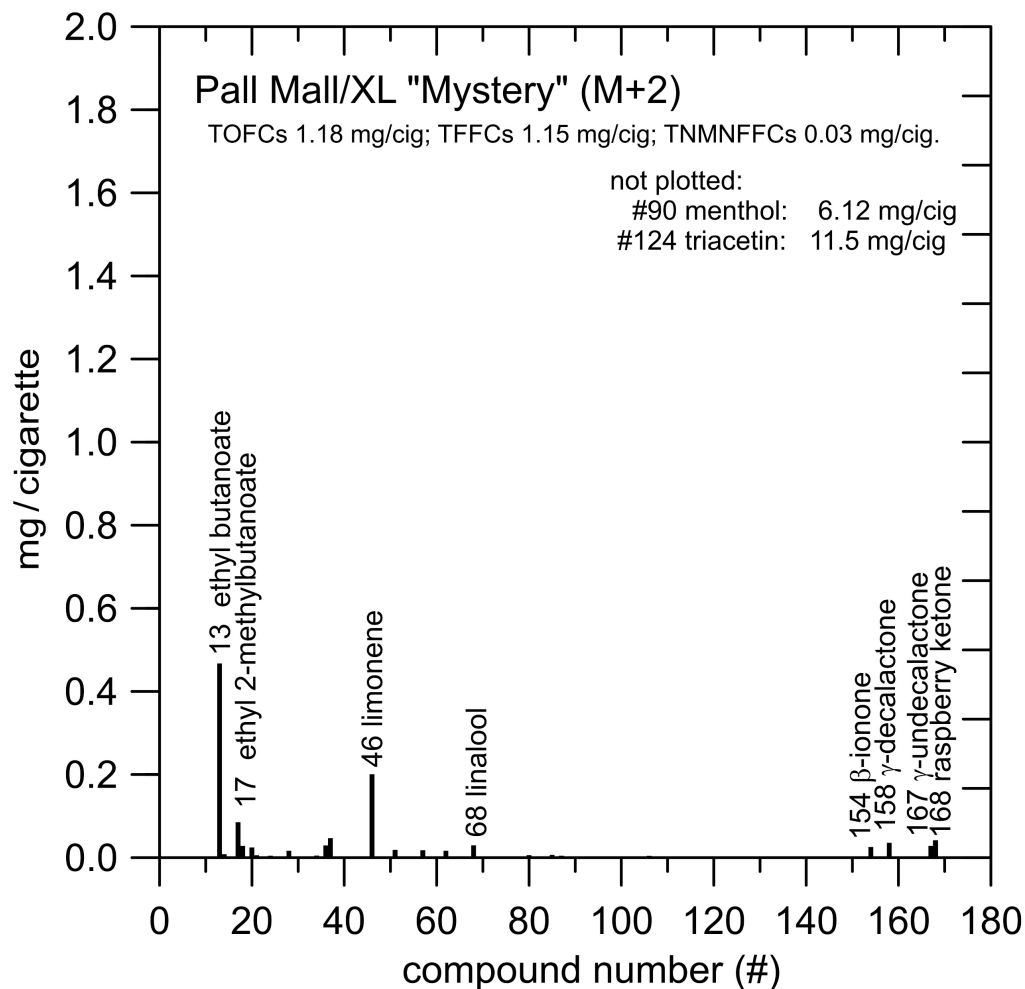
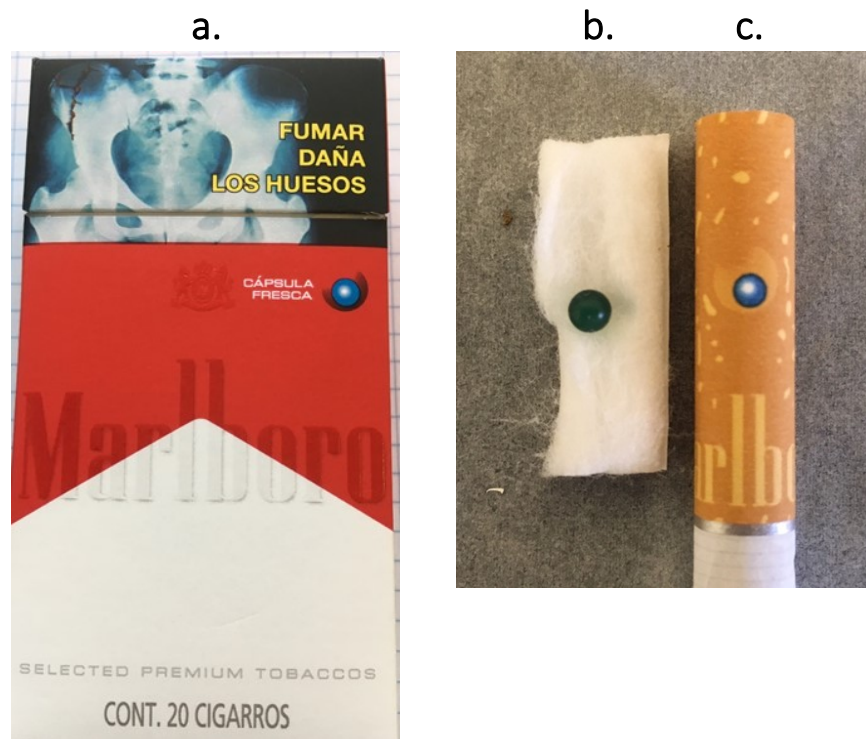


Figure S11.a. Pack #11. Marlboro “Capsula Fresca” (M+1) (Mexico)



- a. Photo of pack (front);
- b. Opened filter showing one crushable flavor capsule (uncrushed);
- b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S11.b. Pack #11. Marlboro "Capsula Fresca" (M+1)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFFCs = total non-menthol non-fruit flavour compounds.

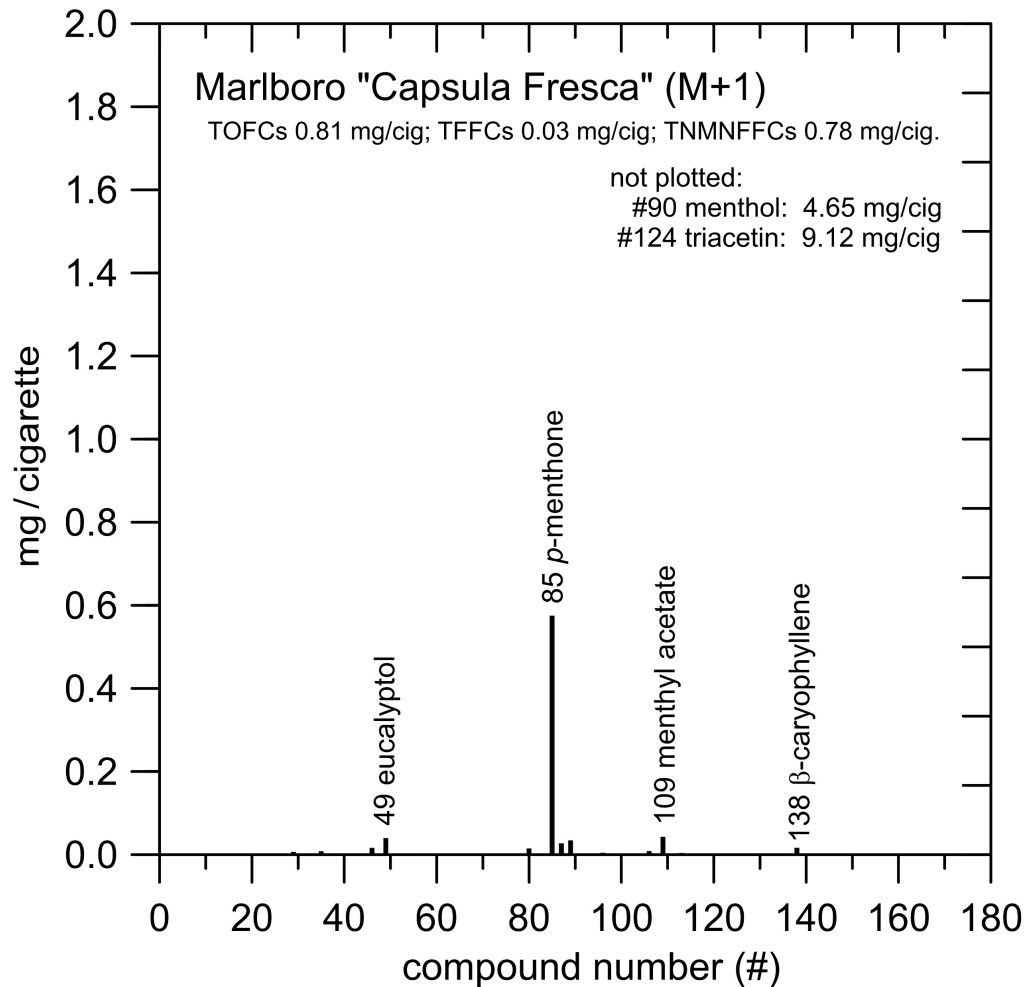
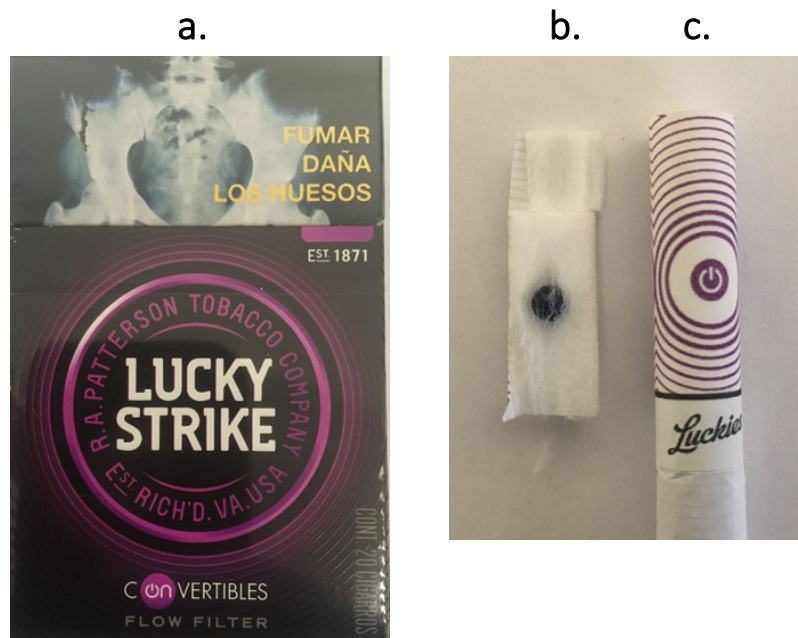


Figure S12.a. Pack #12. Lucky Strike “Convertibles” purple (M+1) (Mexico)



- a. Photo of pack (front);
- b. Opened filter showing one crushable flavor capsule (uncrushed);
- b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S12.b. Pack #12. Lucky Strike "Convertibles" purple (M+1)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFFCs = total non-menthol non-fruit flavour compounds.

