

Gas Chromatography

1. REVIEWS AND BOOKS

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- 2171 Krammer, G., Bernreuther, A. and Schreier, P.: (Multidimensional gas chromatography.) *GIT Fachz. Lab.*, 34 (1990) 306-312; *C.A.*, 113 (1990) 17220w - a review with 20 refs.

See also 2177, 2231, 2247, 2251, 2314, 2362.

2. FUNDAMENTALS, THEORY AND GENERAL

2a. General

- 2172 Hayashi, Y. and Matsuda, R.: Information theory of column chromatography on the bases of the information measure FUMI. *J. Chromatogr.*, 513 (1990) 349-353.

2b. Thermodynamics and theoretical relationships

- 2173 El Fallah, M.Z., Golshan-Shirazi, S. and Guiochon, G.: Theoretical study of the effect of a difference in column saturation capacities for the two components of a binary mixture on their elution band profiles and separation in nonlinear chromatography. *J. Chromatogr.*, 511 (1990) 1-15.
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- 2175 Zou, H., Zhang, Y. and Lu, P.: (Theoretical study of dynamic processes in gas-liquid chromatography. Effect of adsorption on peak parameters.) *Fenxi Huaxue*, 17 (1989) 683-686; *C.A.*, 113 (1990) 12498h.

2c. Relationship between structure and chromatographic behaviour

- 2176 Sasaki, Y., Takagi, T., Kawaki, H., Fujii, S. and Masuda, F.: Solute-stationary phase interaction in gas-liquid chromatography. Evaluation of the relative retention value for substituted halogenobenzene derivatives. *Chem. Pharm. Bull.*, 38 (1990) 948-950; *C.A.*, 113 (1990) 34199p.

See also 2288.

2d. Measurement of physico-chemical and related values

- 2177 Anthony, L.J. and Holland, R.A.: Glass surface chemistry via gas chromatography. *J. Non-Cryst. Solids*, 120 (1990) 82-92; *C.A.*, 113 (1990) 29660c - a review with 16 refs.
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- 2179 Bruning, I.M.R.A.: Determination of petroleum polarity by inverse gas chromatography. *Fuel*, 69 (1990) 646-648; *C.A.*, 113 (1990) 9121z.

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- 2183 Guglya, V.G., Volkov, V.A., Podolin, S.A. and Mel'yantseva, L.N.: (Gas-chromatographic determination of the diffusion characteristics of hydrogen in metals at 0-85°C.) *Izv. Vyssh. Uchebn. Zaved., Chern. Metall.*, No. 1 (1990) 1-3; *C.A.*, 113 (1990) 27377a.
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see also 2260.

3. GENERAL TECHNIQUES

3a. Apparatus and accessories

- 2193 Ballesteros, E., Gallego, M. and Valcarcel, M.: On-line coupling of a gas chromatograph to a continuous liquid-liquid extractor. *Anal. Chem.*, 62 (1990) 1587-1591.

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See also 2234, 2242, 2249, 2265, 2337.

3b. Detectors and detection reagents

- 2201 Bagheri, H. and Creaser, C.S.: Indirect fluorescence detection in capillary gas chromatography. *Anal. Chim. Acta*, 233 (1990) 303-306.
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- 2203 Danon, A. and Amirav, A.: Hyperthermal surface ionization: a novel ion source with analytical applications. *Int. J. Mass Spectrom. Ion Processes*, 96 (1990) 139-167; *C.A.*, 113 (1990) 34173a.
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See also 2234, 2242.

3c. Sorbents, carriers, column and layer performance, packing procedures

- 2213 Jennings, W.: Column and stationary phase selection in GC. *J. Chromatogr. Sci.*, 28 (1990) 385-388.
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See also 2182, 2234, 2253, 2256, 2258, 2261, 2263, 2267, 2278, 2323, 2373.

3f. Programmed temperature, pressure, vapors, gradients

- 2226 Bautz, D.E., Dolan, J.W., Raddatz, W.D. and Snyder, L.R.: Computer simulation (based on a linear-elution-strength approximation) as an aid for optimizing separations by programmed-temperature gas chromatography. *Anal. Chem.*, 62 (1990) 1560-1567.

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3g. *High performance procedures*

- 2228 Mosandl, A., Hener, U., Schmarr, H.-G. and Rautenschlein, M.: Chirospecific flavor analysis by means of enantioselective gas chromatography, coupled on-line with isotope ratio mass spectrometry. *J. High Resolut. Chromatogr.*, 13 (1990) 528-531.

4. SPECIAL TECHNIQUES

4a. *Automation and computerization*

- 2229 Aczel, T., Colgrove, S.G. and Lan, L.: An expert program for the interpretation of gas chromatography/mass spectrometry data on fossil fuel distillates. *ASTM Spec. Tech. Publ.*, 1019 (1989) 159-171; *C.A.*, 113 (1990) 26559r.
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See also 2222, 2226, 2235, 2390.

