

Tobacco

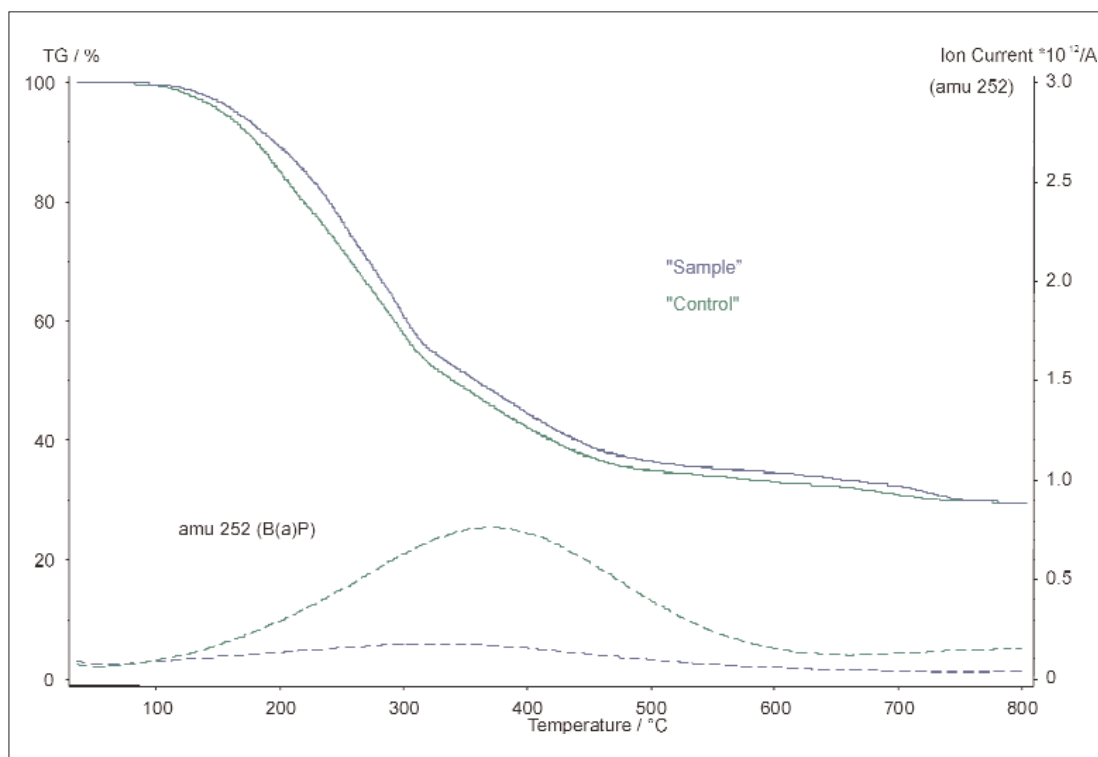
AS-072-2006

Tobacco leaves are often smoked in form of a cigarette or cigar, or in a smoking or water pipe. Tobacco is also chewed and sniffed. Along with the pleasures of tobacco consumption come real risks of serious diseases such as lung cancer, respiratory disease and heart disease. Major hazards of tobacco use involve carcinogenic compounds in tobacco and tobacco smoke. One group of most probably dangerous substances are polycyclic aromatic hydrocarbons such as naphthalin, fluorine, anthracene, benzoperylene and benzoapyrene. For many people, it is also difficult to quit smoking. Many jurisdictions have thus enacted smoking bans in an effort to minimize possible damage to public health caused by tobacco smoking.

Test Conditions:

Temperature range: RT ... 800°C
Heating/cooling rates: 10 K/min
Atmosphere: Argon at 75 ml/min

Sample mass: 578 mg
Crucible: Al₂O₃ beaker
Sensor: TG type S



Results:

Two tobacco samples were characterized by thermogravimetry (full lines) and mass spectroscopy (dashed lines). For clarity, only particular mass number 252 is shown which is most probably due to benzoapyrene. It is, however, important to emphasize that the mass spectrum of tobacco contains a large amount of mass numbers which are due to tar, nicotine derivates and other compounds mentioned above. The measurements shown in the diagram revealed clear differences between the two tobacco samples: sample "Control" exhibited a larger mass loss at low temperatures as well as a stronger evolvement of the polycyclic aromatic hydrocarbon benzoapyrene.