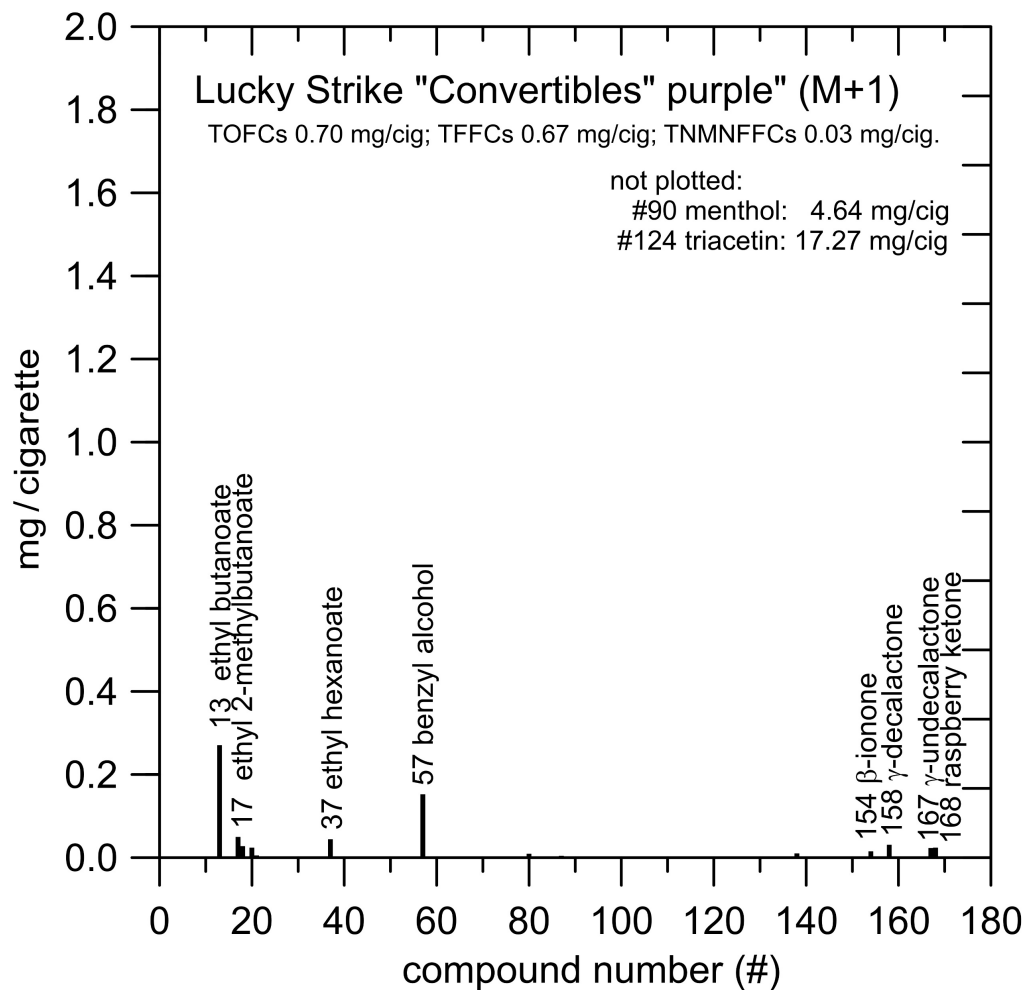
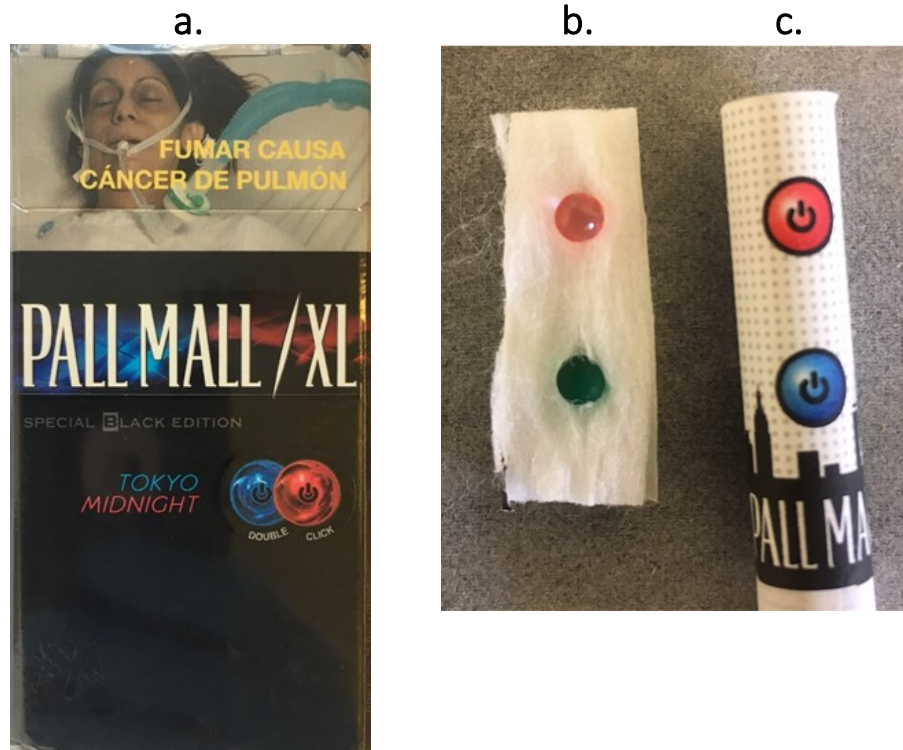


Figure S13.a. Pack #13. Pall Mall/XL “Tokyo Midnight” (M+1) (Mexico)



- a. Photo of pack (front);
- b. Opened filter showing two crushable flavor capsules (uncrushed);
- b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S13.b. Pack #13. Pall Mall/XL "Tokyo Midnight" (M+1)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFCCs = total non-menthol non-fruit flavour compounds.

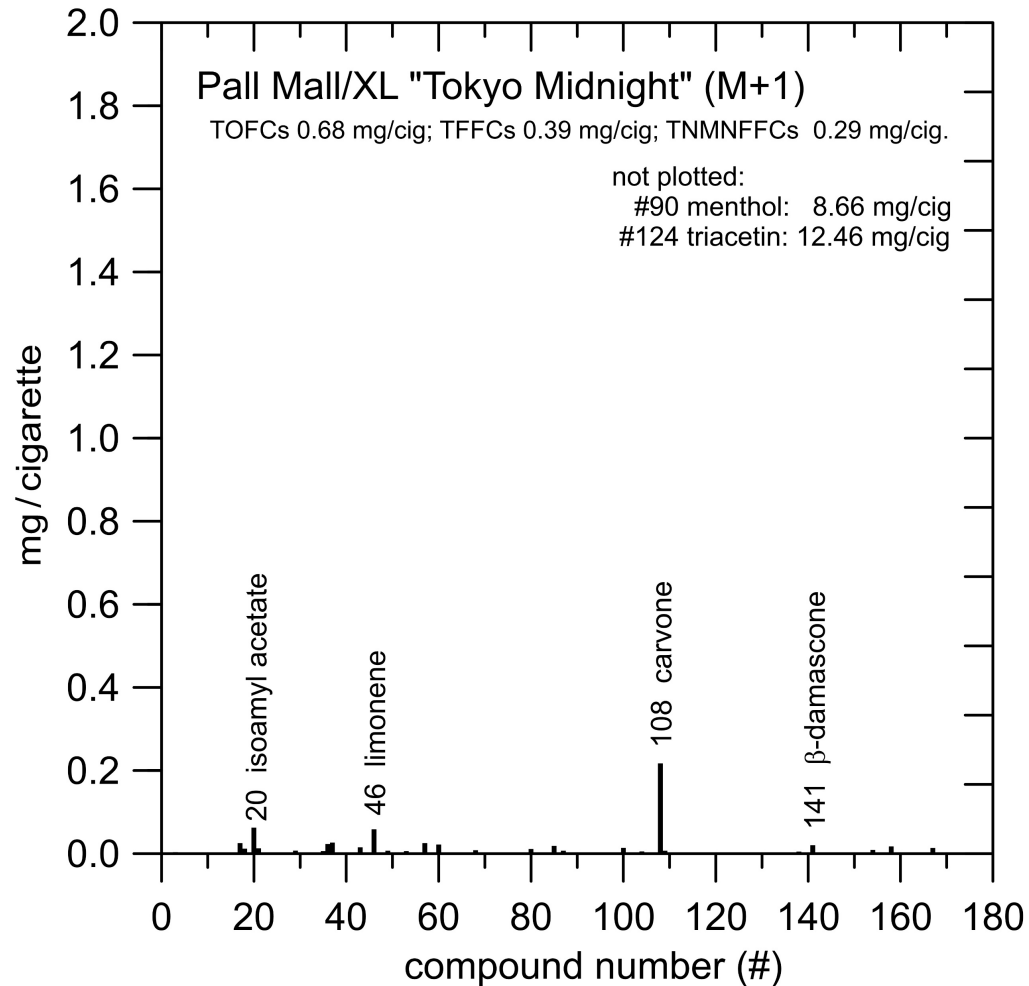
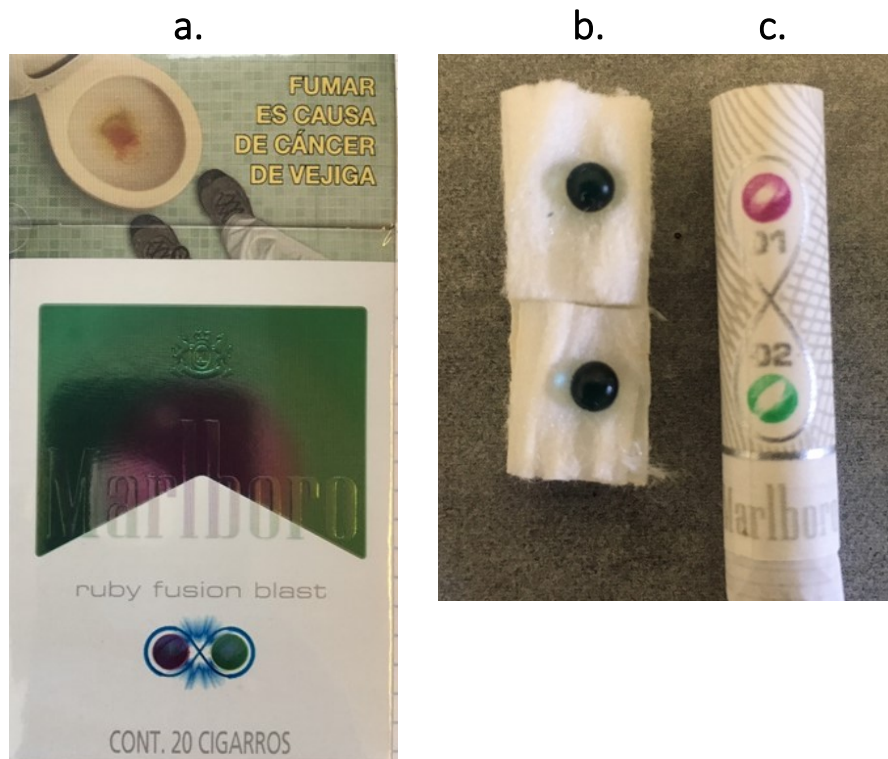


Figure S14.a. Pack #14. Marlboro “Ruby Fusion Blast” (M+1) (Mexico)



- a. Photo of pack (front);
- b. Opened filter showing two crushable flavor capsules (uncrushed);
- b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S14.b. Pack #14. Marlboro "Ruby Fusion Blast" (M+1)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFCCs = total non-menthol non-fruit flavour compounds.

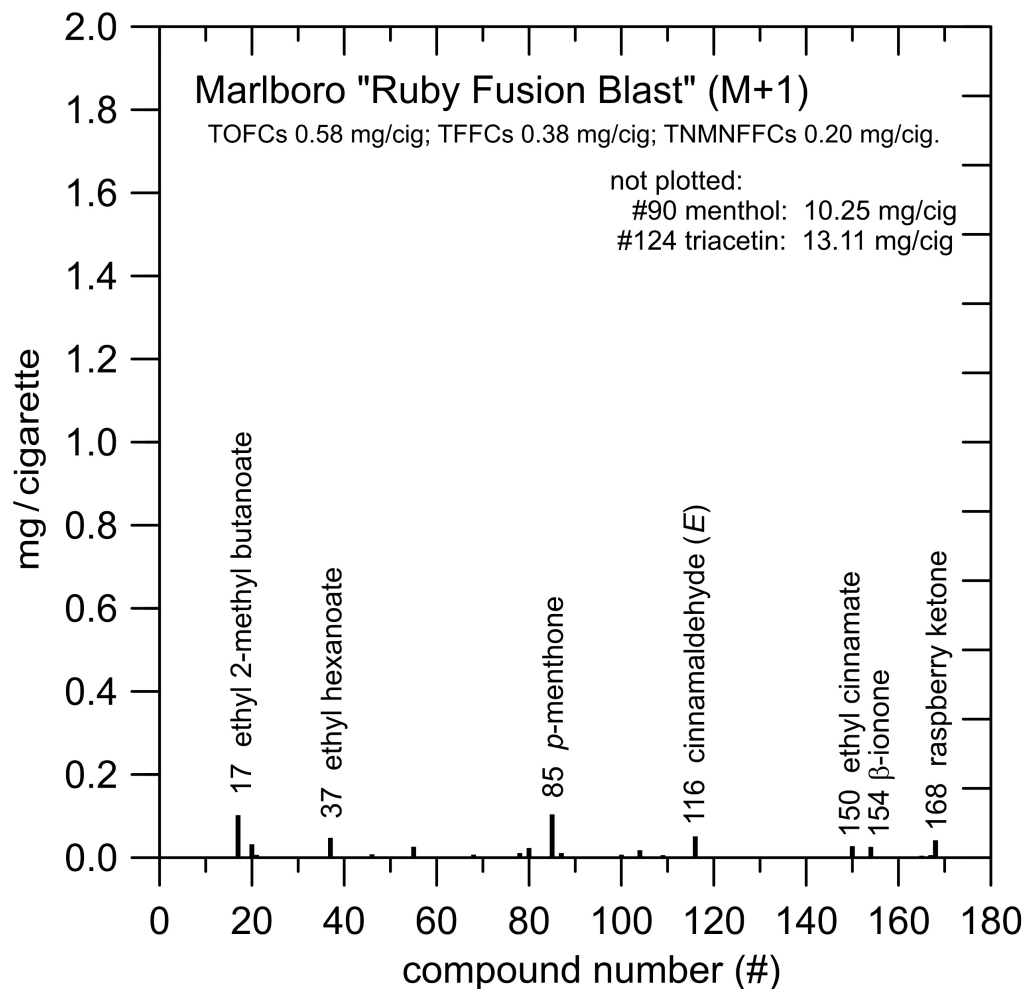
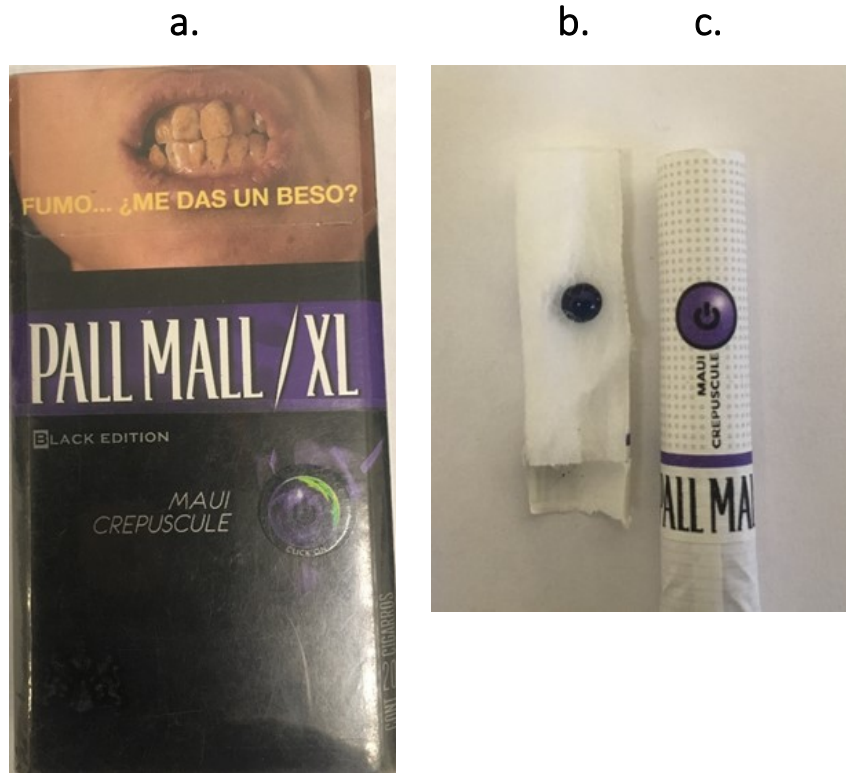


