

MAKE YOUR OWN (MYO) CIGARETTES WHAT YOU SEE ON YOUTUBE IS NOT ISO 15592

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Objectives for this presentation

- Describe MYO and compare/contrast with RYO
 - MYO: MAKE YOUR OWN
 - RYO: MAKE YOUR OWN
- Why MYO is a growing segment of the business
- Describe ISO 15592 and why it is important
- Show examples of MYO components
- Describe the results of a study of fabricating MYO smoking articles using several combinations of RYO/MYO tobaccos and MYO tubes

MYO Cigarettes

- If you enter the phrase “myo cigarettes” in one of the popular search engines, you will get hundreds of hits including YouTube videos on how to do everything from making your own cigarettes to repairing and adjusting your own personal making machine (PMM)
- So why the growing popularity of making your own cigarettes? Depends whom you ask
 - Cost of factory-made (FM) cigarettes?
 - Better smoke taste than FM cigarettes?
 - The pleasure of doing it yourself?
 - A combination of these and other factors?

MYO versus RYO

- Very simply, MYO uses a prefabricated tube of cigarette paper (with or without a filter plug) and the smoker uses a PMM to inject cut tobacco into the tube
- RYO is where smoker rolls a piece of cigarette paper around a portion of cut tobacco
- There is a very wide variety rolling papers, tubes, and tobaccos available to the smokers who prefer making or rolling their own smoking articles to buying FM cigarettes

Current literature on MYO versus RYO

- Rosenberry *et al.*, 2013, Make your own cigarettes: characteristics of the product and the consumer, *Nicotine Tob Res.* 2013 15:1453-1457
 - Study done at Battelle, Baltimore, with MYO and RYO smokers
 - Participants used their own materials to prepare RYO or MYO products at home and in the lab
- Big difference between RYO and MYO was weight of product and weight of tobacco used
 - RYO: ≈ 430 mg (lab), ≈ 450 mg (home)
 - MYO: ≈ 950 mg (lab), ≈ 970 mg (home)
 - RYO paper: ≈ 55 mg/piece
 - MYO filter tube: ≈ 205 mg/filter tube

Most all US MYO made with filter tubes

- Filter tubes look like FM cigarettes without tobacco
 - Filter tubes have long history of use
 - Kastner, 1964, US 3,127,900 for PMM to fill filter tubes
 - Kastner, 1974, US 3,911,797 for improved filter tube maker (500 tubes/min versus 250 tubes/min)
 - Laredo PMM kit (tube, filter, tobacco, PMM), 1968
 - Filter tubes have had various periods of growth such as after tax increases, changes in products
 - Filter tubes probably used by about 7% of smokers
- While filter tubes may look like FM cigarettes, they are not made the same way
 - No tobacco to support the tube of cigarette paper
 - Segments of filter rod are added to the cigarette paper before it is formed into a tube

Manufacture of filter tubes



Filter tubes readily available in US

- Most common style is KS filter tube, \approx 8.1 mm diameter with a 15-mm filter plug
 - Cork or white tipped
 - Some brand-styles have mentholated filters
- Some stores will have a wider selection including 100's and tubes with filter ventilation
- Numerous vendors of specialty filter tubes and related items can be found in Roll Your Own Magazine (www.ryomagazine.com)
- Some Internet vendors offer filter tubes with charcoal filters, longer filters, slim configurations

Examples of filter tubes



Everyone should be happy, but

- Sales of MYO filter tubes and sales of tobaccos to fill those tubes, reduce sales of FM cigarettes
 - Loss of tax revenue
 - Loss of sales by cigarette companies
 - Low cost of MYO cigarettes increase consumption?
 - Potential for higher deliveries of toxicants than with FM cigarettes
- Will we be faced with HPHC on MYO cigarettes?
 - One commenter to FDA's docket on HPHC suggested that RYO/MYO products be included in required HPHC testing – use of regulation to kill competition?
 - Is HPHC on MYO/RYO practical and effective?
 - Some others have tried it for TNCO

