Differentiating Tobacco Risks

LSRO Meeting

3 October 2007

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Swedish and American Smokeless Tobacco Products

- Comparison of Snus (Swedish Moist Snuff) and American Smokeless Tobacco Products
  - Product Categories
  - Tobacco blends
  - Production methods
  - Chemical Comparison
    - GothiaTek® Standard
      - Product Comparison

Product Categories

- Swedish Smokeless Tobacco
  - Snus (Snuff)
    - Moist snuff
      - Loose
      - Portion
    - Semi-moist snus
      - Portion
  - Chewing (limited)
- American Smokeless Tobacco Products
  - Moist snuff
    - Loose
      - Fine cut
      - Long cut
    - Portion
  - Chewing
    - Loose Leaf
    - Plug
    - Twist
  - Lozenges

Dry snuff

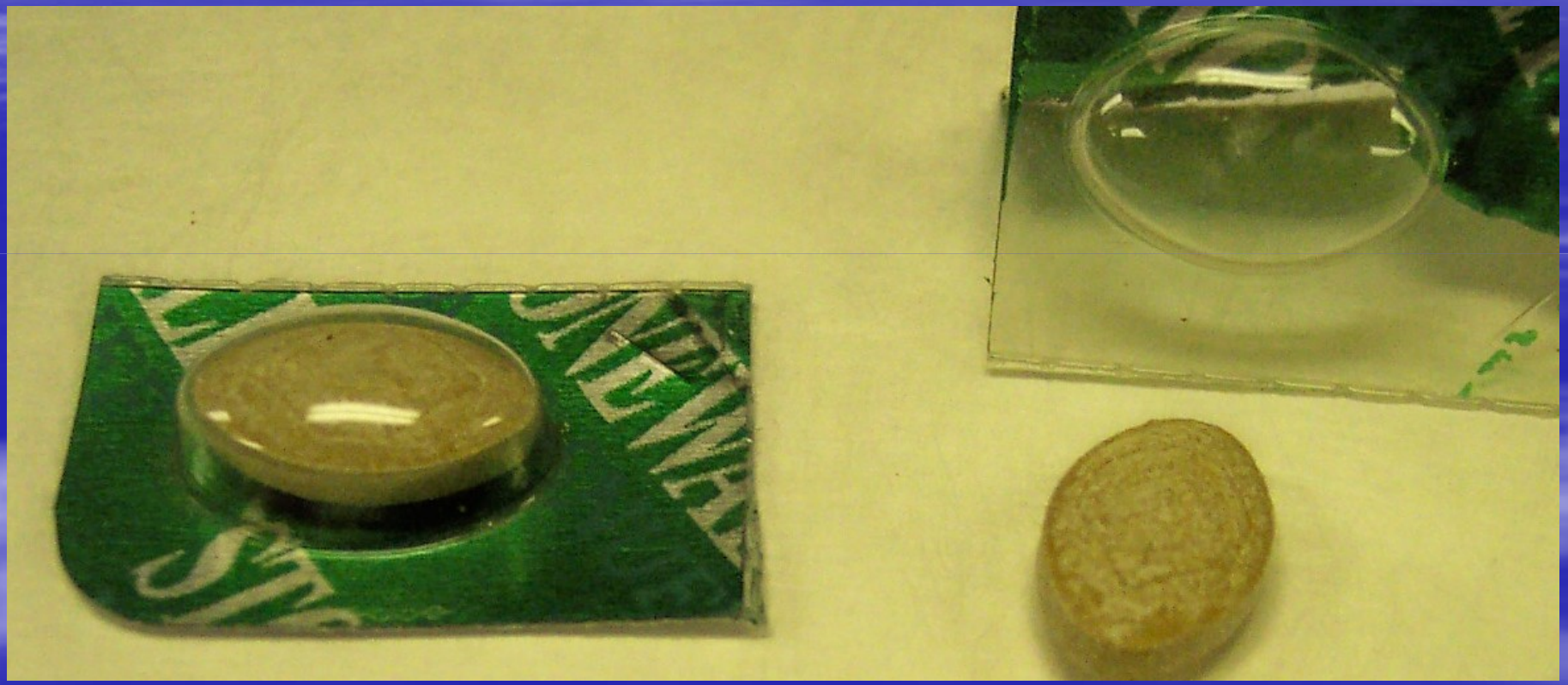
Plug Chewing Tobacco

American Moist Snuff

Loose Leaf Chewing Tobacco

Swedish Snus

Tobacco Lozenge



Tobacco Blends

- Swedish Snus
  - Tobacco types
    - Dark air cured
    - Sun cured
  - Sources
    - Global
  - Selection criteria
    - Chemistry
    - Quality
      - Body
      - Color
      - etc

*varies by brand

- American moist snuff
  - Tobacco types
    - Dark air cured
    - Dark fired tobacco
  - Sources*
    - Dark fired – US and Canada
    - Dark air – US and global
  - Selection criteria
    - Chemistry
    - Quality

Tobacco Blends

- Chewing and Plug
  - Tobacco Types*
    - Dark air cured
    - Rarely, dark fired
  - Sources
    - US and global
  - Selection criteria
    - Chemistry
    - Quality
- Lozenges
  - Tobacco Types
    - StarCured® (100%)
  - Sources
    - US
  - Selection criteria
    - Chemistry
    - Quality

*varies by brand

Manufacturing Processes

- Snus
  - Tobacco preparation
    - Blending
    - Sizing
  - Heat sweat (pasteurization)
  - Packaged
- Moist snuff
  - Tobacco preparation
    - Blending
    - Cutting
    - Sizing
  - Fermentation
  - Flavoring
  - Packaging

Manufacturing Processes

- Loose Leaf
  - Tobacco preparation
    - Blending
    - Stemming
  - Casing
  - Drying
  - Packaging
