Short-Term Variability of HPHCs in Machine-Made Cigars Compared to Cigarettes Jennifer H. Smith, Tammy L. Blake, Matt S. Melvin, Michael J. Morton, Yezdi B. Pithawalla, Karl A. Wagner Altria Client Services LLC, 601 East Jackson Street, Richmond, VA 23219, USA Altria Altria Client Services

In May 2016, the U.S. Food and Drug Administration (FDA) issued a final rule to deem cigars to be subject to the Federal Food, Drug, and Cosmetic Act (the FD&C Act), as amended by the Family Smoking Prevention and Tobacco Control Act (Tobacco Control Act). As part of this regulation, the FDA will require manufacturers to report the quantities of Harmful and Potentially Harmful Constituents (HPHCs) in cigar filler and smoke. The diversity of the cigar product category adds challenges to the measurement of HPHCs. CORESTA has developed recommended methods for the measurement of her HPHCs have not been developed. The consensus HPHC methods for cigarettes, with defined repeatability (r&R) values, have not been shown to be fit-for-purpose for the analysis of cigars. Using our validated analytical methods, we demonstrate that the CORESTA, ISO and Health Canada smoking regimes exhibit similar levels of smoke yield variability for machine made cigars. We also show that machine made cigars have significantly more resistance to draw (RTD) and weight variability than cigarettes thus resulting in much greater smoke yield variability. We demonstrate that the short-term variability for FDA's abbreviated list of HPHCs in cigar smoke is roughly twice that of cigarettes. The HPHCs in cigar filler show less variability than smoke HPHCs and may be useful for comparative purposes.

Differences in Variability

	Cigarettes	Cigars
Tobacco Leaf	Fewer tobacco types Seed certification process	Specialized and regional tobaccos Limited control of seed / cross breeding
Product Manufacturing	Uniform product design Typically blend over multiple crop years Wrapped in paper	Diverse product design Typically blend from single crop years Wrapped in tobacco
Analytical Process	Extensive testing experience Standardized Methods Proficiency Testing Reference products	Limited testing experience Limited standardized methods Limited proficiency testing Limited reference products (filler only)

Comparison of Physical Properties of Cigarettes and Cigars



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Abstract





Short-Term Variability between Cigars and Cigarettes



Conclusion

- The CORESTA, ISO and Health Canada smoking regimes exhibit similar levels of smoke yield variability for machine-made cigars.
- When compared to cigarettes, there are differences in variability for cigar products that may increase short-term constituent testing variability.
- [,] Machine-made cigars have considerably more resistance to draw (RTD) and weight variability than cigarettes, which results in greater smoke yield variability.
- Using FDA's abbreviated list of HPHCs for cigarettes, we measured the short-term variability in cigar filler and cigarette filler.
- Short-term variability in cigar smoke is roughly twice that of cigarettes.
- Short-term variability in cigar filler is much less than cigar smoke HPHC, is comparable to cigarette filler, and may be useful for comparative purposes for select analytes.

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Machine Smoking Method Comparison





- Smoke collection test plan
- Nine John Middleton Co. products
- Filter tip, wood tip, plastic tip, untipped
- Natural and reconstituted sheet wrappers and binders
- All cigars were RTD selected in order to reduce variability
- Seven replicates for each brand were tested in a single smoke run
- CORESTA, ISO and HC smoking regimes

Short-Term Variability – Tobacco

Aliquots were taken from 100 g ground sample composites 86 cigarette products, 90 cigar products, 7 replicates per brand



References

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