Figure S15.a. Pack #15. Pall Mall/XL “Black Edition Maui Crepuscule” (M+1) (Mexico)



- a. Photo of pack (front);
- b. Opened filter showing one crushable flavor capsule (uncrushed);
- b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S15.b. Pack #15. Pall Mall/XL "Black Edition Maui Crepuscule" (M+1)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFCCs = total non-menthol non-fruit flavour compounds.

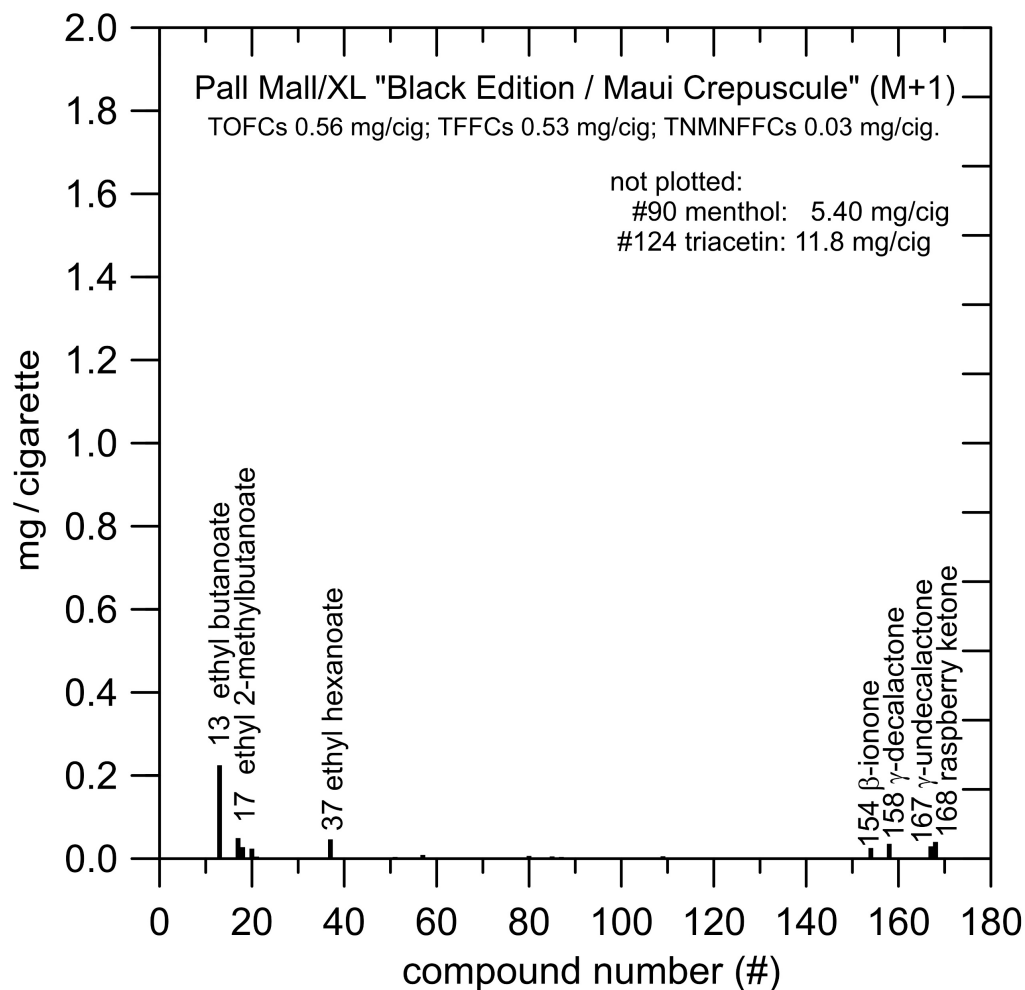
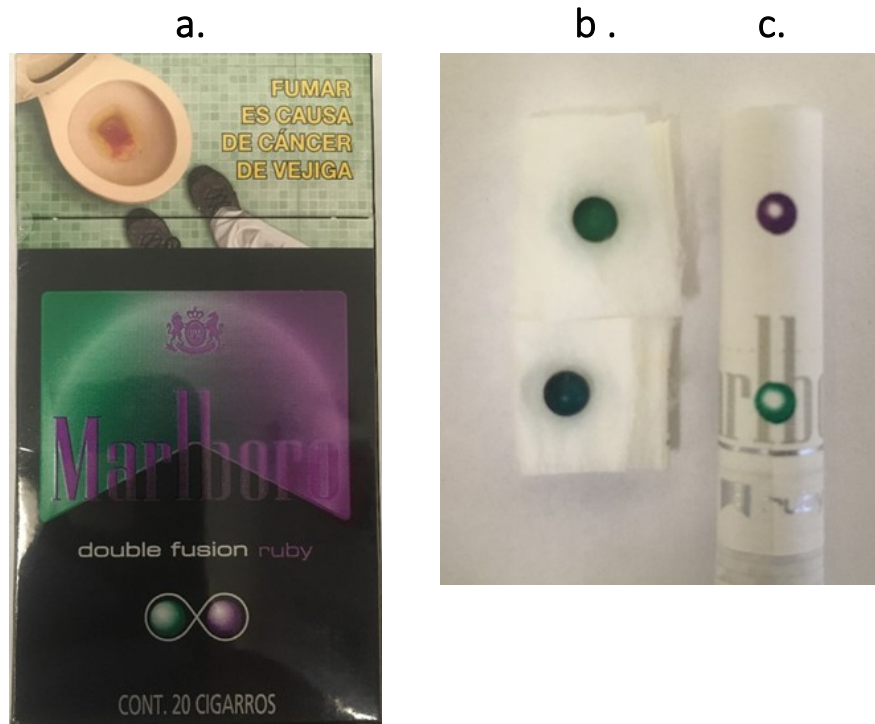


Figure S16.a. Pack #16. Marlboro “Double Fusion Ruby” (M+1) (Mexico)



- a. Photo of pack (front);
- b. Opened filter showing two crushable flavor capsules (uncrushed);
- b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S16.b. Pack #16. Marlboro "Double Fusion Ruby" (M+1)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFFCs = total non-menthol non-fruit flavour compounds.

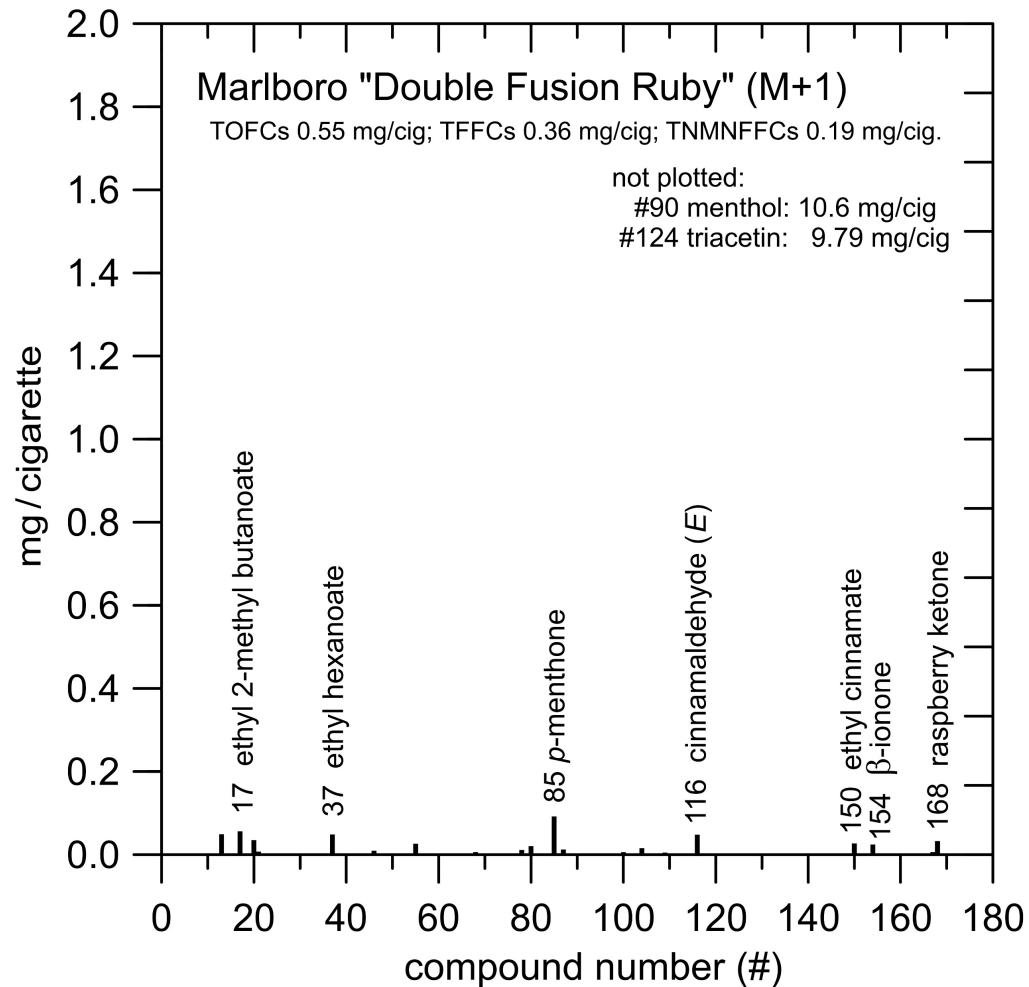
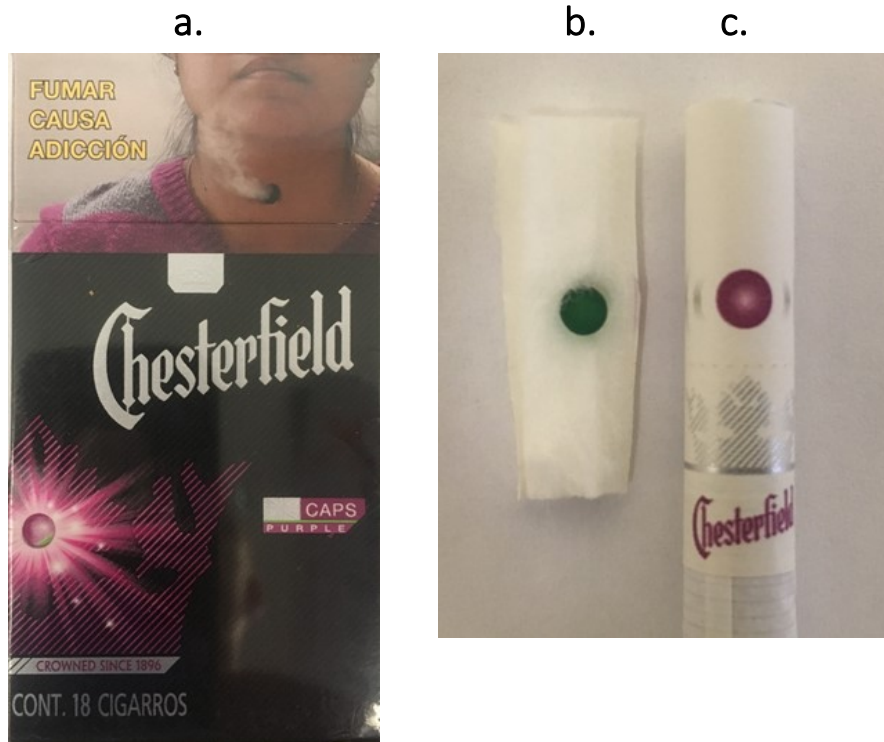


Figure S17.a. Pack #17. Chesterfield “Caps Purple” (M+1) (Mexico)



- a. Photo of pack (front);
- b. Opened filter showing one crushable flavor capsule (uncrushed);
- b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S17.b. Pack #17. Chesterfield "Caps Purple" (M+1)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFCCs = total non-menthol non-fruit flavour compounds.

