s.s., operated under a nitrogen carrier gas flow rate of 10-15 ml/min). The Apiezon column was programmed from 80° to 290°C at the rate of 6°C/min; the FFAP col. was programmed from 120° to 270°C at the same rate. The instrument used was a Varian Aerograph (Models 650D, 1200, and 1700) equipped with FID, (2) as above but using a Hewlett-Packard 700 instr. and the Apiezon L col. (3%), and (3) 1.8 m x 2.2 mm, i.d., s.s. col. packed with 3% Apiezon L on 80-100 mesh Chromosorb W, operated at 150° to 180°C (programmed at the rate of 6°C/min) under a nitrogen carrier gas flow rate of 10 ml/min, using a Hewlett-Packard 5750 instr. equipped with an FID. The results obtained were intercalibrated to determine the accuracy and precision of hydrocarbon analyses of such samples by GC. Retention data: chromatograms, p. 133.

89-58b-51b

No. 74-0337 0337

CHLORDANE RESIDUES IN MILK AND FAT OF COWS FED HCS 3260 (HIGH-PURITY CHLORDANE) IN THE DIET

H. W. Dorough and R. W. Hemken (Univ. of Kentucky, Lexington, KY)
Bull. Environ. Contam. Toxicol. 10, No. 4: 208-15 (Oct., 1973)

Extracts of cow's milk or fat were analyzed by GC using a Varian Aerograph Series 1700 instrument equipped with an electron-capture detector and a 6 ft x 2 mm glass column packed with 4% SE-30 and 6% QF-1 on 80-90 mesh Anakrom ABS, operated at 200°C under a nitrogen carrier gas pressure of 18 psi. Retention times, in minutes, for the compound considered for quantitation were: heptachlor, 6.0; oxychlordane, 10.4; heptachlor epoxide, 11.1; α-chlordane, 13.4; γ-chlordane, 12.1.

89-61b

No. 74-0338 0338

OXIDATIVE DECOMPOSITION OF ETHYLENE-BIS-DITHIOCARBAMATES

J. W. Hylin (Dept. of Agr. Biochem., Univ. of Hawaii, Honolulu, HI)
Bull. Environ. Contam. Toxicol. 10, No. 4: 227-33 (Oct., 1973)

Ethylene diamine was determined by GC of the trifluoroacet-di-amide derivative using a 6 ft col. containing 80-100 mesh Chromosorb W coated with 2% DEAS and operated at 190°C with electron-capture detection. Elemental sulfur was estimated on a benzene extract by GC using the same col. and conditions but with sulfur-specific flame-photometer detection. No retention data.

89-88-60a-59-39

No. 74-0339 0339

DISTRIBUTION OF A POLYCHLORINATED TERPHENYL (AROCLOR 5460) IN RAT TISSUES AND EFFECT OF HEPATIC MICROSOMAL MIXED FUNCTION OXIDASES

J. Carlos Sosa-Lucero and F. A. de la Iglesia (Warner-Lambert Res. Inst., Sheridan Park, Mississauga, Ontario, Canada); Gordon H. Thomas (Ontario Res. Foundation, Pesticide and Trace Anal. Lab., Sheridan Park, Ontario, Canada)
Bull. Environ. Contam. Toxicol. 10, No. 4: 248-55 (Oct., 1973)

MONS 206020

Hexane extracts of rat tissues were analyzed for polychlorinated terphenyl by GC, using a Varian 1200 series instr. equipped with a 6 ft x 1/8 in., i.d., coiled glass column packed with 3% OV-210 and 3% SE-30 (ultraphase) on 60-80 mesh DMCS-treated Chromosorb W, operated at 255°C under a nitrogen carrier gas flow rate of 25 ml/min. Retention data: chromatograms, p. 252.

