GAS CHROMATOGRAPHY ABSTRACTS

1963

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GAS CHROMATOGRAPHY ABSTRACTS 1963

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INTRODUCTION

THIS volume of abstracts is the first to be published by the Institute of Petroleum; publication will continue on an annual basis as previously.

It is pleasing to report that the enthusiasm of the abstractors continues unabated, and our thanks are once again due to them for their efforts. The increased size of this volume is an indication both of their diligence and the continuing usefulness of gas chromatography as an analytical technique.

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JOURNALS ABSTRACTED DURING 1963

The following list of journals only contains those which are regularly scanned and abstracted in the original. Where any reference has been obtained from an Abstract Journal, the Abstract Journal reference is added in the text.

Acta Chemica Scandinavica
Acta Chimica Academiae Scientiarum Hungaricae
American Brewer
American Institute of Chemical Engineers Journal
American Perfumer and Aromatics
American Society of Brewing Chemists
Analyst
Analytica Chimica Acta
Analytical Abstracts
Analytical Biochemistry
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Applied Science and Technology Index
Applied Spectroscopy
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Australian Journal of Applied Science
Australian Journal of Chemistry

Biochemical Journal
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Brewers Digest
Brewers Guardian
Brewers Guild Journal
Brewers Journal (and Hop and Malt Trades Review)
British Chemical Engineering
British Medical Bulletin
Bulletin of the Chemical Society of Japan
Bulletin of the Japanese Petroleum Institute
Bulletin de la Société Chimique de France

Camera Argentina de Parfumerie
Canadian Journal of Chemical Engineering
Canadian Journal of Chemistry
Chemia
Chemical Abstracts
Chemical Age (London)
Chemical and Engineering News
Chemical Engineering
Chemical Engineering Progress
Chemical Engineering Science
Chemical and Process Engineering
Chemical Processing
Chemical Products
Chemical Reviews
Chemical Society Annual Reports of the Progress of Chemistry
Chemical Trade Journal
Chemické Listy

Chemie-Ingenieur-Technik
Chemische Berichte
Chemische Technik (Berlin)
Chemist-Analyst
Chemist and Druggist
Chemistry & Industry (London)
Clinica Chimica Acta
Clinical Science
Coal Tar Research Association Review
Collection of Czechoslovak Chemical Communications
Comptes Rendus hebdomadaires des Séances de l'Académie des Sciences
Conserve e Derivati Agrumari (Palermo)
Control Engineering
Current Chemical Papers

Die Ernährungsindustrie
Dissertation Abstracts
Doklady Akademii Nauk S.S.S.R.
Dragoco Berichte
Drug and Cosmetic Industry

Electronic Engineering
Endeavour
Erdöl und Kohle
Essenze Derivati Agrumari

Fette, Seifen, Anstrichmittel
Finska Kemistsamfundets Meddelanden
Food Research
Food Technology
Fuel (London)

Givaudanian

Helvetica Chimica Acta

Indian Soap Journal
Industrial Chemist
Industrial & Engineering Chemistry
Industrial Equipment News
Instrument Engineer
Instrument Practice
Instrument Review
Instrument Society of America Journal
Instruments & Automation
Instruments & Control Systems
International Journal of Air Pollution
International Journal of Applied Radiation & Isotopes
Izvestiya Akademii Nauk S.S.S.R. Otdelenie Khimicheskikh Nauk

Journal of Agricultural and Food Chemistry
Journal of the Air Pollution Control Association
Journal of the American Chemical Society
Journal of the American Oil Chemists Society
Journal of the American Pharmaceutical Association
Journal of Applied Chemistry (London)
Journal of the Association of Official Agricultural Chemists
Journal of Atherosclerosis Research
Journal of Chemical Education

JOURNALS ABSTRACTED DURING 1963

Journal of Chemical Engineering Data
Journal of Chemical Physics
Journal of Chemical Society
Journal of Chromatography
Journal of Clinical Pathology
Journal of Gas Chromatography
Journal of General Microbiology
Journal of Inorganic & Nuclear Chemistry
Journal of the Institute of Brewing
Journal of the Institute of Fuel
Journal of the Institute of Petroleum
Journal of Lipid Research
Journal of the Oil and Colour Chemists Association
Journal of Organic Chemistry
Journal of Pathology & Pharmacology
Journal of Pharmacy & Pharmacology
Journal of Physical Chemistry
Journal of the Physical Society of Japan
Journal of Polymer Science
Journal für praktische Chemie
Journal of Research of the National Bureau of Standards, Series A
Journal of the Royal Institute of Chemistry
Journal of the Science of Food and Agriculture
Journal of Scientific Instruments
Journal of the Society of Cosmetic Chemists
Journal of the Society of Dyers & Colourists

