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[\[PDF \(694K\)\]](#) [\[References\]](#)**Rapid Temperature-Programmed Separation and Retention Prediction on a Novel Packed-Capillary Column in Gas Chromatography**[Mitsuru INOUE](#)¹⁾²⁾, [Yoshihiro SAITO](#)¹⁾, [Ikuo UETA](#)¹⁾, [Tomoya MIURA](#)¹⁾, [Hironobu OHKITA](#)¹⁾, [Koji FUJIMURA](#)³⁾ and [Kiyokatsu JINNO](#)¹⁾*1) Department of Environmental and Life Sciences, Toyohashi University of Technology**2) Okazaki Technical Senior High School**3) Shinwa Chemical Industries***(Received April 2, 2010)****(Accepted April 28, 2010)**

Novel packed-capillary columns for gas chromatography were developed with a thin-wall stainless-steel capillary of 1.0 mm i.d.; and rapid temperature-programmed separations have been carried out after a basic evaluation concerning the compatibility of these columns to the temperature program. With a numerical integration method, the retention of several test analytes during temperature-programmed elution was successfully estimated. In order to confirm the suitability of the packed-capillary columns to relatively fast temperature programming up to 40°C/min, theoretically predicted retention data were compared with that actually measured. The results suggested a good separation performance of the newly developed packed-capillary columns as a particle-packed column conventionally used. Also, the compatibility to a rapid temperature-programmed operation was quite satisfactory for almost all of the separations currently done in typical analytical laboratories.

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