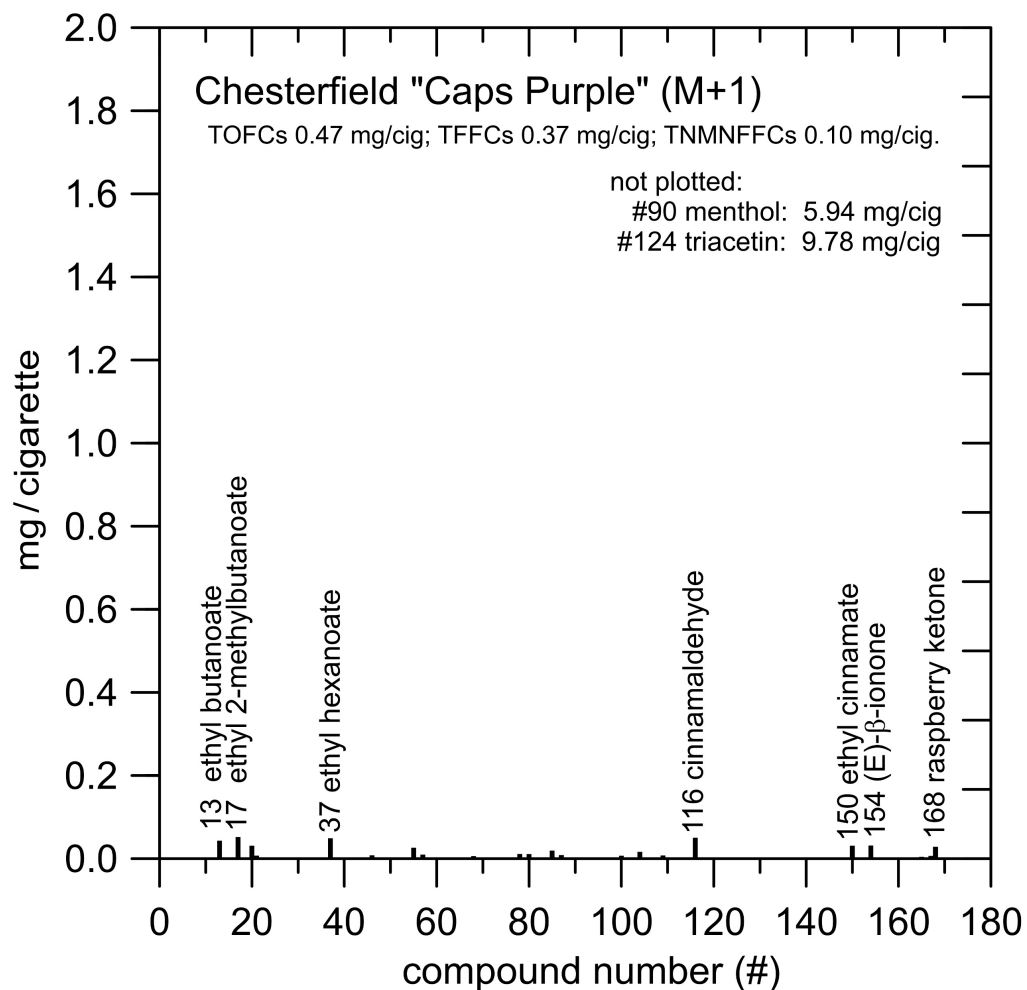
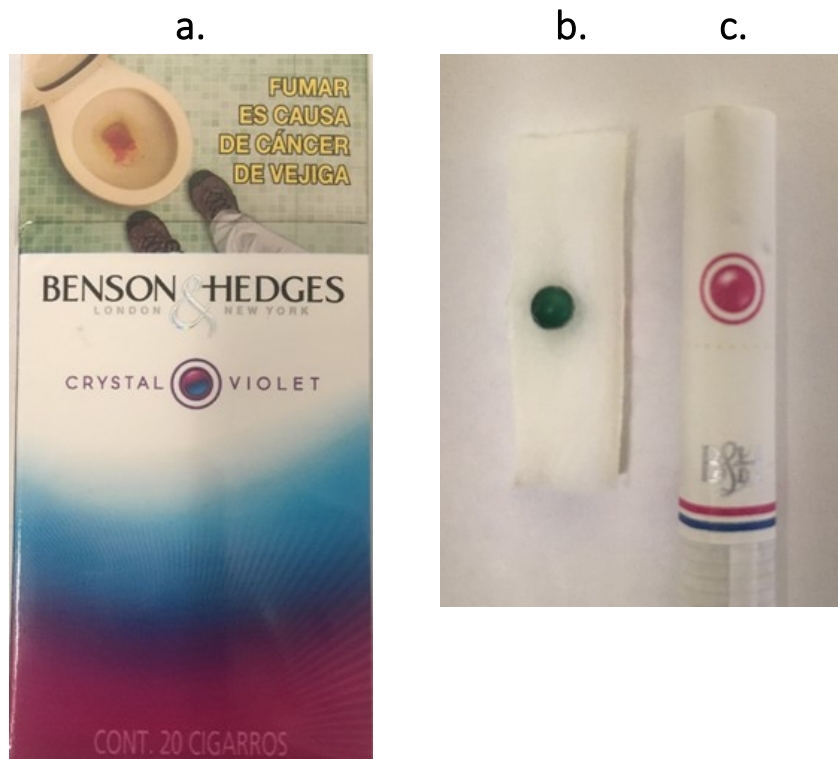


Figure S18.a. Pack #18. Benson & Hedges “Crystal Violet” (M+1) (Mexico)



- a. Photo of pack (front);
- b. Opened filter showing one crushable flavor capsule (uncrushed);
- b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S18.b. Pack #18. Benson & Hedges "Crystal Violet" (M+1)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFCCs = total non-menthol non-fruit flavour compounds.

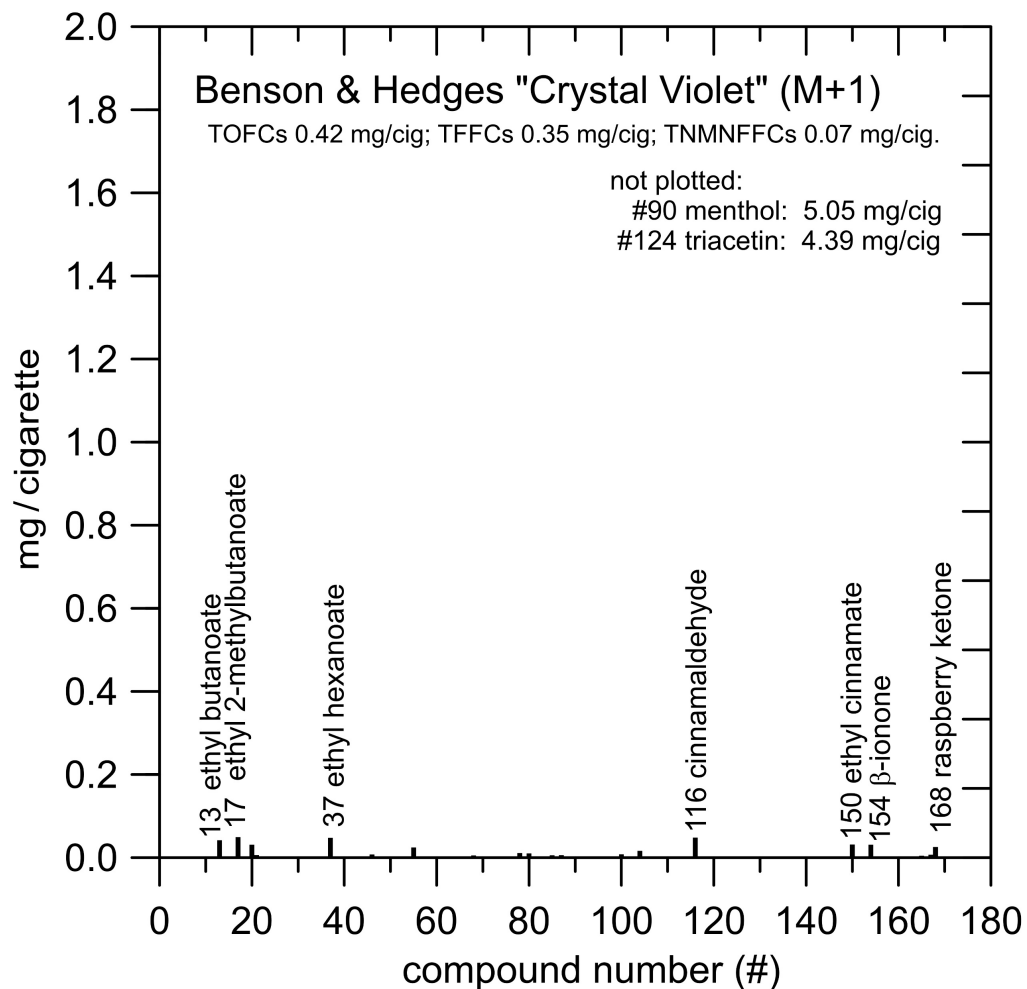
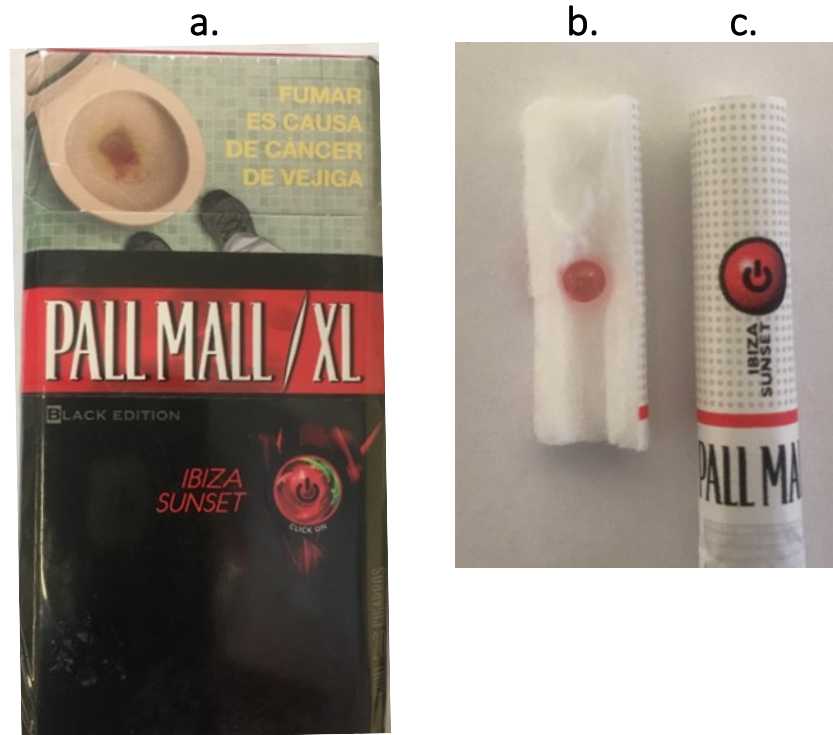


Figure S19.a. Pack #19. Pall Mall/XL “Black Edition Ibiza Sunset” (M+1) (Mexico)



- a. Photo of pack (front);
- b. Opened filter showing one crushable flavor capsule (uncrushed);
- b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S19.b. Pack #19. Pall Mall/XL "Black Edition Ibiza Sunset" (M+1)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFCCs = total non-menthol non-fruit flavour compounds.