Kemisk Maanedsblad
Khimiya i Teknologiya Topliv i Masel
Kolloid-Zeitschrift
Kunststoffe

Laboratory Practice
La France et ses Parfums
Lancet
Liebig's Annalen der Chemie
L.L.U. Translation Bulletin (D.S.I.R.)

Manufacturing Chemist
Mikrochimica Acta
Monsanto Magazine
Monthly Bulletin of the Public Health Laboratory Service

Naarden News
Nafta (Poland)
Nature (London)
Naturwissenschaften
New Scientist

Oil & Gas J.
Osterreichische Chemikerzeitung

Parfums, Cosmétiques, Savons
Parfumerie und Kosmetik
Perfumery & Essential Oil Record
Perkin-Elmer Instrument News
Petroleum Refiner
Pharmaceutical Journal
Polymer

JOURNALS ABSTRACTED DURING 1963

Proceedings of the Chemical Society
Proceedings of the Royal Society of London, Series A
Proceedings of the Science Section, Toilet Goods Association

Quarterly Reviews

Recherches
Recueil des Travaux Chimiques des Pays-Bas
Research (London)
Review of Current Literature on Paint, Colour, Varnish & Allied Industries
Review of Scientific Instruments
Revista Italiana Essenze, Profumi Piante Officiale, Olii Vegetale Saponi
Revue de l'Institut Français du Pétrole et Annales des Combustibles Liquides
Russian Chemical Reviews

Science
Seifen, Ole, Fette, Wachse
Soap & Chemical Specialities
Soap, Perfumery & Cosmetics
Svensk Kemisk Tidskrift

Talanta
Technical Translations of the U.S. Department of Commerce
Tetrahedron
Tetrahedron Letters
Transactions of the Faraday Society
Transactions of the Institution of Chemical Engineers
Transactions of the Society of Instrument Technology

Vysokomolekulyarnye Soedineniya

Wallerstein Laboratory Reports

Zavodskaya Laboratoriya
Zeitschrift für anorganischen und allgemeine Chemie
Zeitschrift für analytische Chemie
Zeitschrift für Elektrochemie
Zeitschrift für Lebensmitteluntersuchung und-forschung
Zeitschrift für Naturforschung
Zhurnal Fizicheskoi Khimii
Zhurnal Obschei Khimii
Zhurnal Prikladnoi Khimii

1. High Temperature Gas–Solid Chromatography.
MALAFEEV, N. A., YUDINA, I. P. and ZHAVORONKOV, N. M.

Uspekhi Khim. **31** (6) 710–723 (1962)

In Russian. At the present time high temperature gas–solid chromatography offers a complete method of analysis of complex mixtures of high boiling organic compounds, carried out at temperatures of 500°C and above. There is a need to raise this upper limit. Parallel with this, work is being carried out on the study of new conditions permitting the analysis of high boiling compounds at considerably lower temperatures than those used at present. The application of high temperature chromatography to preparative scale columns, although presenting considerable difficulties in its implementation, may be carried out by high temperature chromatography and laboratory molecular distillation. C.E.H.K.

2. Gas Chromatography as Applied to Nuclear Technology. I.
HORTON, A. D.

Nuclear Sci. & Engng. **13** (2) 103–109 (1962)

Gas–solid chromatography was used for the analysis of volatile products from various processes. An apparatus is described having an all Pyrex glass sampling system and Pyrex columns. Oxides of nitrogen and carbon containing nitrogen, oxygen, argon and deuterium were separated on Linde molecular sieve 5A, and samples containing chlorine and nitrosyl chloride were separated on silica gel. Several chromatograms are given, and temperature programming of the molecular sieve column was used. C.E.H.K.