89-61a-54b

0340 No. 74-0340

OXYCHLORDANE RESIDUES IN HUMAN ADIPOSE TISSUE
Francis J. Biros and Henry F. Enos (U.S. Environ. Protection Agency, Primate and Pesticides Effects Lab., Perrine, FL)
Bull. Environ. Contam. Toxicol. 10, No. 5: 257-60 (Nov., 1973)

Oxychlordane, BETA-HCH, p,p'-DDE, o,p'-DDT, and p,p'-DDT (organochloride pesticide) residues in human adipose tissue were analyzed by GC on (a) a 1.5% OV-17 column and (b) a 1.95% QF-1 column with 80-100 mesh silanized support operated at 200°C under a nitrogen carrier gas flow rate of 60 ml/min. Relative to aldrin, oxychlordane had a retention time of 1.38 and 1.56, respectively on these two cols. IR and MS were used to assist in the identifications. Retention data: chromatogram, p. 258.

89-88-61b-35b-35a

0341 No. 74-0341

POLYCHLORINATED BIPHENYLS IN THE SEASTAR Acanthaster planci
L. R. McCloskey (Dept. of Biology, Walla Walla College, College Place, WA) and Karl H. Deubert (Lab. of Experimental Biology, Univ. of Massachusetts, East Wareham, MA)
Bull. Environ. Contam. Toxicol. 10, No. 5: 261-64 (Nov., 1973)

Tissues were extracted, cleaned up and analyzed for polychlorinated biphenyls by GC using a Varian 2700 instrument equipped with a 5 ft x 1/8 in., s.s. col. packed with 3% QF-1 on 100-110 mesh Anakrom ABS, operated at 190°C under a nitrogen carrier gas flow rate of 25 ml/min. Retention data: chromatograms, p. 263.

89-61a-54b

0342 No. 74-0342

CONFIRMATION OF HEXACHLOROBENZENE BY CHEMICAL REACTION
Bruce E. Baker (Centre National de Recherches Agronomiques, Versailles, France)(Present address: Faculty of Agr., McGill Univ., McDonald College, Montreal, Quebec, Canada)
Bull. Environ. Contam. Toxicol. 10, No. 5: 279-84 (Nov., 1973)

Hexachlorobenzene, 1,2,3,5-tetrachlorobenzene, and pentachlorobenzene were separated by GC using an Aerograph 600 instr. equipped with a 5 ft x 1/8 in. Pyrex col. packed with 80-100 mesh HMDS-treated Chromosorb W, coated with 5% QF-1, operated at 130°C. Retention data: chromatograms, pp. 280-284.

89-61a-54a

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filter disk in the end of the col. A hand-operated device for this is described and illustrated. For on-col. injection, only the detector-end of the col. is sealed. The device can be easily assembled from a few readily available components. Detailed drawings are available from the author. The device operated effectively and simply in one year's use.

91-85a

0922 No. 74-0922

DISTRIBUTION OF DIELDRIN IN THE TURTLE

James L. Pearson, Kathleen Linsley, and Thomas Hernandez (Dept. of Pharm., Louisiana State Univ., Medical Center, New Orleans, LA)

Bull. Environ. Contam. Toxicol. 10, No. 6: 360-64 (Dec., 1973)

The concentration of dieldrin in the plasma and various tissues of turtles was estimated with a Micro-Tek 220 GC. The samples were chromatographed on a col. of 1.5% OV-17/1.95% QF-1 on 100-120 mesh Chromosorb W HP, and on a col. of 4% SE-30/6% QF-1 on 80-100 mesh Chromosorb W HP. Col. temp. was 200°C; the detector was an electron-capture, parallel-plate (tritium-foil source) detector. Under these conditions dieldrin had a retention time relative to aldrin of 2.40 on the OV-17 and 2.15 on the SE-30 col. No retention data.

