

SLT products contain 4000 chemical constituents. Composition varies according to the product, geographical location, processing and type of tobacco used.

Major classes include :

- Alkaloids
- Tobacco-specific N-nitrosamines
- Poly aromatic hydrocarbons
- N-Nitrosamino acids
- Volatile N-nitrosamines
- Volatile aldehydes

Nicotine constitutes a major portion of the SLT products.

WHO report on the global tobacco epidemic 2017 (MPOWER 2017)

- 41 and 31 Parties had law banning the display of quantitative information on emission yields (nicotine) on cigarettes and SLT packaging respectively (Fig. 1).
- In 64 and 22 Parties, the law mandated the display of qualitative information on relevant constituents and emissions of cigarettes and SLT packaging respectively (Fig. 1).
- Chile, Costa Rica, Ecuador, Kenya, Nigeria, Panama, Togo and Uruguay have laws for both quantitative and qualitative display.
- 10% (N=18) of the Parties have done analysis of the chemical composition of SLT.
Parties include: Brazil, Canada, Ethiopia, Germany, India, Sudan, Sweden, UK, South Africa, Nigeria, Turkey, Norway, Pakistan, Oman, Ghana, Uzbekistan, Kyrgyzstan and Denmark.
- All SLT products available in these Parties have not been analyzed.

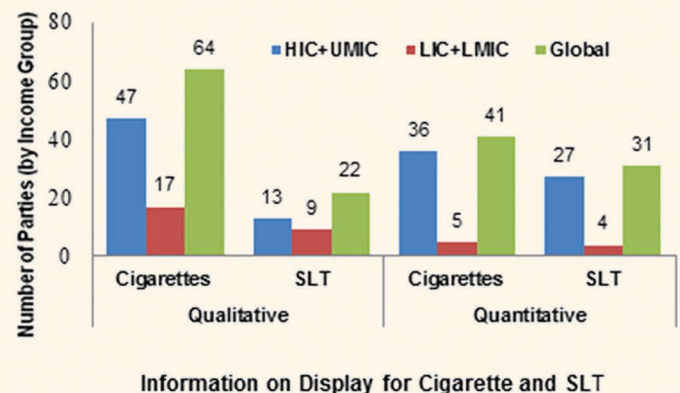


Fig. 1: Law for Display of Quantitative and Qualitative Information on Cigarette and SLT by Income Group

- Products have not been analyzed on periodic basis.
- Laboratories of following Parties were involved for analysis:

Sweden	Pakistan
Oman	Ethiopia
Nigeria	Canada
India	USA*

Countries	SLT Products	NNN (µg/g)	NNK (µg/g)
India	Khaini	39.4-76.9	2.34-28.4
	Zarda	4.81-19.9	3.09-16.4
	Guthka	0.09-1.09	0.04-0.43
Oman	Afzal	1.18-1.22	1.01-1.02
Sweden	Snus	0.42-3.28	0.13-1.1
Canada	Moist Snuff	0.8-6.78	0.38-2.5
Kyrgyzstan	Nasvai	1.12-1.26	0.17-0.21
Uzbekistan	Nasvai	0.59-0.69	0.07-0.07
Turkey	Maras Powder	2.2-2.8	0.63-0.77
	Iq'mik	1.99-4	0.13-0.96
USA*	Snus	0.95-5.30	0.08-0.36
	Moist Snuff	0.89-42.55	0.20-9.95
Sudan	Toombak	141-3085	188-7870
Germany	Dry Snuff	2.4-18.1	0.58-6.4

Table 1: Variation in Group 1 Carcinogens, NNN and NNK in SLT Products of Different Parties

Countries	Smokeless tobacco products	B[a]P (ng/g)
UK	Guthka	0.40-1.28
	Zarda	0.32-8.89
Nigeria	Dry Snuff	0.45-9.88
USA*	Iq'mik	7.4-104
	Moist Snuff	0.55-106.73

Table 2: Variation in Group 1 Carcinogen, B[a]P in SLT Products of Different Parties

SLT Products	Nicotine (mg/g)
Chewing Tobacco	2.6-4.1
Mishri	3.3-21
Tambaaku	8.3-22.5
Guthka	1.23-6.82
Kadipudi	4.9-5.7
Zarda	13.8-65
Khaini	19.6-21.3
Creamy Snuff	4.71-7.71

Table 3: Variation of Nicotine Content in SLT Products from India

Variation in chemical constituents of SLT products

There is a large variation in the levels of Group 1 carcinogens (NNN, NNK and B[a]P) and nicotine in SLT products of different Parties (Table 1, 2, 3).

Recommendations by WHO study group on Tobacco Product Regulation (TobReg)

- Setting limits on free nicotine and pH.
- The combined concentration of Group 1 carcinogens N'nitrosornicotine (NNN) and 4(methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK) in SLT products should not be more than 2 µg/g dry weight of tobacco.
- The concentration of Group 1 carcinogen Benzo[a]pyrene (B[a]P) in SLT should be limited to 5 ng/g dry weight of tobacco.
- Recommendations of TobReg are not followed by most of the countries.
- No regulation for additives and other flavoring agents in SLT products.