3. Radio Column Chromatographic Assay of H^3-Labelled Substances.
SCHARPENSEEL, H. W. and MENKE, K. H.

Tritium in the Phys. and Biol. Sciences. Volume I. 281–302
Published by Int. At. Energy Agency, Vienna 1962

Gas chromatography in conjunction with detecting methods such as proportional flow counters, flow ionisation chambers and liquid scintillation counters is used for the assay of the title compounds. Methods for use with paper chromatography are also described. C.E.H.K.

See also Gas Chromatography Abstracts 1962, Reference 152 (*Editor*).

4. The Separation of Hydrogen, Tritium and Tritium Hydride by Gas Chromatography.
SMITH, H. A. and CARTER, E. H.

Tritium in the Phys. and Biol. Sciences. Volume I. 121–133
Published by Int. At. Energy Agency, Vienna 1962

Full details are given of the separation of mixtures of the title compounds on columns of palladium on flint-quartz, silica gel, chromia/alumina, ferric oxide/alumina and alumina. C.E.H.K.

5. Review of the National Research Council, 1960.
NATIONAL RESEARCH COUNCIL (CANADA)

NRC No. 5788, 1961. 354 pp
Rev. Current Lit. Paint, Colour, Varnish and Allied Ind. **234** 888 (1961)

Fatty acids obtained from oils of fungal spores and seeds have been examined by gas chromatography and other techniques, but no experimental details are given in the abstract. B.K.H.

6. Gas Chromatography.
BAYER, E.

Chem. & Ind. (London) 1961 (47) 1901–1902

A review by J. H. Purnell of the book published by the Elsevier Publishing Co. Ltd. L.S.

The German and Russian editions of this book have already been reported in Gas Chromatography Abstracts 1959, Reference 104 and 1962, Reference 743 respectively (*Editor*).

7. The Synthesis of the *dl*-9-*iso*-Pimaradienes and the Revision of the Structures of *iso*Pimaric Acid and Rimuene.
CHURCH, R. F. and IRELAND, R. E.

Tetrahedron Letters 1961 (14) 493–498

Gas chromatography was used in the study of the stereochemistry of rimuene, pimaradiene, *iso*pimaradiene, sandaracopimaradiene and a number of related compounds. No gas chromatographic details are given, but a table illustrating the relative mobilities of the dienes is included. B.K.H.

8. Unsaturated Fatty Acids. I. Quantitative Analysis of Methyl Oleate and its Ozonide by Gas Chromatography.
KITAHARA, K.

Yakugaku Zasshi **80** 1624–1627 (1960)
Chem. Abstr. **55** (20) 20459 (1961)

Using optimum conditions with a 2m silicone grease column at 226°C, methyl oleate and its ozonide were determined to within 5%. Methyl myristate was used as internal standard. Ozonolysis of a fatty acid mixture removes the unsaturated acids so that the relative amounts of saturated and unsaturated acids can be determined. P.E.W.

9. Unsaturated Fatty Acids. II. Decomposition Products of Unsaturated Fatty Acid Ozonides by Gas Chromatography.
KITAHARA, K.

Yakugaku Zasshi **80** 1628–1631 (1960)
Chem. Abstr. **55** (20) 20459 (1961)

Methyl aldehyde azelate, nonyl aldehyde and caproic aldehyde and small amounts of the corresponding acids were found, but no gas chromatographic details are given in the abstract. P.E.W.

See the preceding abstract (*Editor*).

10. Direct Examination of Polymer Degradation by Gas Chromatography. I. Applications to Polymer Analysis and Characterisation.
BARLOW, A., LEHRLE, R. S. and ROBB, J. C.

Polymer **2** 27–40 (1961)
Chem. Abstr. **55** (17) 17071 (1961)

Samples of polymers, copolymers and polymer mixtures were pyrolysed on a wire at various temperatures and the degradation products examined. Random, block copolymers and mixtures could be distinguished in certain cases. Quantitative measurements with an accuracy of better than 2% were obtained. No experimental details are given in the abstract. P.E.W.

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11. The Use of Gas Chromatography for the Analysis of High Boiling Oil Shale Gases.
LILLE, U.