89-61b

0923 No. 74-0923

POLYCHLORINATED BIPHENYLS IN SEA BIRDS FROM ASCENSION ISLAND, SOUTH ATLANTIC OCEAN

David W. Johnston (Dept. of Zoology, Univ. of Florida, Gainsville, FL)

Bull. Environ. Contam. Toxicol. 10, No. 6: 368-71 (Dec., 1973)

Polychlorinated biphenyls in liver, fat, and brain samples of the birds were extracted in hexane and analyzed by GC, using a Varian 2100 instr. equipped with a 6 ft x 1/4 in. glass col. packed with 6.4% OV-210 and 1.6% OV-17 on Chromosorb W, operated with a tritium electron-capture detector. A second glass col. packed with 1/5% OV-17 and 1.95% QF-1 on Gas Chrom Q of the same size was used for confirmation. Col. temp, were 200°C, flow rate of the nitrogen carrier gas was 40 ml/min. No retention data.

89-61a-54b

0924 No. 74-0924

PHOTODECOMPOSITION OF CHLORINATED BIPHENYLS AND DIBENZOFURANS

Donald G. Crosby and Kenneth W. Moilanen (Dept. of Environ. Toxicol., Univ. of California, Davis, CA)

Bull. Environ. Contam. Toxicol. 10, No. 6: 372-77 (Dec., 1973)

Chlorinated biphenyls were irradiated, and the reaction mixture was analyzed by GC on a 180 cm x 0.2 cm col. packed with 2% Carbowax 20M on 60-80 mesh Chromosorb G, operated at 150-250°C (programmed at the rate of 10°C/min). A thermal conductivity detector was used. Fractions were collected from the effluent gas in glass capillary tubes, purified by rechromatography, and their spectra compared with those of authentic specimens. For MS, the collected

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fractions were rechromatographed on a 180 cm × 0.2 cm col. packed with 2% OV-1 on 60-80 mesh Chromosorb G, operated at 150-250°C (programmed at the rate of 10°C/min), detected with a Finnigan 3000 MS detector. The chlorinated dibenzofurans were handled similarly, except that the GC col. contained 5% SE-30 (195°C, electron-capture detector) or 5% XE-60 (190°C, FID). The photodecomposition products were mainly of the reduced and hydroxylated type. No retention data.

89-88-61a-56c-54b-35b

No. 74-0925 0925

SOME CONSIDERATIONS OF THERMIONIC RESPONSE IN GAS CHROMATOGRAPHY

Shun Araki, Shigetaka Suzuki and Masaaki Yamada (Dept. Ind. Chem. Fac. Eng. Tokyo Metropol. Univ., Japan)

Bunseki Kagaku 22, No. 9: 1228-30 (Sept., 1973)(In Japanese)

The response of the thermionic detector (TCD) to hetero-organic compds. was studied by using four different types of detector. The effect of hetero-organic compds. on the ionization of alkali metals in the upper flame was investigated by using detector type A. Ion currents caused by ionization of alkali metals were measured in the presence or absence of certain hetero-organic compds. eluted from the col. The effect of hetero-organic compds. on the volatility of NaCl coated on a Pt-coil was investigated using detector types B, C, and D. The Pt-coil was heated by an electric current except when using detector type D. Enhancement of the volatility was estimated by measuring emission intensity of Na in the resonance line. Effects of a col. effluent, of its combustion products, and of chemical species produced during the combustion, on the volatility of NaCl were studied by using detectors type B, C, and D respectively. The results of the studies are tabulated, p. 1229-30.

91-89-81-67

No. 74-0926 0926

BUTYL ESTERIFICATION FOR SIMULTANEOUS DETERMINATION OF VOLATILE AND NONVOLATILE ORGANIC ACIDS BY GAS CHROMATOGRAPHY. STUDIES ON THE ANALYTICAL METHODS FOR ORGANIC ACIDS IN FOODS. PART IV.

