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COMPARISON OF ENVIRONMENTAL TOBACCO SMOKE FROM AN ELECTRICALLY HEATED AND A CONVENTIONAL CIGARETTE.

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Environmental tobacco smoke (ETS) from an electrically heated cigarette (the Accord smoking system: U.S. test market, 2 mg tar) and a conventional lit-end cigarette (Merit cigarette: German market, 7 mg tar) was investigated. The Accord cigarette is made of conventional tobacco filler rolled in tobacco mat and smoked in a battery-operated lighter, which heats the tobacco during puffing. Because the tobacco does not burn continuously, the Accord smoking system delivers essentially no sidestream smoke. ETS was generated by 3 smokers each smoking 2 cigarettes in a 22 m^3 unventilated room. Constituents that could be measured with sufficient sensitivity were chosen from a list of approximately 50 toxicologically relevant mainstream smoke constituents. Concentrations of constituents were lower for Accord cigarettes than for Merit cigarettes: background-corrected concentrations of total particulate matter by 93 to 96 % (determined by the TOEM method, UV absorption, or fluorescence), solanesol by 89 %, acetaldehyde and isoprene by 96 %, and nicotine by 98 %.For the other constituents, there was no difference between ETS generated by the Accord smoking system and background. Concentrations of carbon monoxide and benzene were lower by >94 %, toluene by >96 %, 3-ethenyl pyridine by >98 %, and 6 polyaromatic hydrocarbons (including benzo(a)pyrene) by >97 to >99.5 %.The electrically heated cigarette produced substantially less ETS than the conventional cigarette as shown for 15 constituents.