

The influence of triacetin contents on the physical properties of carbon dual filter and on the delivery of mainstream smoke

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In this study, we have investigated the influence of triacetin contents on the variation of physical properties of the filters, the characteristics of the activated carbon and the delivery amount of mainstream smoke. The hardness, pressure drop of the filter rods having various triacetin contents and the specific surface area of the activated carbon added on the carbon part of the dual filter were analyzed. And we have analyzed the adsorption efficiency of the vapor phase components in mainstream smoke with the change the characteristics of activated carbon by applying triacetin. As a result of this study, the filter hardness was directly affected by the amounts of triacetin contents rather than the amount of loaded activated carbon, but the pressure drop was more affected by the amount of activated carbon. The specific surface area of activated carbon was decreased with the increase of applied triacetin, and the delivery amount of HCN and aldehydes increased 93% and 27%, respectively. It is well known that the decrease of the specific surface area of activated carbon affect the delivery amounts of vapor phase components in smoke through the carbon dual filter. From the these results, we could conclude that the increase of triacetin amount in the filter rods increased the filter hardness and the delivery amounts of vapor phase components because of reducing specific surface area of activated carbon.