Ichiji Yamashita, Taro Tamura, Seiji Yoshikawa and Shigeji Suzuki (National Food Res. Inst. Min. Agr. and Forestry, Tokyo, Japan)

Bunseki Kagaku 22, No. 10: 1334-41 (Oct., 1973)(In Japanese)

A method is presented for the simultaneous GC determination of volatile and nonvolatile organic acids. An aqueous solution of the acids is neutralized with NaOH and evaporated to dryness. The residue is esterified with a mixt. of butanol, concn. H_2SO_4 and anhydrous Na_2SO_4 and refluxed. After esterification, 5 ml water is added and the esters are extracted 4 times with n-hexane. The hexane layer is transferred to a flask containing n-dodecane as internal std. and the flask is filled to volume with n-hexane. All traces of H_2SO_4 and water are removed with anhydrous sodium carbonate. The hexane solution is then anal. by GC.

Instrument.: GC-4B
Detector: FID

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No. 74-0934 0934

AQUEOUS SOLUBILITY, ADSORPTION AND VAPOR BEHAVIOR OF POLYCHLORINATED BIPHENYL AROCLOR 1254

Rizwanul Haque, David W. Schmedding, and Virgil H. Freed (Dept. of Agr. Chem. and Environ. Health Sciences Center, Oregon State Univ., Corvallis, OR)

Environ. Sci. Technol. 8, No. 2: 139-42 (Feb., 1974)

The polychlorinated biphenyl Aroclor 1254 in water extract was analyzed by GC, using an 8 ft x 0.043 in., i.d., s.s. col. packed with 7% DC-11 on 100 120 mesh Chromosorb W HP, operated at 200°C with an electron-capture detector. Isomers containing different numbers of chlorine atoms respond differently to the electron-capture detector; thus, a correction was needed to quantitize the data. The differential response for the various chlorine-containing isomers was referenced relative to p,p'-DDE. The final concentration of polychlorinated biphenyls was determined by comparison to a known standard. Retention data: Chromatogram, p. 140.

89-61a-54b-48

No. 74-0935 0935

GAS CHROMATOGRAPHIC ANALYSIS OF C_8 - C_{18} HYDROCARBONS IN PARIS AIR

Alain Raymond and Georges Guiochon (Lab. de Chimie Anal. Physique, Ecole Polytechnique, Paris, France)

Environ. Sci. Technol. 8 No. 2: 143-48 (Feb., 1974)

GC/MS analysis revealed more than 70 peaks. The trapped hydrocarbons were analyzed on a 100 m x 0.4 mm, i.d., col. coated with OV-101, operated at 20-250°C (programmed at the rate of 2°C/min) with an FID. For identification purposes, the col. was coupled to a TSN 205 SE mass spectrometer (Thomson) in which the sweeping rate is one mass decade per second, the resolution is about 400 at mass 170, and the ionization voltage is 70 eV. The mass spectrometer is directly connected to a computer for real-time acquisition of the spectra. Retention data: Chromatograms, pp. 144-47.

91-90-89-88-78-70-64-54-53-52-51-35b

No. 74-0936 0936

RATE MODEL AND MECHANISM OF LIQUID-PHASE OXIDATION OF PROPIONALDEHYDE

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Ind. Eng. Chem. Fundamentals 13, No. 1: 9-17 (Feb., 1974)

The liquid-phase oxidation of propionaldehyde to propionic acid in the presence of manganese propionate catalyst in a sparged reactor was investigated. The reaction mixture was analyzed by GC, using the method described by the authors in (Indian J. Technol. 10, p. 183, 1972). The GCH-2 GC employed was equipped with a thermal conductivity detector and a 1 m x 6 mm, i.d., s.s. col. packed with silicone grease on Celite, operated at 130°C under a flow of hydrogen carrier gas. No retention data.