Trudy Tallin. Politekh. Inst. Ser. A. **153** 115–122 (1958)
Chem. Abstr. **55** (21) 21553 (1961)

Janak's apparatus was used to analyse city gas, ethylene, propylene and a known oil shale gas with an accuracy of 2%. The method was more convenient than distillation. No other experimental details are given in the abstract. P.E.W.

12. Gas–Liquid Chromatography of Basic Nitrogen Compounds.
DECORA, A. W. and DINNEEN, G. U.

U.S. Bur. Mines Rept. Invest. No. 5768 23 pp (1961)
Chem. Abstr. **55** (18) 18085 (1961)

Symmetrical pyridine peaks were obtained using a treated commercial detergent as solid support. Relative retention volume data for 15 pyridines on 10 liquid phases are given. Details of the analysis of a 14 component mixture of nitrogen compounds and of a shale oil tar base are discussed. For strongly basic nitrogen compounds the support is treated with potassium hydroxide. P.E.W.

See also Gas Chromatography Abstracts 1960, Reference 117 and 1961, Reference 636 (*Editor*).

13. Gas Chromatography in Tanning.
HRABAL, Z.

Kozarstvi **11** 3–5 (1961)
Chem. Abstr. **55** (21) 21633 (1961)

Gas chromatography is used for the analysis of solvent mixtures in shoe industry cements and to control ethylene adsorption in the manufacture of raw materials for butyl acrylate production. No experimental details are given in the abstract. P.E.W.

14. Gas Chromatography for the Qualitative Determination of Oil Content in Organic Coatings.
ZIELINSKI, W. L., MOSELEY, W. V. and BRICKER, R. C.

Offic. Dig. Federation Socs. Paint Technol. **33** 622–634 (1961)
Chem. Abstr. **55** (17) 17039 (1961)

Identification of oils from oil bound paints and oil modified synthetic resins was straightforward if the oils had not been subjected tc excessive heat or oxidised. Oils harshly treated showed fewer polyunsaturated ester peaks on their chromatograms and were estimated using a polymer estimation technique and also by infra-red methods. No gas chromatographic details are given in the abstract. P.E.W.

See also Gas Chromatography Abstracts 1961, Reference 613 (*Editor*).

15. Gas Chromatography and Lipochemistry. II. Study of some Compounds with a Functional Ester Group by Gas Chromatography.
LEFORT, D., PAQUOT, C. and POURCHEZ, A.

Oleagineaux **16** 253–259 (1961)
Chem. Abstr. **55** (17) 17046 (1961)

The elution times of the methyl and ethyl esters of saturated aliphatic mono-acids, acetates of aliphatic primary alcohols, C_{16}–C_{18} saturated aliphatic esters, methyl and ethyl diesters of saturated aliphatic diacids and acetates of aliphatic

primary diols were studied with varying experimental conditions to establish the influence of the functional ester group on the elution time. Apiezon M or diethylene glycol succinate were used at various temperatures. It was found that the methyl ester of a monoacid could be separated from the acetate of a monoalcohol, when both had the same number of C atoms, at 180°C but not at 130°C. P.E.W.

16. Special Techniques in Residue Analysis.
'H.K.H.'

Chem. & Ind. (London) 1962 (16) 729–731

A report of a meeting of the Pesticides Group of the Society of Chemical Industry. The following 2 papers were delivered and discussed: (1) 'A Rapid Method for the Identification of Traces of Chlorinated Pesticides'—Reynolds, J. G. An electron capture detector is used to detect concentrations as low as 0·1–0·25 ppm. (2) 'The Detection of some Triazine Herbicides by Gas–Liquid Chromatography'—Hughes, D. and Chilwell, E. D. Ballotini support for low liquid phase loading may be applied to the determination of residues in soil. L.S.

A similar paper by Reynolds has already been reported in Gas Chromatography Abstracts 1962, Reference 238 (*Editor*).

17. Isolation and Reaction of a Compound with one Si–C Double Bond.
FRITZ, G. and GROBE, J.

Z. anorg. u. allgem. Chem. **311** 325–330 (1962)

A chromatogram is given showing the separation of some methyl silanes on a column of polypropylene glycol at 150°C with hydrogen as carrier gas. H.K.