Some important literature

- MYO and RYO
 - Rosenberry *et al.*, 2013
 - Darrall & Figgins, 1998
 - Dymond, 1996a, 1996b
- MYO only
 - Kaiserman & Rickert, 1992
 - Rickert *et al.*, 1985
- CORESTA Report of the Task Force on Roll-Your-Own (Fine-Cut) Tobacco (Parts 1 – 5), 1999
- Lessons from the literature
 - Testing tubes requires a single type of tobacco
 - Testing tobaccos requires a single type of tube
 - Tobacco weight and moisture are important

ISO 15592:2008

- ISO Standards are useful in product regulation, but is ISO 15592:2008 applicable to all MYO tubes and tobaccos sold in the US?
- ISO 15592:2008, Fine-cut tobacco and smoking articles made from it – Methods of sampling, conditioning and analysis, is a three-part standard
 - Part 1: Sampling
 - Part 2: Atmosphere for conditioning and testing
 - Part 3: Determination of total particulate matter of smoking articles using a routine analytical smoking machine, preparation for the determination of water and nicotine, and calculation of nicotine-free dry particulate matter

History of ISO 15592:2008

- Developed in Europe to address TNCO testing requirements required in Europe
- Terminology is European and the standard addresses smoking articles (e.g., cigarettes) made from fine-cut tobaccos and filter tubes available in Europe at time the underlying methods development work was done (1990s)
- With respect to MYO, standard calls for use of filter tubes with a 7.2 mm internal diameter, 70-mm tobacco section, and a 750 mg tobacco loading
- This requirement requires at tobacco density of 263 mg/cc at 75% RH

Use of tubes of other dimensions

- Appendix C (normative) Section C.3.3.3 of ISO 15592-3 deals with use of tubes of different dimensions

C.3.3.3 If the wrapper is in the form of a tube with or without a filter, and the dimensions of the tobacco section of the tube are other than 7,2 mm diameter and 70 mm long, the mass of tobacco M_2 to be used shall be determined using Equation (C.2):

$$M_2 = \left[\frac{(L_2 \times D_2^2)}{(70 \times 7,2^2)} \right] \times 750 \text{ mg} \quad (\text{C.2})$$

where

L_2 is the length, in millimetres, of the tobacco section of the tube to be tested;

D_2 is the inner diameter, in millimetres, of the tube to be tested.

NOTE The diameter may be determined by measuring slit wrapper tubes using a scale graduated in millimetres.

Weights of tobacco needed

Tube diameter (mm)	Tobacco column length (mm)	Tobacco weight at 75% RH (mg)
7.9	70	905
8.0	70	926
8.1	70	949
7.9	75	967
8.0	75	992
8.1	75	1017

- Typical KS filter tubes weigh about 205 mg so need to achieve cigarette weight of ≈ 1130 mg
- Typical 100's filter tubes weigh about 255 mg so need to achieve cigarette weight of ≈ 1250 mg

Tobaccos for MYO

- Tobaccos readily available to US consumers include those with expanded tobacco (ET) and those without ET
- Using a mineral spirits as a flotation media
 - Tobacco from one popular brand had close to 100% flotation
 - Another popular brand designed for use with filter tubes had about 70% flotation
 - Brands of RYO and cigarette-like tobaccos known not to contain ET gave 0% flotation
- Can we do MYO and meet ISO 15592-3 requirements?

Results from MYO

- Tobaccos and tubes conditioned per ISO 15592-2 (desiccators with saturated NaCl solution)
- Top-O-Matic II PMM, use 1000 mg tobacco load
- 100's filter tubes with 25-mm filter with target cigarette weight of 1250 mg
 - Tobacco with close to 100% flotation: average of 1034 mg with SD of 99 mg
 - Tobacco with about 70% flotation: average of 1135 mg with SD of 35 mg
 - Tobacco with 0% flotation: average of 1197 mg with SD of 26 mg (could have used more tobacco and not overfilled tube)

Concluding remarks

- MYO-type smoking articles prepared and tested according to ISO 15592:2008 will yield acceptable TNCO data with ISO smoking
- In order to test MYO cigarettes with tobaccos and filter tubes available to US smokers, ISO 15592:2008 will only be applicable to tobaccos that contain little, if any, expanded tobacco
- ISO 15592:2008 will need modification if it is to be used with tobacco blends containing expanded tobaccos.