**Table 1 Smokeless tobacco products consumed most commonly across the world**

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| **Smokeless tobacco products** | **Regions (WHO)** | **Countries (highest consumption)** | **Other ingredients** | **Preparation and use** | **pHa** | **Nicotinea****(mg/g)** | **Total TSNAa****(ng/g)** |
| Snus (Swedish) | Europe (Region A) | Nordic countries (Denmark, Finland, Iceland, Norway, Sweden) | Water, sodium carbonate, sodium chloride, moisturisers, flavouring | A heat treatment process; placed between the gum and upper lip | 6.6–7.2 | 7.8–15.2 | 601–723 |
| Plug, Snuff (US), Snus (US) | Americas (Region A and B) | US, Canada, Mexico | Sweeteners, liquorice | Plug; air cured | 4.7–7.8 | 3.9–40.1 | 313–76,500 |
| Dry or moist snuff; finely ground and fire cured |
| Snus; steam cured |
| Snuff; kept between lip and gum, dry snuff can be inhaled too |
| Chimó | Americas (Region B) | Venezuela, Colombia | Sodium bicarbonate, brown sugar, Mamo’n tree ashes | Tobacco paste made from tobacco leaves; placed between the lip or cheek and gum and left there for some time | 6.9–9.4 | 5.3–30.1 | 9390 |
| Nass (Naswar) | Europe (Region B), and Eastern Mediterranean (Region D) | Uzbekistan, Kyrgyzstan, Tajikistan, Afghanistan, Pakistan, Iran | Lime, ash, flavourings (cardamom), indigo | Sundried and powdered; placed between lip or cheek and gum | 8.4–9.1 | 8.9–14.2 | 478–1380 |
| Toombak | Eastern Mediterranean (Region D), and Africa (Region D) | Sudan, Chad | Mixed with moist sodium bicarbonate | Fermented and grounded; placed and kept in mouth | 7.3–10.1 | 9.6–28.2 | 295,000–992,000 |
| Snuff (North and West African) | Africa (Region D) | Nigeria, Ghana, Algeria, Cameroon, Chad, Senegal | Dried tobacco leaves mixed with potassium nitrate and other salts | Dry snuff; finely ground and inhaled as a pinch | 9.0–9.4 | 2.5–7.4 | 1520–2420 |
| Moist snuff is placed in mouth |
| Snuff (South African) | Africa (Region E) | South Africa | Dried tobacco leaves mixed with ash | Dry snuff; finely ground and inhaled as a pinch | 6.5–10.1 | 1.2–17.2 | 1710–20,500 |
| Khaini | South East Asia (Regions B and D),Western Pacific (Region B),Eastern Mediterranean (Region D), andEurope (Region A) | India, Bangladesh, Nepal, Bhutan | Slaked lime, menthol, flavourings, areca nut | Shredded; kept in mouth between lips and gum | 9.6–9.8 | 2.5–4.8 | 21,600–23,900 |
| Zarda | Bangladesh, India, Pakistan, Myanmar, Thailand, Indonesia, Nepal, Maldives, Sri Lanka, UK | Served wrapped in a betel leaf with lime, catechu, areca nuts | Shredded tobacco leaves are boiled with lime and saffron; the mixture is dried then chewed and spat | 5.2–6.5 | 9.5–30.4 | 5490–53,700 |
| Gutkha | India, Pakistan, Bangladesh, Nepal, Myanmar, Sri Lanka, UK | Betel nut, catechu, flavourings, sweeteners | Commercially manufactured; sucked, chewed, and spat | 7.4–8.9 | 0.2–4.2 | 83–23,900 |
| Afzal | Eastern Mediterranean (Region B) | Oman | Dried tobacco mixed with various additives  | Fermented; kept in mouth between lips and gums, users suck the juice, and spit out the rest | 10.4 | 48.7 | 3573 |
| Iq’mik | Americas (Region A) | US | Tobacco combined with fungus or plant ash | Involves a burning process to make fungus ash; chewed | 11.0 | 35.0–43.0 | 15–4910 |
| Rapé | Americas (Region B) | Brazil  | Tobacco mixed with finely ground plant materials (tonka bean, cinnamon, clove buds, etc.) or alkaline ashes | Nasal snuff; air cured or heated, then pulverized, finely sifted, and mixed | 5.2–10.2 | 6.3–47.6 | 88–24,200 |
| Pituri / Mingkulpa | Western Pacific (Region B) | Australia | Tobacco mixed with wood ash | Chewed as quid, kept in mouth and/or held against skin | 5.47-11.6 | 4.8 | 15,280 |

1. *WHO* World Health Organization, *TSNA* tobacco-specific nitrosamines
2. aFigures are adapted from [[1, 2, 18–23]](https://paperpile.com/c/bdxIpu/5fAs%2BVOXY%2BInVB%2BkCqI%2BnKJh%2BwU8D%2BhYDd%2BWezF)