18. Gas–Liquid Chromatography of C_7–C_{12} Paraffin and Aromatic Hydrocarbons.
BEREZKIN, V. G. and POLAK, L. S.

Doklady Akad. Nauk. S.S.S.R. **140** 115–117 (1961)
Chem. Abstr. **56** (1) 626 (1962)

Plots of log retention time against boiling point using a stationary phase of methyl phenyl siloxane at various temperatures were obtained. A simple equation was found to hold for retention data obtained at different temperatures. At 140°C quantitative estimates from peak area measurements gave a reproducibility to within 3% of the concentration of the components of the mixtures. P.E.W.

19. Chromatographic Analysis of Natural Gas.
TURKEL'TAUB, N. M.

Trudy Vsesoyuz Nauch Issledovatel Geologorazvedoch Neft Inst. **27** 228–239 (1960)
Chem. Abstr. **56** (2) 1668 (1962)

Two Russian Instruments (the No. 4 chromatothermograph and the X-T2M gas analyser) were used. The results are discussed but no further experimental details are given in the abstract. P.E.W.

20. Chromatographic Gas Analyser for Refinery Gases.
TARASOV, N. I., LULOVA, N. A., KUDRYAVTSEVA, N. A. and ZEMSKOVA, E. I.

Gazovaya Khromatografiya Trudy 1-*oi* (*Pervoi*) *Vsesoyuz Konf. Akad. Nauk. S.S.S.R. Moscow* 1959, 268–273 (*Published* 1960)
Chem. Abstr. **56** (2) 1668 (1962)

Carbon dioxide, permanent gases and light saturated and unsaturated hydrocarbons are analysed on a simple room temperature gas chromatograph. Two dimethyl formamide columns, a silica gel and an activated charcoal column are used. The results agree with those observed on other instruments. P.E.W.

21. Prospects for the Industrial Use of Radiation. Thermal Cracking of Normal Hydrocarbons.
TOPCHIEV, A. V., POLAK, L. S., CHERNYAK, N. Y., GLUSHNEV, V. E., VERESHCHINSKII, I. V. and GLAZUMOV, P. Y.

Large Radiation Sources in Ind., Proc. Conf. Warsaw **2** 131–138 (1959) (*Published* 1960)
Chem. Abstr. **56** (2) 1670 (1962)

Gas chromatography is one of the techniques used to analyse the products following radiation. Various conditions such as irradiation at 300°K with Co^{60} at a dose rate of $5{\cdot}6 \times 10^{19}$ ev/hr were studied. P.E.W.

22. Analysis of the Dehydrogenation Products of C_4 and C_5 Hydrocarbons by the Semiautomatic Vacuum Chromatographic Gas Analyser. NII MSK.
BELYAEV, V. A. and RYZHOVA, V. I.

Gazovaya Khromatografiya Trudy 1-*oi* (*Pervoi*) *Vsesoyuz Konf. Akad. Nauk. S.S.S.R. Moscow* 1959, 274–279 (*Published* 1960)
Chem. Abstr. **56** (3) 2634 (1962)

The apparatus operated at room temperature and 150 mm Hg is described in detail. P.E.W.

23. A Rapid Method for the Chromatographic Analysis of C_1–C_5 Hydrocarbons.
TARASOV, A. I., KUDRYAVTSEVA, N. A., IOGANSEN, A. V. and LULOVA, N. I.

Gazovaya Khromatografiya Trudy 1-*oi* (*Pervoi*) *Vsesoyuz Konf. Akad. Nauk. S.S.S.R. Moscow* 1959, 280–288 (*Published* 1960)
Chem. Abstr. **56** (3) 2634 (1962)

The gases are analysed on a white oil column with nitrogen as carrier gas. Ethane and ethylene were not separated. P.E.W.

24. Chromatographs for the Control of Petroleum Refining Processes.
FROLOVSKII, P. A.

Gazovaya Khromatografiya Trudy 1-*oi* (*Pervoi*) *Vsesoyuz Konf. Akad. Nauk. S.S.S.R. Moscow* 1959, 204–212 (*Published* 1960)
Chem. Abstr. **56** (3) 2646 (1962)

Three chromatographic instruments are assessed. P.E.W.

25. Gas Chromatography in the Analysis of the Pyrolysis Products of Vulcanisates.
NIKOLINSKI, P., MLADENOV, I. and DIMOV, N.