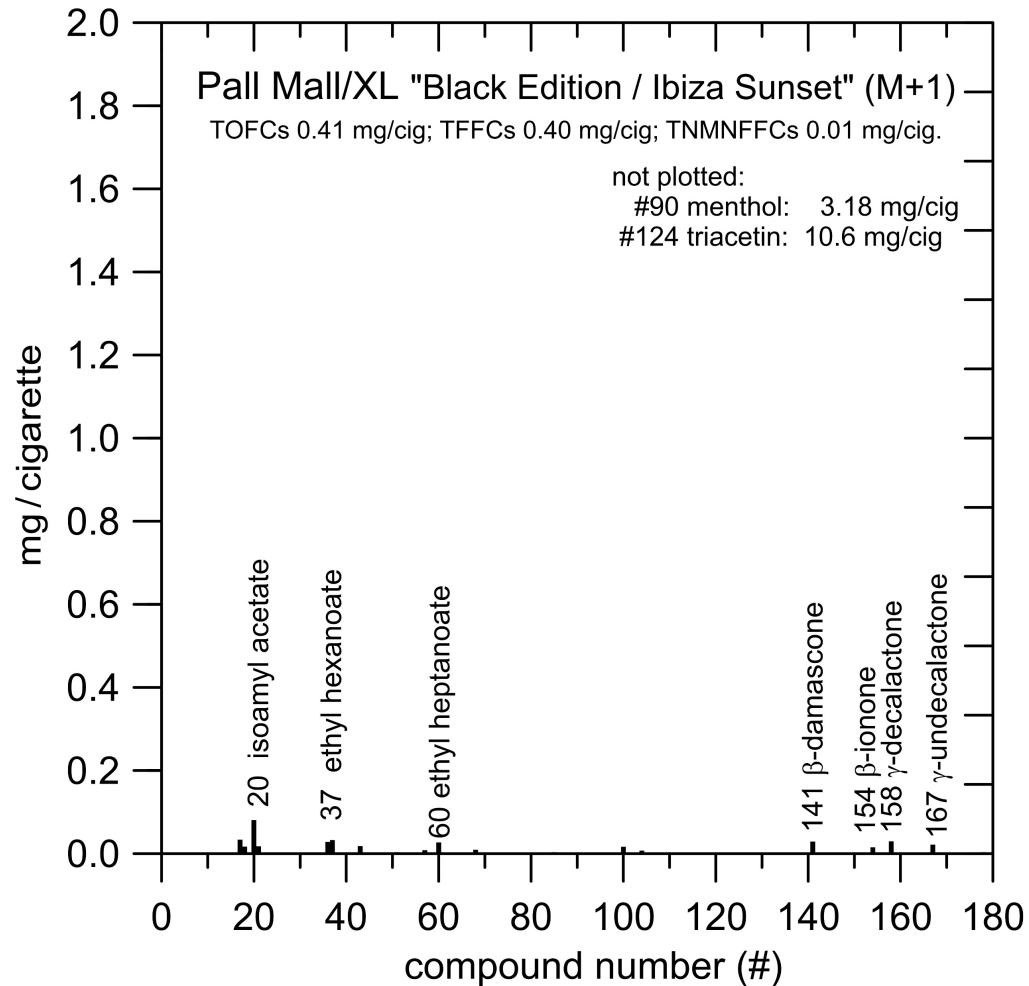
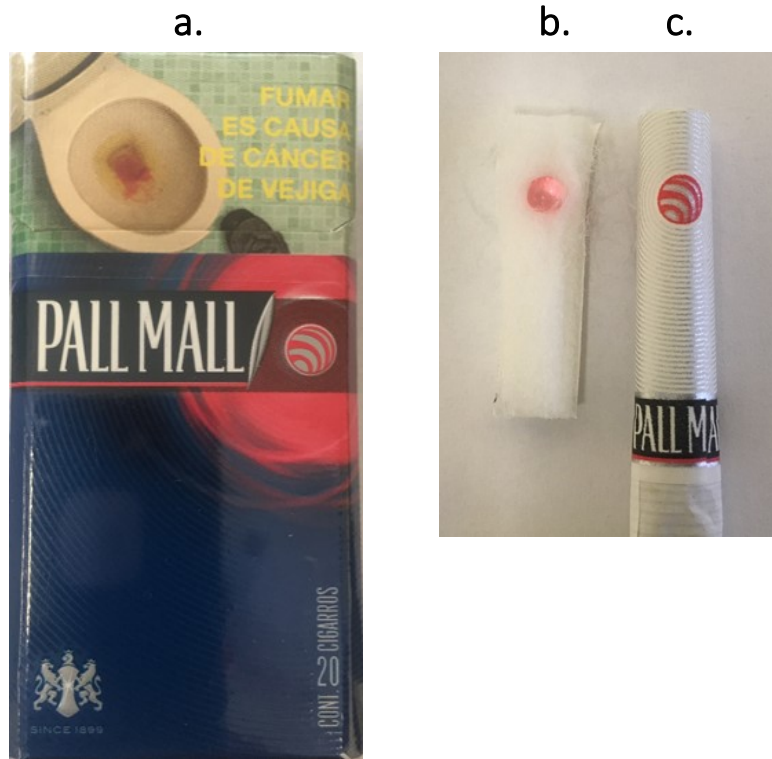


Figure S20.a. Pack #20. Pall Mall “Wave” (M+1)
(Mexico)



- a. Photo of pack (front);
- b. Opened filter showing one crushable flavor capsule (uncrushed);
- b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S20.b. Pack #20. Pall Mall "Wave" (M+1)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFCCs = total non-menthol non-fruit flavour compounds.

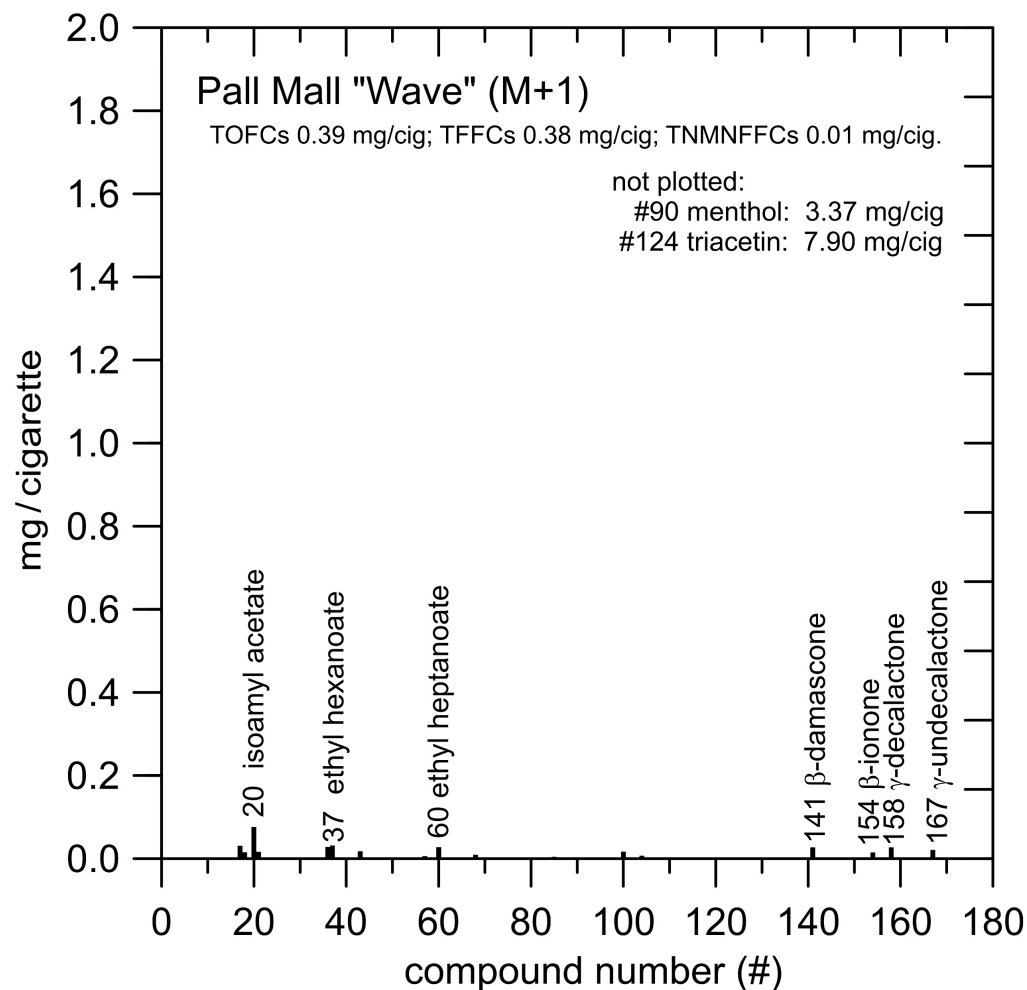
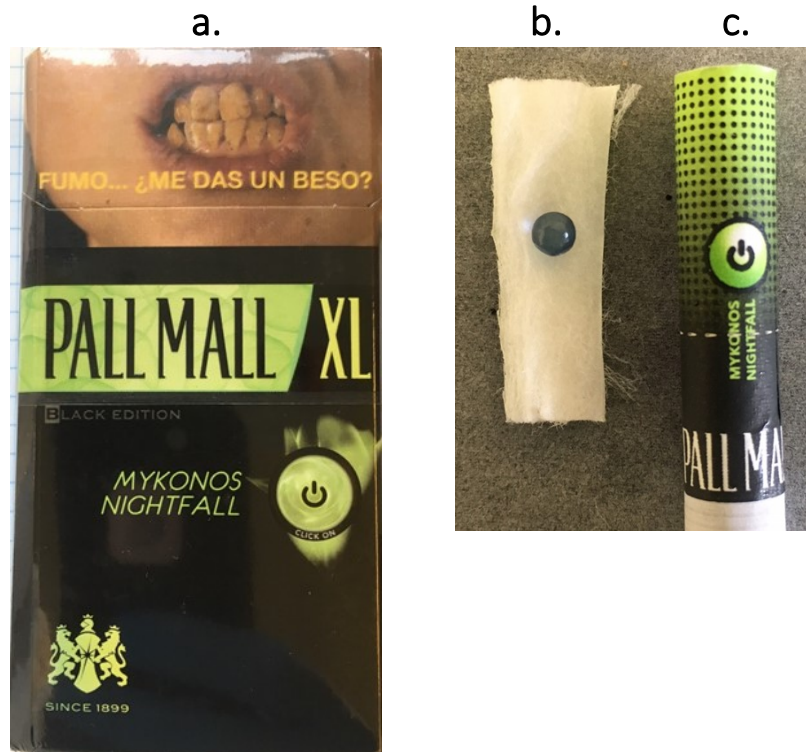


Figure S21.a. Pack #21. Pall Mall/XL “Mykonos Nightfall” (M+1)
(Mexico)



- a. Photo of pack (front);
- b. Opened filter showing one crushable flavor capsule (uncrushed);
- b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S21.b. Pack #21. Pall Mall/XL "Mykonos Nightfall" (M+1)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFFCs = total non-menthol non-fruit flavour compounds.

