Cigarette Variability Task Force: CVAR

Coordinator: Jason Flora

Secretary: Rana Tayyarah

CORESTA

**Centre de
COopération pour les REcherches Scientifiques Relatives au TAbac**

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Cooperation Centre for Scientific Research Relative to Tobacco

CORESTA

- ❖ **<u>Association founded in 1956</u>**
  - ➤ **Ruled by French law**
  - ➤ **The purpose being-**

- ❖ **<u>CORESTA's Vision:</u>**
  - ➤ **"To be recognized by our members and relevant external bodies as an authoritative source of publically available, credible science and best practices related to tobacco and its derived products"**
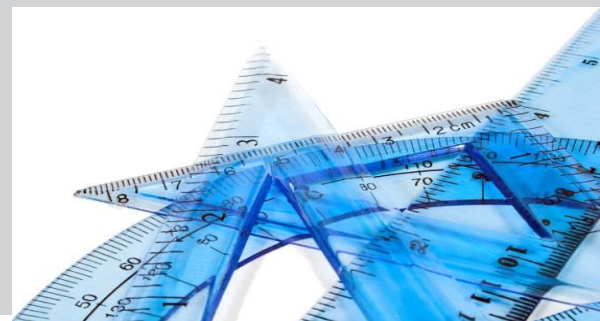
- ❖ **<u>147 member organizations (40 countries)</u>**

www.coresta.org

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❖ **Scientists measure tobacco and smoke constituents for a variety of reasons**

❖ **There is variability associated with measuring these constituents***

❖ **In order for the scientific community to make science-based decisions regarding tobacco and smoke constituents, they need to fully understand this variability**
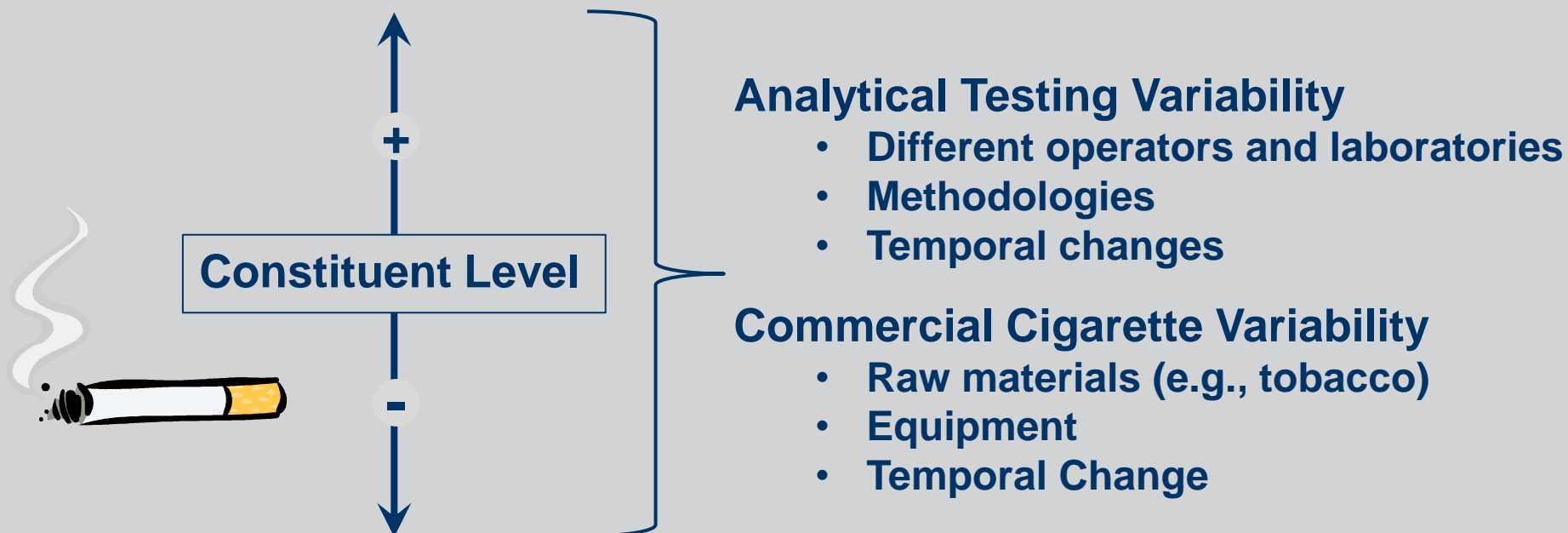
*ISO 8243

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❖ **Tobacco and smoke analyte variability results from multiple sources:**

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Constituent Level

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Analytical Testing Variability
- **Different operators and laboratories**
- **Methodologies**
- **Temporal changes**

Commercial Cigarette Variability
- **Raw materials (e.g., tobacco)**
- **Equipment**
- **Temporal Change**

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❖ **Generally, analytes present in a higher concentration have lower variability than lower concentration analytes**

❖ **Generally, standardized methods show lower variability (e.g., tar, nicotine, CO, and TSNAs)**

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❖ **CORESTA has focused on developing consensus standardized methods**

- ➤ **Proficiency studies have elucidated repeatability and reproducibility of CORESTA Recommended Methods (CRMs)**
- ➤ **More than 80 CRMs have been created for which ~40 ISO standards have been based**
- ➤ **Analytical testing has used single batch commercial and/or reference products**

❖ **Prior to CVAR TF, CORESTA had not systematically addressed commercial cigarette variability**

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Cigarette Variability (CVAR) Task Force