Khim. i Ind. (Sofia) **33** (3) 69–72 (1961)
Chem. Abstr. **56** (4) 3611 (1962)

The dried vulcanisate was completely pyrolysed within 20–25 sec at 650–700°C. The products were passed through a column and the first components were analysed on a silica gel column, the second on an activated charcoal column and the remainder on a temperature programmed silica gel column. Low molecular weight components such as propylene, ethylene, acetylene and hydrogen were found. P.E.W.

26. Constituents of Petroleum and Related Products. III. Determination of the Gasoline Fraction of Rhoden Petroleum.
PRINZLER, H. and THOMAS, W.

Wiss. Z. Tech. Hochsch. Chem. Leuna-Merseburg **3** 199–202 (1960/61)
Chem. Abstr. **56** (4) 3717 (1962)

The paraffinic, naphthenic and aromatic portions of Rhoden crude oil separated on a silica gel column, were further analysed by fractional distillation and gas chromatography. Seven aromatic, 4 naphthenic and 8 aliphatic hydrocarbons were identified. P.E.W.

27. Gas Chromatography for Tall Oil and Turpentine Analysis.
STINE, I. A. and DOUGHTY, J. B.

Forest Products J. **11** 530–535 (1961)
Chem. Abstr. **56** (4) 3705 (1962)

The oils are characterised by their fatty acid components. Retention data relative to stearic acid are given for fatty acids such as 10-undecenoic, hexadecenoic, octadecenoic, octadecadienoic, linoleic, eicosatetraenoic and eleaostearic acids. P.E.W.

28. Relation between Structure and Gas Chromatographic Data.
WEHRLI, A.

Promotionsarb. (Zurich) No. 3032 (1961)

In German. A 'Retention Index' (1) is defined by

$$1 = \{200\ [\log r(Y : nP_z)]/[\log r(nP_{z+2} : nP_z)]\} + 100z$$

where $r(Y : nP_z)$ is the retention time of a compound Y relative to the retention time of a n-paraffin with an equal number of carbon atoms (z) and $r(nP_{z+2} : nP_z)$ is the similar relative retention time of a n-paraffin with two more carbon atoms. A great many such retention indices are tabulated and the following rules deduced: (1) the retention indices of members of a homologous series increase by 100 for each methylene group, (2) where the boiling points of isomers differ by δt, the difference in their retention indices (δi) is given by $\delta i = 5\ \delta t$, (3) the retention index of a non-polar compound is nearly independent of the stationary phase and that of any compound is nearly constant on any non-polar stationary phase, (4) the contribution to ΔI, [where $\Delta I = I^P - I^A$ and I^P, I^A are retention indices on polar and non-polar stationary phases (Apiezon L and Emulphor O)] from the aliphatic structure is nil but from the other groups is additive. S.J.H.

29. Microcoulometry in Gas Chromatography.
DeVRIES, J. E., COULSON, D. M. and CAVANAGH, L. A.

Submicrogram Experimentation. 1960 *Symposium at Arlington, Virginia.* Ed. CHERONIS, N. D. pp 219–226
Published by Interscience Publishers

In the analysis of pesticide residues, the column eluates are ignited and the chloride or sulphide ions detected in a coulometric device in which silver ions are electrolytically generated. A sensitivity of 5 times greater than the argon Sr^{90} detector is claimed. S.J.H.

See also Gas Chromatography Abstracts 1961, Reference 25 (*Editor*).

30. Instrumentation Techniques as Applied to Quality Standards of Perfume Materials.
ROGERS, J. A.

Am. Perfumer **77** (3) 21–28 (1962)

After a general consideration of gas–liquid chromatography, curves are given illustrating the process of manufacture of geraniol and citronellol from Formosa citronella oil. In the curve for the original oil, most of the peaks are identified. Curves are also given for Reunion geranium oil on silicone DC 710 at 145°C and on Carbowax 20M at 135°C with the major peaks identified, for rhodinol on Carbowax at 135°C and for nerols derived from reduction of citral and by synthesis. S.J.H.

31. Gas Chromatography Detector Systems.
MITCHELL, J.

Submicrogram Experimentation. 1960 *Symposium at Arlington, Virginia.* Ed. CHERONIS, N. D. pp 201–218
Published by Interscience Publishers

A review of detector systems. In the discussion, W. C. McCrone claims that gas chromatography was used for the purification of volatile compounds by Kofler at Innsbruck before Martin's work and cites Kofler's book in evidence. H. Eyring discusses the mechanism of flame ionisation. S.J.H.