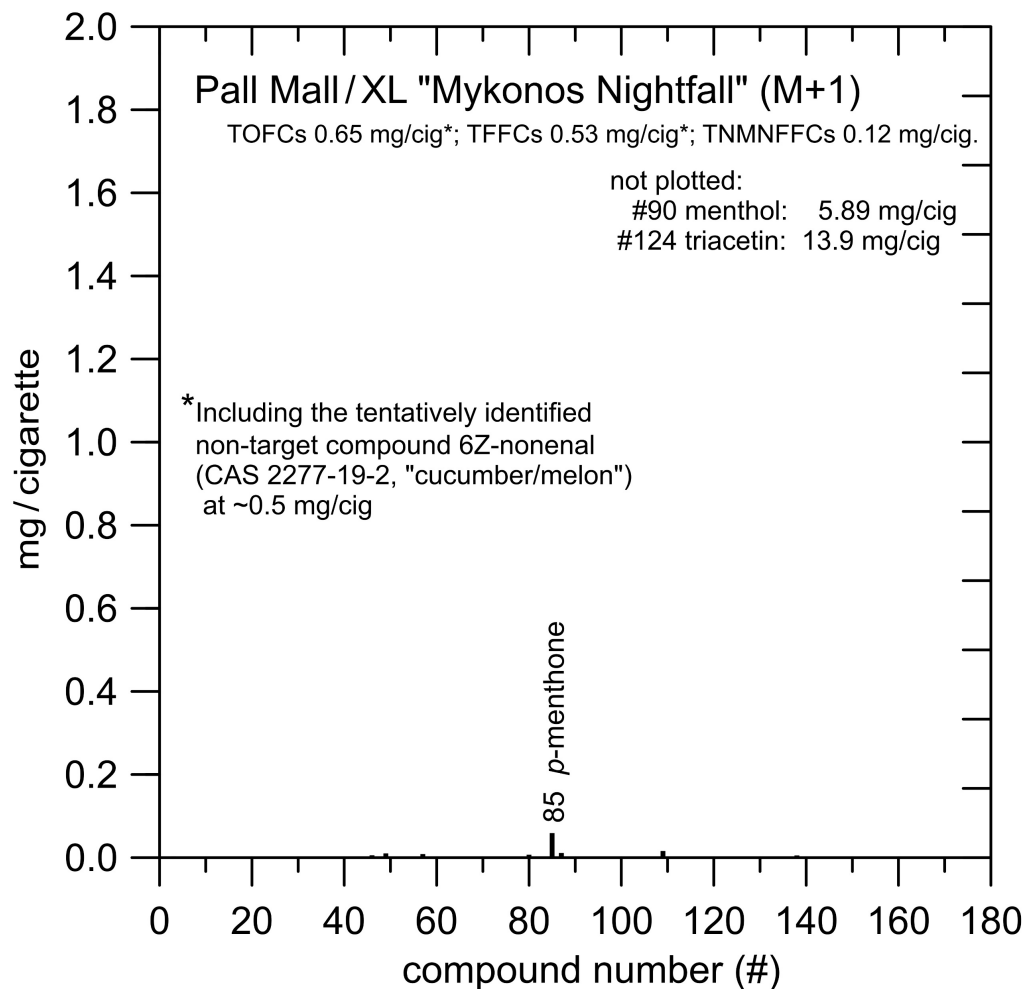
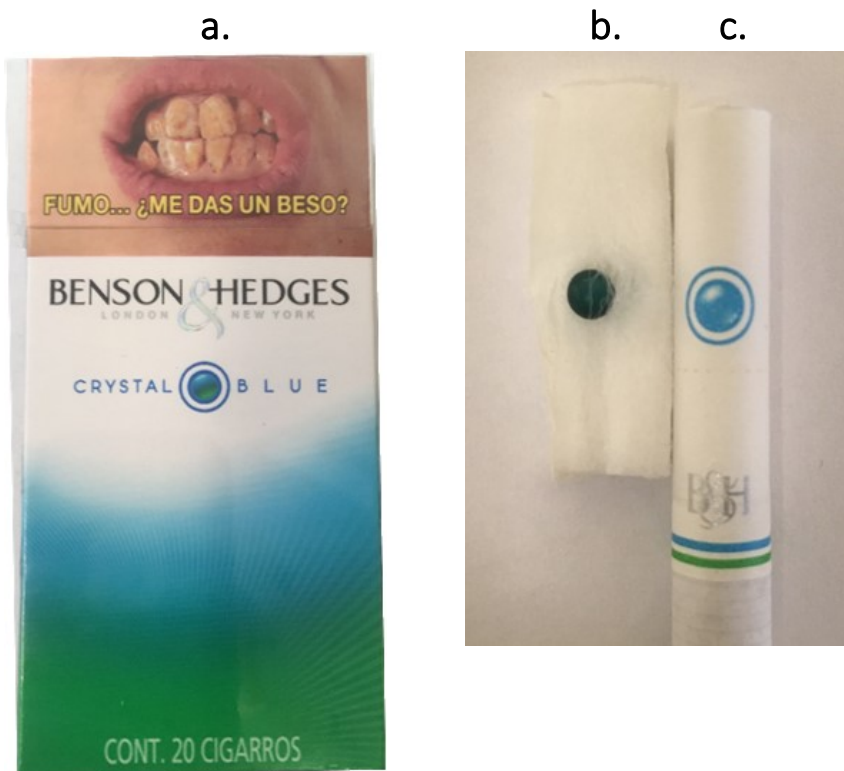


Figure S22.a. Pack #22. Benson & Hedges “Crystal Blue” (M) (Mexico)



- a. Photo of pack (front);
- b. Opened filter showing one crushable flavor capsule (uncrushed);
- b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S22.b. Pack #22. Benson & Hedges "Crystal Blue" (M)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFCCs = total non-menthol non-fruit flavour compounds.

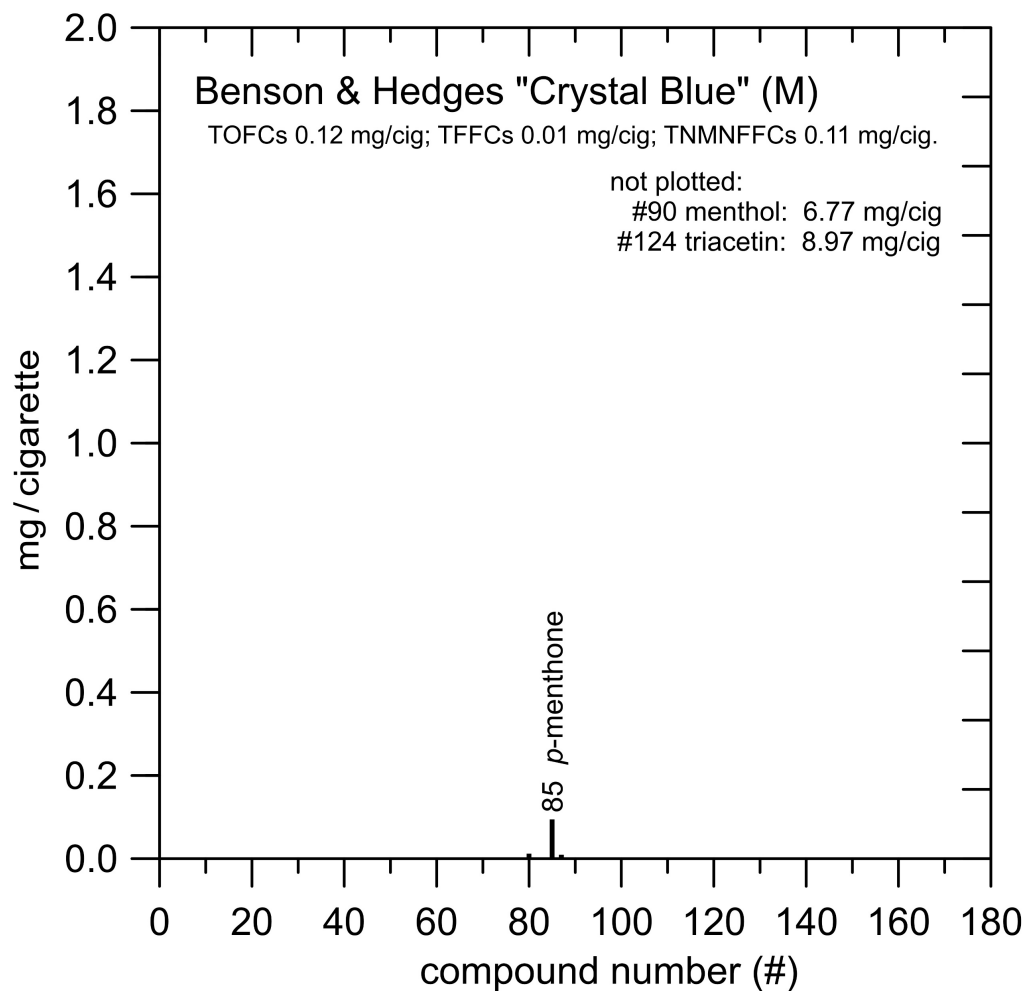
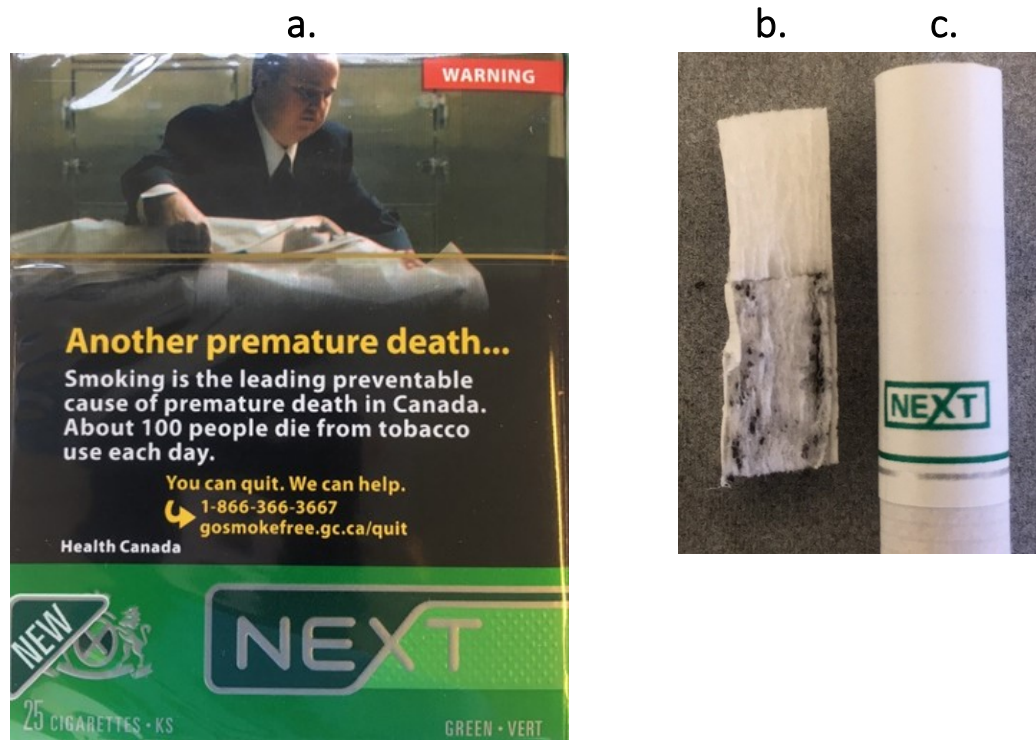


Figure S23.a. Pack #23. Next “Green” (NF) (Canada)



- a. Photo of pack (front);
- b. Opened filter showing a black powder (likely activated charcoal);
- b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S23.b. Pack #23. Next "Green" (NF)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFFCs = total non-menthol non-fruit flavour compounds.