89-58b-56a

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No. 74-0940 0940

KINETICS OF THE OXIDATIVE DEHYDROGENATION OF BUTENE TO BUTADIENE OVER A FERRITE CATALYST

John S. Sterrett and Howard G. McIlvried (Gulf Res. and Develop. Co., Pittsburgh, PA)

Ind. Eng. Chem. Process Design Develop. 13, No. 1: 54-59 (Jan., 1974)

On-stream gas chromatographs provided an immediate analysis of the off-gas from the experimental setup in which butene was oxidatively dehydrogenated over a zinc-chromium ferrite catalyst. The two chromatographs provided complete analysis. In one chromatograph, a col. packed with 2-ethoxyethyl sebacate on Chromosorb P separated nitrogen plus oxygen, carbon dioxide, butene isomers, and butadiene. In the other chromatograph, a col. packed with molecular sieve partitioned nitrogen and oxygen. No retention data.

90-89-70-50-49

No. 74-0941 0941

BUTANE-1,4-DIOL FROM HYDROLYTIC REDUCTION OF FURAN

James M. Watson (Cosden Oil and Chem. Co., Big Spring, TX)

Ind. Eng. Chem. Prod. Res. Develop. 12, No. 4: 310-11 (Dec., 1973)

The preparation of butane-1,4-diol via the hydrolytic reduction of furan over Raney nickel catalyst was investigated. Reaction mixtures were analyzed by a GC equipped with an FID and a 3 ft x 3/8 in. glass col. packed with 3% OV-210 on 45-60 mesh a.w., DMCS-treated Chromosorb G. Product identifications were carried out by comparison of retention times and IR spectra of authentic materials. No retention data.

89-88-55c-35a

No. 74-0942 0942

THERMAL REACTION OF 1,5-HEXADIENE. MECHANISM PROPOSAL

Daisuke Nohara and Tomoya Sakai (Dept. of Chem. Reaction Eng., Fac. of Pharmaceutical Sciences, Nagoya City Univ., Nagoya, Japan)

Ind. Eng. Chem. Prod. Res. Develop. 12, No. 4: 322-25 (Dec., 1973)

The gaseous reaction products (including ethylene, propylene, 1-butene, butadiene, 1-pentene, cyclopentene, cyclopentadiene, 1,3,5-hexatriene, 1,3-cyclohexadiene, and benzene) were analyzed by GC. Two instruments, equipped with FIDs, were used. The capillary cols. (50-m) were coated with squalene and di-n-butyl maleate, respectively, and were operated at 50°C and 0°C. No retention data.

89-54a-52-50

No. 74-0943 0943

PHOTOREDUCTION OF 4,4'-DICHLOROBIPHENYL

Gerald D. Nordblom and Larry L. Miller (Dept. of Chem., Colorado State Univ., Fort Collins, CO)

J. Agr. Food Chem. 22, No. 1: 57-58 (Jan.-Feb., 1974)

Photolysis of 4,4'-dichlorobiphenyl at 3100 Å light yielded 4-chlorobiphenyl.

The reaction mixture was analyzed by GC using a Bendix 2110 instrument equipped with an electron-capture detector and a 6 ft x 1/4 in. Teflon-lined aluminum col. packed with 5% OV-1 on 60-80 mesh Chromosorb W, operated at 180°C under a carrier gas flow rate of 35 ml/min. Preparative collection was performed in an F & M Hewlett-Packard 5750 instr. equipped with a thermal conductivity detector and a 6 ft x 1/2 in. aluminum col. packed with 5% SE-30 on 60-80 mesh Chromosorb W, operated at 250°C under a carrier gas flow rate of 30 ml/min. MS was used to assist in the identification. No retention data.