32. Separation and Determination of Small Amounts of Tetrachloroalkanes and Chloromethanes in Air.
YAVOROVSKAYA, S. F.

Gazovaya Khromatografiya Trudy 1-*oi* (*Pervoi*) *Vsesoyuz Konf. Akad. Nauk. S.S.S.R. Moscow* 1959, 302–306 (*Published* 1960)
Anal Abstr. **9** (4) 1697 (1962)

After absorption from the air into ethanol, the tetrachloroalkanes are chromatographed on a petroleum jelly or on a Ramsay vacuum oil column at 150°C. Air is used as carrier gas. The substances are eluted in order of their boiling points. P.G.Q.

33. Evaluation of Symposium Findings and New Fields for Research. Ions in Flames.
EYRING, H.

Submicrogram Experimentation. 1960 *Symposium at Arlington, Virginia.* Ed. CHERONIS, N. D. pp 342–343
Published by Interscience Publishers

The mechanism of flame ionisation is discussed and the theory of the formation of graphite particles discredited. S.J.H.

34. Gas Chromatography of Tobacco Seed Oils and Preliminary Observations on the Cytological Activity of some of their Components.
CARUGNO, N., GIOVANNOZZI-SERMANNI, G. and WITTMER, G.
il Tabacco (Italy) **65** 219–228 (1961)
Tech. Trans. **7** (4) 196 (1962)

The extracted oils from fresh and aged seeds of various tobacco strains were examined by gas–liquid chromatography. Formic, acetic, propionic, butyric, valeric and myristic acids were identified. The toxic and mutagenic activity of certain acids was investigated. P.E.W.

35. Analysis of Light Hydrocarbons by Gas Chromatography. Evaluation of the Precision of the Method.
BUZON, J. and FOLLAIN, G.
Rev. inst. franç. petrole et Ann. combustibles liquides **16** 715–735 (1961)
Chem. Abstr. **55** (24) 25224 (1961)

Commercial butane samples were analysed on a 60 cm × 6 mm column of tetra-*iso*butylene on firebrick in series with a 20 m × 6 mm column with propylene carbonate as stationary phase. Random and personal errors were assessed when 3 operators analysed replicate samples. P.E.W.

36. Separation of Normal–Nonnormal Hydrocarbon Mixtures by the Use of Zeolites.
EGGERTSEN, F. T.
U.S. Patent 2,987,471 (1961)
Chem. Abstr. **55** (24) 25233 (1961)

Linde molecular sieve retains normal hydrocarbons with more than 5 carbon atoms in the chain, but *iso*-paraffins and naphthenes are not retained. The adsorbed normal hydrocarbons are removed by a carrier gas, their retention time depending on the number of carbon atoms in the chain. P.E.W.

37. Chromatography in Fat Analyses.
ANSELMI, S.
Olearia **15** 61–64 (1961)
Chem. Abstr. **55** (24) 25293 (1961)

The paper and gas chromatography of fats is reviewed since 1942. P.E.W.

38. The Use of Gas–Liquid Chromatography for a Closer Study of the Chemical Composition of Petroleum.
PODKLETNOV, N. E.
Izvest. Sibir. Otdel. Akad. Nauk. S.S.S.R. **5** 70–79 (1961)
Chem. Abstr. **55** (25) 26418 (1961)

Salkhalim petroleum oil is separated into 6 boiling range fractions. These are treated by extractive procedures, liquid or gas chromatography to separate and identify the paraffinic, aromatic and asphaltene fractions. P.E.W.

39. Formation of Fatty Acids of Intermediate Chain Length in Electron-irradiated Fats.
LÜCK, H. and KOHN, R.
Experientia **17** 109–110 (1961)
Chem. Abstr. **55** (23) 24052 (1961)

Details of the position of chain-cleavage of fatty acids induced by ionising radiation are determined. After cleavage by irradiation, the fragments are converted to their methyl esters and separated and identified by gas–liquid chromatography on a column of Resoflex R446 at 188°C. P.E.W.

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