4b. *Combination of various chromatographic techniques*

- 2234 Van Zoonen, P., van der Hoff, G.R. and Hogendoorn, E.A.: Reversed-phase LC-GC with a nitrogen-phosphorus detector using a loop-type interface combined with a sandwich-type separator. *J. High Resolut. Chromatogr.*, 13 (1990) 483-488.

See also 2193, 2335, 2349, 2362, 2371, 2376, 2388, 2391.

4c. *Combination with other physico-chemical techniques (MS, IR etc.)*

- 2235 Cooper, J.R.: Development of algorithms for linked capillary gas chromatography-Fourier transform infrared-mass spectrometry applied to analysis of complex samples. Avail. *Univ. Microfilms Int.*, Order No. DA8915932, 1989, 203 p.; *C.A.*, 113 (1990) 51814c.
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- 2239 Morrissey, M.A.: Ion mobility spectrometry after supercritical fluid chromatography. Avail. *Univ. Microfilms Int.*, Order No. DA8915914, 1988, 339 p.; *C.A.*, 113 (1990) 34206p.
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See also 2203, 2228, 2263, 2285, 2288, 2364, 2366, 2382.

4e. Functional analysis

See 2363.

4f. Trace analysis and preparation techniques

- 2243 Apps, P.J.: High-precision sampling of sub-nanogram, low-parts-per-billion solutes from liquids using the dynamic solvent effect. *J. Chromatogr.*, 511 (1990) 271-279.
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See also 2283, 2356, 2367, 2406, 2407.

4g. Separation of enantiomers

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See also 2220, 2297, 2322, 2372, 2377.

4h. Other special techniques

- 2259 Kalurand, M.: (Chromatographic method for the study of high-speed processes.) *Zh. Fiz. Khim.*, 64 (1990) 187-192.

4i. Supercritical fluid chromatography

- 2260 Bartle, K.D., Clifford, A.A. and Jafar, S.A.: Measurement of solubility in supercritical fluids using chromatographic retention: the solubility of fluorene, phenanthrene, and pyrene in carbon dioxide. *J. Chem. Eng. Data*, 35 (1990) 355-360; *C.A.*, 113 (1990) 47416g.
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- 2262 Huston, C.K., Jr. and Bernhard, R.A.: Physical characteristics and chromatographic behavior of supercritical carbon dioxide. *LC-GC*, 8 (1990) 480-484.
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See also 2199, 2208, 2237, 2239, 2240, 2241, 2257, 2269, 2295, 2364.

5. HYDROCARBONS AND HALOGEN DERIVATIVES

5a. Aliphatic hydrocarbons

2268 Lin, D.-P. and Abras, N.M.: Use of a GC/MS/MS technique in determination of biomarkers in regional petroleum. *Talanta*, 37 (1990) 731-734.

See also 2424, 2426.

5b. Cyclic hydrocarbons

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2271 Mukerjee, S.: Benzene emission comparisons by gas chromatography of leaded versus unleaded and "gasohol" versus straight-hydrocarbon fuel vapors. *Chromatographia*, 29 (1990) 603-605.

2272 Takada, H., Onda, T. and Ogura, N.: Determination of polycyclic aromatic hydrocarbons in urban street dusts and their source materials by capillary gas chromatography. *Environ. Sci. Technol.*, 24 (1990) 1179-1186; *C.A.*, 113 (1990) 45511k.

See also 2250, 2260, 2264, 2340.

5c. Halogen derivatives

2273 Abrahamsson, K. and Klick, S.: Determination of biogenic and anthropogenic volatile halocarbons in sea water by liquid-liquid extraction and capillary gas chromatography. *J. Chromatogr.*, 513 (1990) 39-45.

2274 Hattori, Y., Yamamoto, H., Nagai, K., Hagino, K. and Nakamoto, M.: Determination of low molecular weight halogenated hydrocarbons by a gas chromatograph with a wide bore capillary column. *Bunseki Kagaku*, 39 (1990) T113-T116.

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2277 Zhang, L. and Ni, J.: (Determination of halogenated hydrocarbons in water by headspace gas chromatographic method.) *Shanghai Huanjing Kexue*, 8, No. 6 (1989) 18-21; *C.A.*, 113 (1990) 28994c.

See also 2176, 2250, 2406, 2407, 2413.

5d. Complex hydrocarbon mixtures

2278 Do, L. and Raulin, F.: Gas chromatography of the atmosphere of Titan. II. Analysis of low-molecular-weight hydrocarbons and nitriles with a potassium chloride-deactivated alumina PLOT capillary column. *J. Chromatogr.*, 514 (1990) 65-69.

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- 2280 Lavine, B.K. and Carlson, D.A.: Chemical fingerprinting of Africanized honeybees by gas chromatography/pattern recognition techniques. *Microchem. J.*, 42 (1990) 121-125.

See also 2404.

6. ALCOHOLS

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