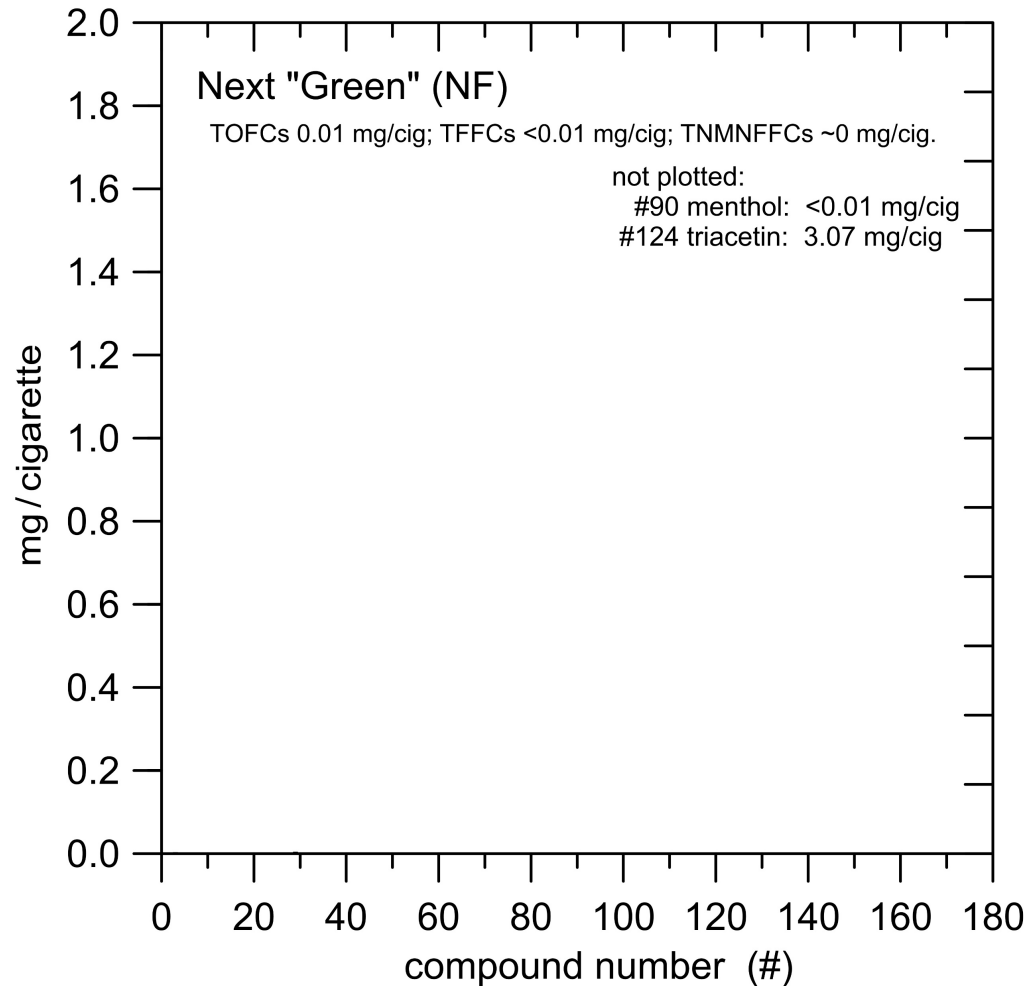
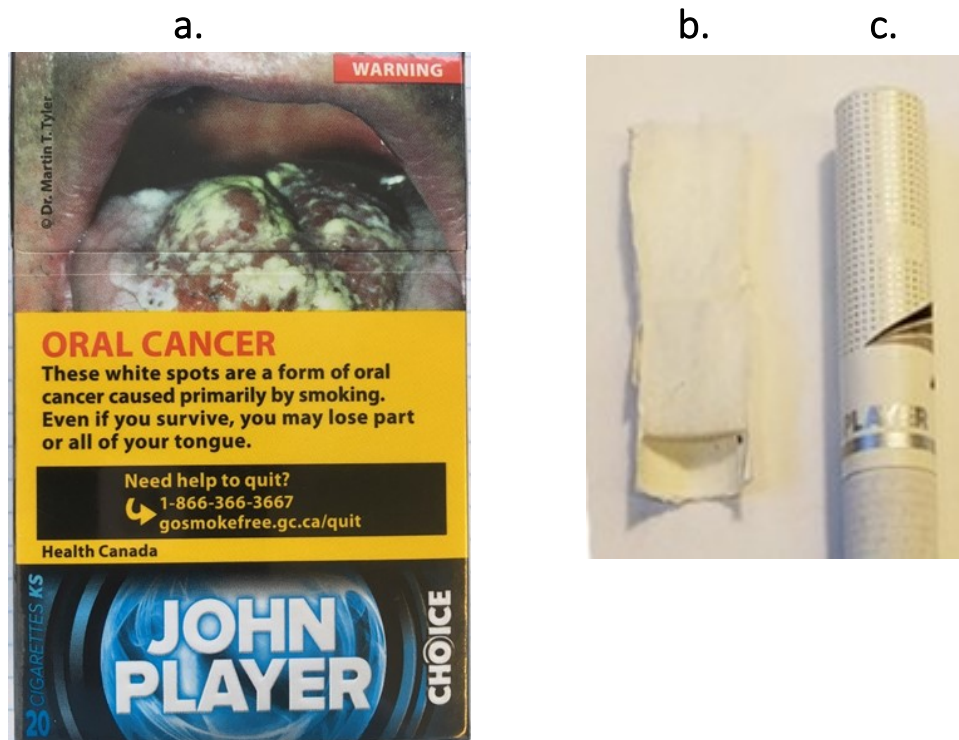


Figure S24.a. Pack #24. John Player “Choice” (NF) (Canada)



- a. Photo of pack (front);
- b. Opened filter;
- b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S24.b. Pack #24. John Player "Choice" (NF)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFCCs = total non-menthol non-fruit flavour compounds.

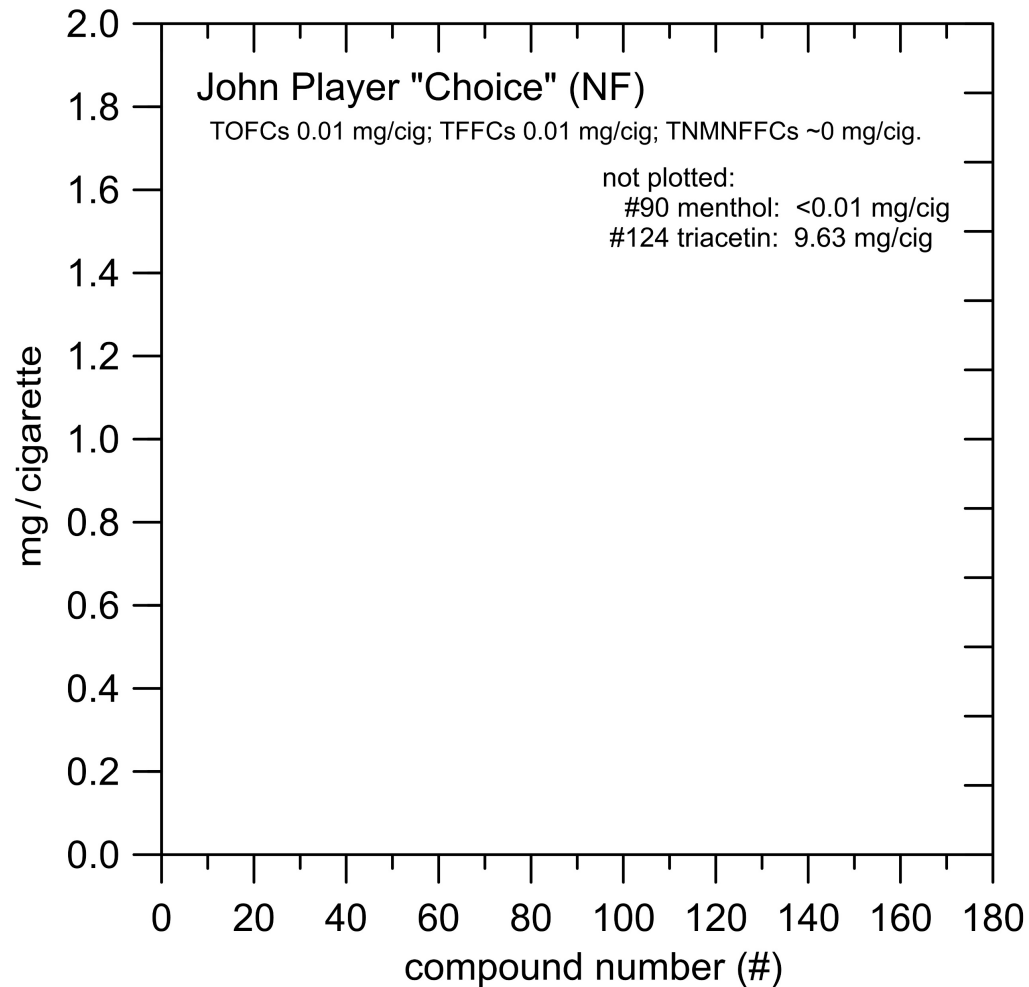
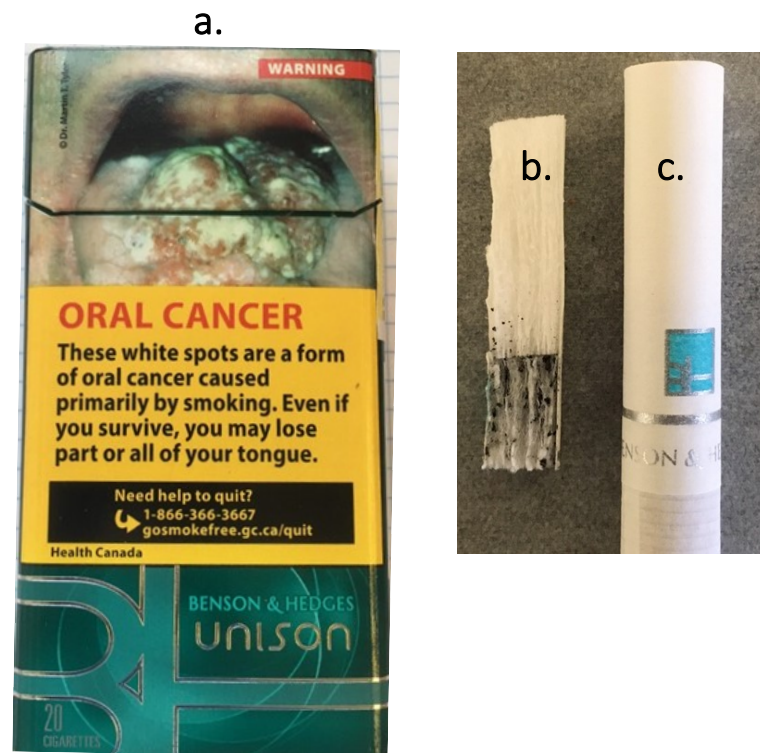


Figure S25.a. Pack #25. Benson & Hedges “Unison” (NF) (Canada)



- a. Photo of pack (front);
- b. Opened filter showing a black powder (likely activated charcoal);
- b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S25.b. Pack #25. Benson & Hedges "Unison" (NF)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFCCs = total non-menthol non-fruit flavour compounds.

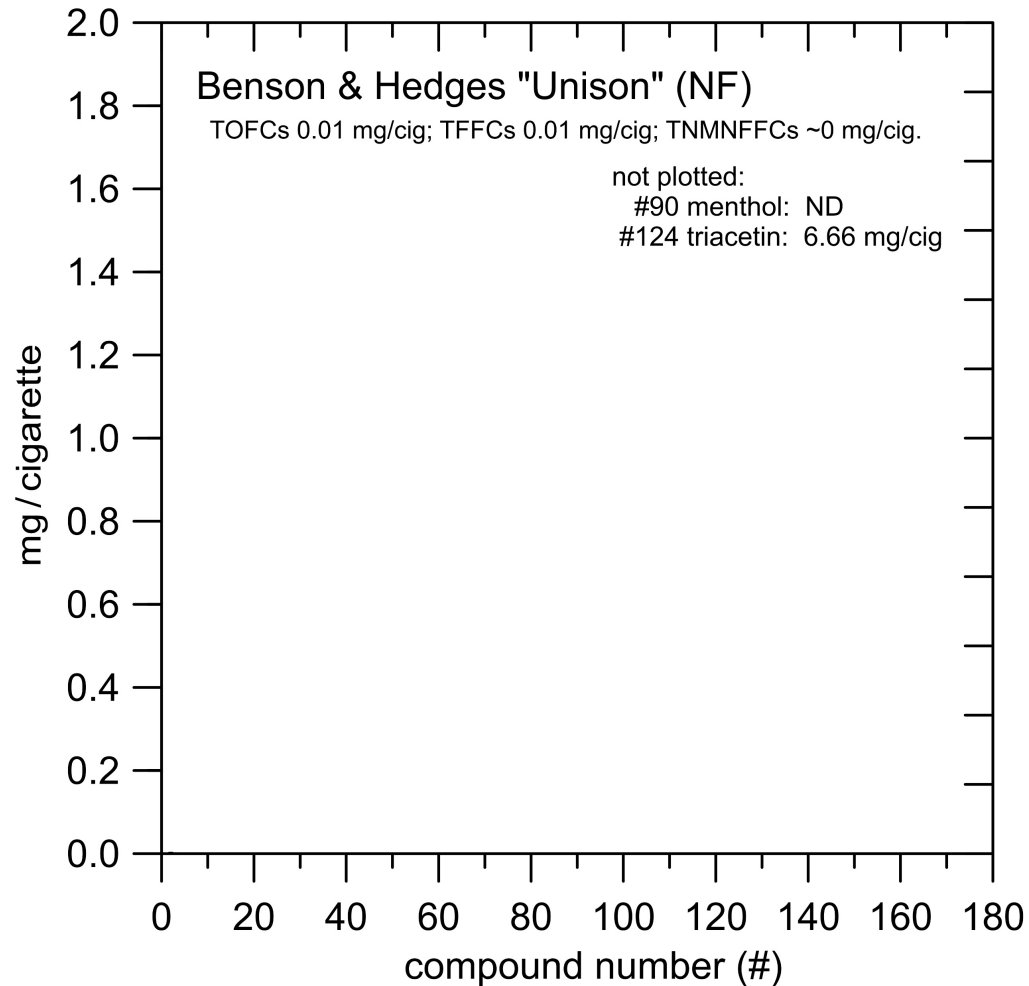
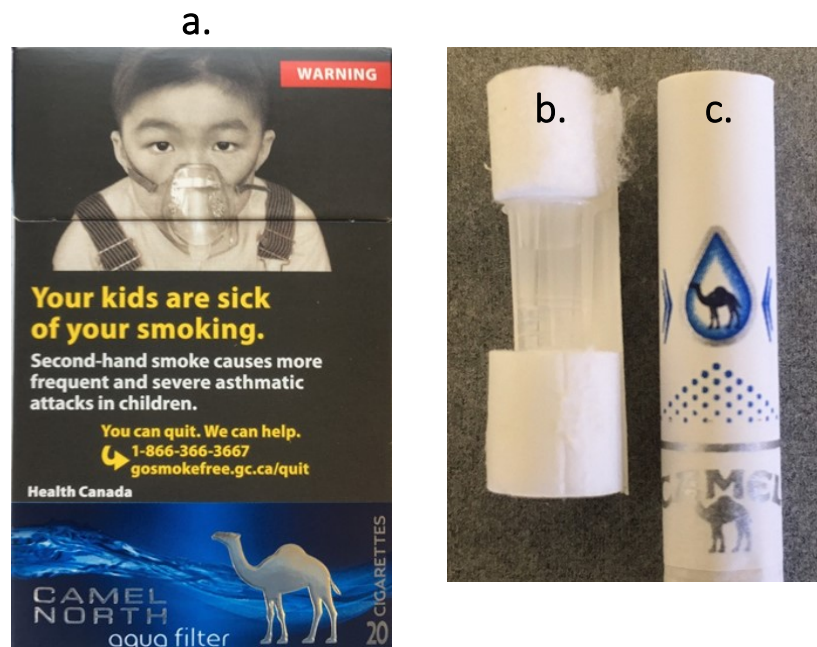


Figure S26.a. Pack #26. Camel “North, Aqua Filter” (NF) (Canada)



- a. Photo of pack (front);
- b. Opened filter showing cavity;
- b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S26.b. Pack #26. Camel "North, Aqua Filter" (NF)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFFCs = total non-menthol non-fruit flavour compounds.