- Plug
  - Tobacco preparation
    - Blending
    - Stemming
  - Casing
  - Drying
  - Pressing
  - Packaging

GothiaTek® Standard*

Updated Feb 26, 2007

Component	Limit	Units	Average Snus Content 2006	95% C.I.
Nitrite	3.5	mg/kg	1	<0.5 - 1.7
TSNA	5	mg/kg	0.8	0.5 - 1.1
NDMA	5	µg/kg	0.5	<0.5 - 0.7
BaP	10	µg/kg	0.6	<0.5 - 1.1
Pesticides	According to SM Pesticide Policy			
Cadmium	0.5	mg/kg	0.2	0.1 - 0.3
Lead	1	mg/kg	0.1	0.03 - 0.3
Arsenic	0.25	mg/kg	0.06	0.03 - 0.13
Nickel	2.25	mg/kg	0.6	0.2 - 0.9
Chromium	1.5	mg/kg	0.4	0.07 - 0.7

* Based on 50% water content

Comparison of Snus – Moist Snuff

- The nitrite levels in moist snuff are typically higher than those in snus due to the fermentation that is used in manufacturing
- TSNA levels are higher than snus, but in general are below the GothiaTek® limit with a few exceptions
- NDMA is not a problem for either product

Comparison of Snus – Moist Snuff

- BaP levels in moist snuff are significantly higher than in snus due to the use of dark fired tobacco in the blend
- Metals vary by product based on the source of the tobacco
  - e.g. The cadmium levels in US tobacco are higher due to the fertilizers that are used and Chromium levels are higher in some African tobacco due to the soil mineral content

Comparison of Snus – Chewing

- Loose Leaf and Plug contain no dark fired tobacco typically with a couple of notable exceptions
- In general, the TSNA levels of chewing products are well below the GothiaTek® limit
- Nitrite levels are low in chewing tobacco
- BaP levels are at background levels, similar to snus

Comparison of Snus – Lozenges

- Lozenges prepared from StarCured® tobacco compare well with snus
  - Have very low TSNA levels
  - BaP levels are at or near background
  - Nitrite levels are generally low

Summary

- Tobacco blend composition is based on the consumer taste preferences and expectations
- Fermented tobacco and heat sweat tobacco have fundamentally different taste profiles
- Toxin levels continue to decrease in Swedish and American smokeless products