❖ **The CORESTA Scientific Commission approved the creation of the CVAR Task Force in June 2014**

  ➢ **Task Force Coordinator: Jason Flora**
  - Altria Client Services, Richmond VA

  ➢ **Secretary and Study Coordinator: Rana Tayyarah**
  - ITG Brands, LLC, Greensboro NC

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1. To develop an appropriate experimental plan to explore commercial cigarette variability

2. To conduct a collaborative study to enhance the understanding of overall tobacco and smoke analyte variability relevant to commercial cigarette design features

3. To create a CORESTA technical report

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CVAR Study Plan Summary

❖ The objective is to conduct a study to understand commercial cigarette variability as determined by the measurement of select tobacco and mainstream smoke analytes

  ➢ Physicals and TNCO
  ➢ WHO priority list
  ➢ Abbreviated USFDA harmful and potentially harmful constituents (HPHC) list
  ➢ Hydrogen cyanide (HCN)

Measurement Type	Analyte Class	Measure/Analyte
Physicals		Pack moisture (as packed)
		Cigarette weight (as packed)
		Cigarette weight (post conditioning)
		Filler/tobacco Weight (post conditioning)
		Filter Tip Ventilation
		Circumference
		Length
		Resistance to Draw (Open/Closed)
		Paper porosity
Filler[10]	Alkaloids	Nicotine
	TSNAs	NNN
		NNK
	Ammonia	Ammonia (Reported as NH_3)
	Metals	Arsenic
		Cadmium
Smoke	TNCO	TPM
		Nicotine
		Water
		Carbon Monoxide
		NFDPM ("tar")
	Carbonyls	Acetaldehyde
		Acrolein
		Crotonaldehyde
		Formaldehyde
	Volatiles	Acrylonitrile
		Benzene
		1,3-Butadiene
		Isoprene
		Toluene
	Ammonia	Ammonia
	PAA	4-Aminobiphenyl
		1-Aminonaphthalene
		2-Aminonaphthalene
	PAH	Benzo[a]pyrene
	TSNA	NNN
		NNK
	HCN	HCN

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CVAR Study Plan Summary

❖ **Analytical testing variability will be minimized by:**

➢ **Tested at one time (ISO and HC)**

➢ **Single laboratory per constituent**

➢ **Randomized run order**

➢ **Reference products (3R4F or 1R6F)**

❖ **Samples will be stored at -20°C to -24°C until time of testing to minimize product changes over time**

❖ **The study is designed to allow the estimation of short-term, medium-term, and long-term variability for a range of cigarette types available across the world-wide market**

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❖ **CVAR TF has designed and initiated 3 study phases**

1) Phase 1 (short-term variability):
3 collections within 1 week

Months	1	2	3	4	5	6	7	8	9	10	11	12
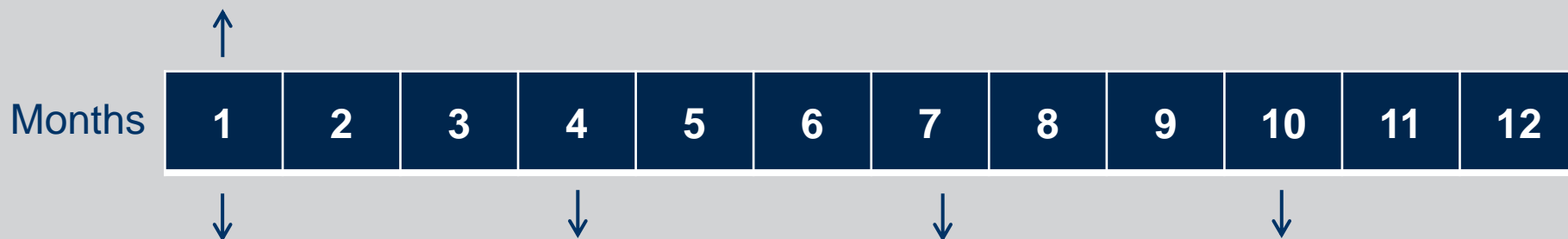
2) Phase 2 (medium-term variability) – product collected beginning of each quarter

3) Phase 3 (long-term variability) – product collected beginning of each year for 3 years

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- ❖ Altria Client Services
- ❖ Beijing Cigarette Factory, CNTC
- ❖ British American Tobacco (Germany) GmbH
- ❖ China Tobacco Hunan Industrial Co., Ltd., CNTC
- ❖ Imperial Tobacco Group
- ❖ Japan Tobacco Inc.
- ❖ JT International
- ❖ Philip Morris Int.
- ❖ RAI Services Company

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CVAR Accomplishments

- ❖ **<u>Phase 1 - Short-term variability:</u>**

  - ➢ **Sample collection and analysis is complete**

- ❖ **<u>Phase 2 – Mid-term variability</u>**

  - ➢ **Sample collection is complete**
  - ➢ **Sample analysis is in progress**

- ❖ **<u>Phase 3 - Long-term variability</u>**

  - ➢ **Sample collection will be complete in June 2017**

- ❖ **<u>Technical reports</u>**

  - ➢ **Will be published on the CORESTA Web Site**

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❖ **A range of cigarettes in the worldwide marketplace are being collected at different points in time.**

❖ **Testing of these samples will provide a better understanding of the impact of product variability to overall tobacco and smoke analyte variability**

Analytical Testing Variability

Commercial Cigarette Variability

Overall Tobacco and Smoke Analyte Variability

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