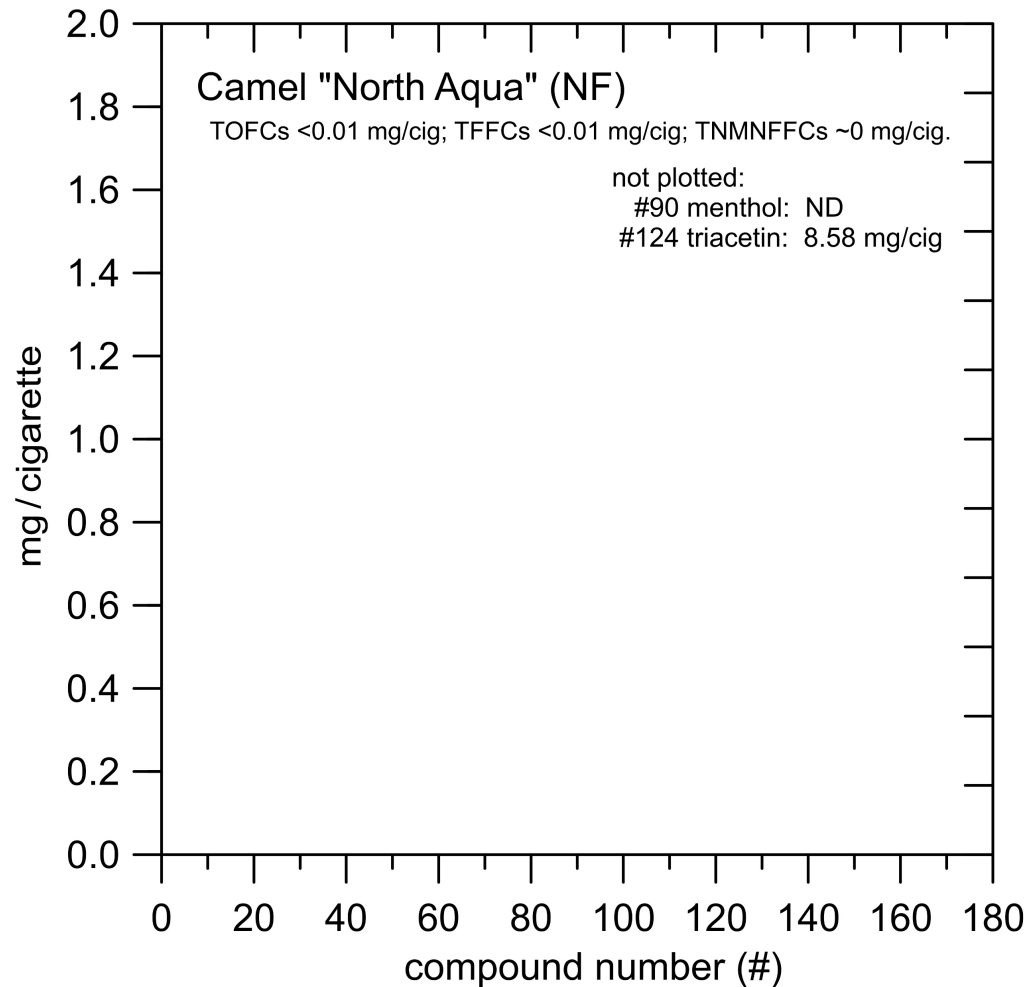


Figure S27.a. Pack #27. du Maurier “Nano Blue” (NF) (Canada)



- a. Photo of pack (front);
- b. Opened filter showing a black powder (likely activated charcoal);
- b. Filter end of cigarette.

Photos Copyright Portland State University, 2020.

Figure S27.b. Pack #27. du Maurier "Nano Blue" (NF)

TOFCs = total other flavour compounds; TFFCs = total fruit flavour compounds;
TNMNFFCs = total non-menthol non-fruit flavour compounds.

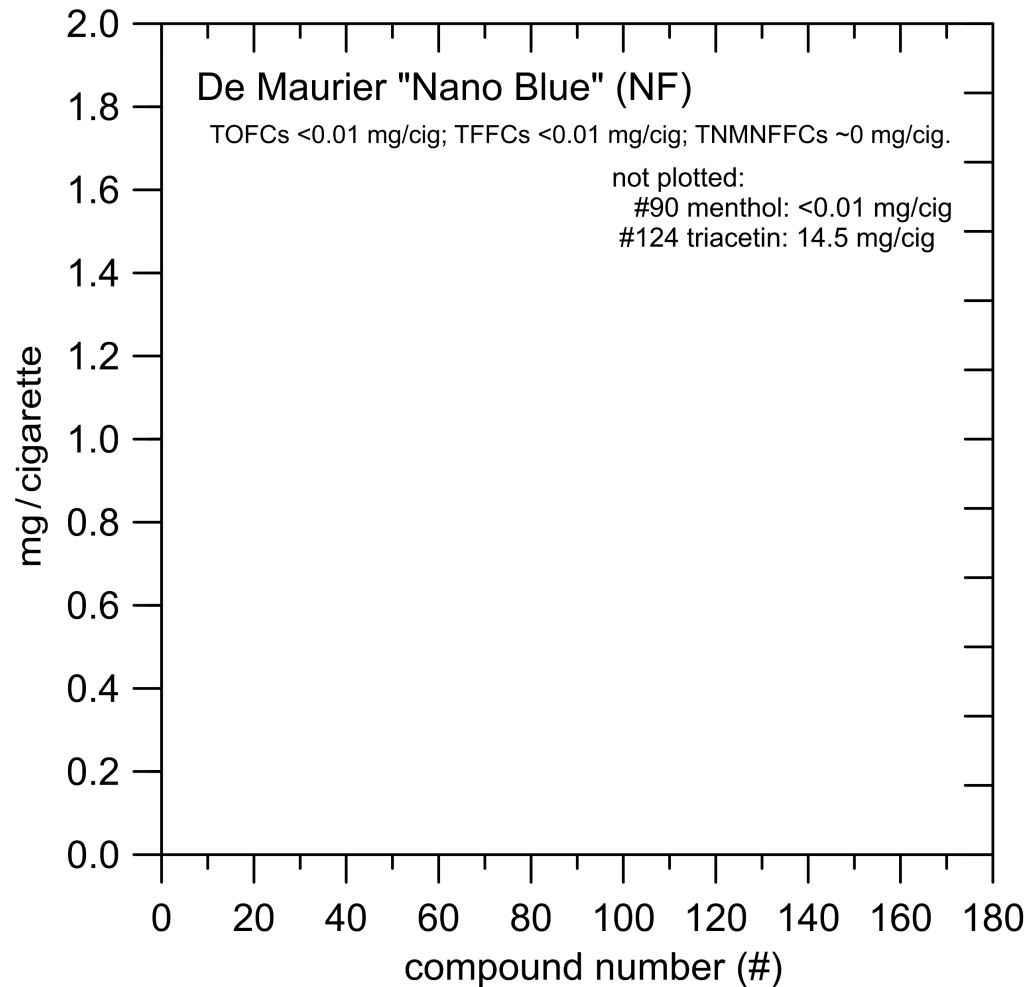


Figure S28. Triacetin (mg/cigarette) vs. menthol (mg/cigarette).

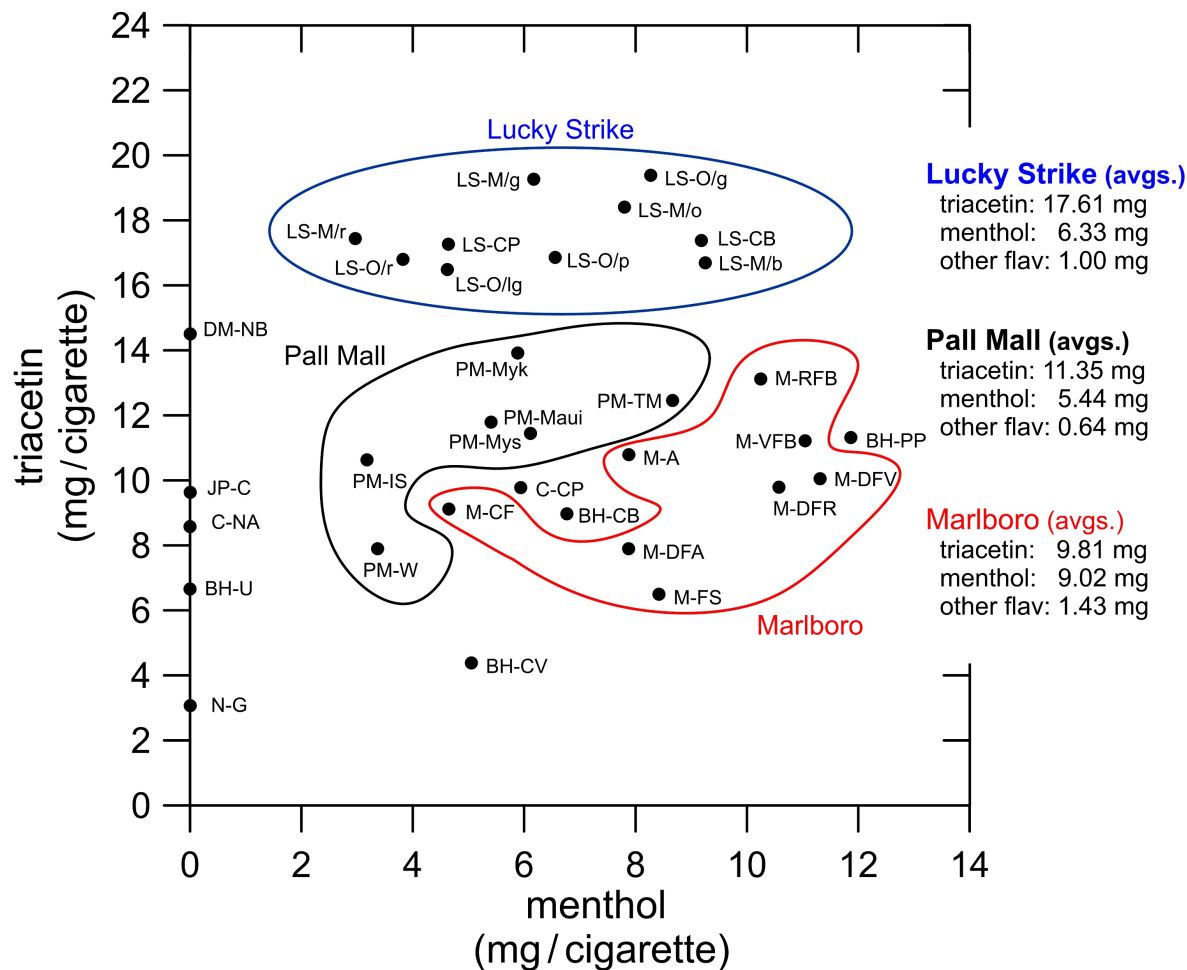


Figure S29. TOFCs (mg/cigarette) vs. menthol (mg/cigarette).