89-88-61a-54b-35b

0944 No. 74-0944

INSECTICIDES IN THE TISSUES OF FOUR GENERATIONS OF RATS FED DIFFERENT DIETARY FATS CONTAINING A MIXTURE OF CHLORINATED HYDROCARBON INSECTICIDES

Mildred Adams (Nutrition Inst., Agr. Res. Service, USDA, Beltsville, MD), Francis B. Coon (Chem. Dept., WARF Inst., Inc., Madison, WI), and C. E. Poling (Res. and Develop. Center, Swift and Co., Oak Brooks, IL)

J. Agr. Food Chem. 22, No. 1: 69-75 (Jan.-Feb., 1974)

Tissue extracts were cleaned up and analyzed by GC for DDT, DDE, DDD, dieldrin, lindane, BHC, heptachlor epoxide, methoxychlor, and Perthane. The analyses were carried out in a Barber-Colman 5360 pesticide analyzer, equipped with a ^{90}Sr electron-capture detector and a 4 ft x 4 mm glass col. packed with 5% DC-200 on 80-100 mesh Crompert XXX, operated at 200°C under a nitrogen carrier gas flow rate such that p,p'-DDT had a retention time of 6-8 mins. No retention data.

89-61b

0945 No. 74-0945

GAS CHROMATOGRAPHIC ANALYSIS OF METHOMYL RESIDUES IN SOIL, SEDIMENT, WATER, AND TOBACCO UTILIZING THE FLAME PHOTOMETRIC DETECTOR

Robert G. Reeves and Donald W. Woodham (Plant Protection and Quarantine Programs, Brownsville, TX)

J. Agr. Food Chem. 22, No. 1: 76-78 (Jan.-Feb., 1974)

The dichloromethane extracts of soil, sediment, and water, and the dichloromethane/benzene extract of tobacco are analyzed for methomyl (S-methyl-N-(/methylcarbamoyl/oxythioacetimide; Lannate) by GC using a Tracor MT-220 instr. equipped with a flame photometric detector with a 394-micrometer sulfur interference filter and a 6 ft x 1/4 in., i.d., glass col. packed with 10% DC-200 on 80-100 mesh Chromosorb W HP, operated isothermally at 140°C under a nitrogen carrier gas flow rate of 80 ml/min. Linearity range was between 5.0 and 30.0 ng of methomyl; detection limit ranged from 0.05 ppm in soil, sediment, and tobacco to 0.01 ppm in water. Retention data: Chromatograms, pp. 77-78.

89-61b

0946 No. 74-0946

AN INTEGRATED METHOD FOR TRIFLURALIN, DIPHENAMID, AND PARAQUAT IN SOIL AND RUNOFF FROM AGRICULTURAL LAND

William R. Payne, Jr., and John D. Pope, Jr., and Jacquelyn E. Benner (Southeast Environ Res. Lab., U.S. Environ. Protection Agency, Athens, GA)

J. Agr. Food Chem. 22, No. 1: 79-82 (Jan.-Feb., 1974)

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products of retention time and peak height.

Instrument: Becker (Delft, Netherlands)
Detector: FID
Col. L/d: 4 m x 4 mm, i.d., Al col.
Stat. ph./concn.: (I) 15% LAC-1-R-296; (II) 15% Carbowax 400
Support/mesh size: (1) 60-80 mesh a.w. Chromosorb W; (II) 70-80 mesh a.w. DMCS Chromosorb W
Carrier gas/flow rate: N_2, 30 ml/min
Oper. temp.: Col. 60, injection 70, detector 120°C
Retention data: Chromatogram, p. 313
Compds. sepd.: (By peak component number):
4. acetaldehyde, dimethyl sulphide; 5. furan; 6. ethyl formate, 2-methylpropanal; 7. 2-propanone; 8. 2-methylfuran; 9. ethanol, ethyl acetate, 1,1-diethoxyethane; 10. 1-propanol, 2,3-butanedione; 12. 2-methyl-1-propanol, dimethyl disulphide; 13. unknown, 14. 3-methyl-1-butanol

89-63-48

No. 74-1042 1042

RESIDUE ANALYSIS OF CHLORINATED PESTICIDES AND POLYCHLORINATED BIPHENYLS IN FISH AND WATERS. REPORT NO. I
M. Eichner (Reg. Chem. Res. Inst. Offenburg, W. Germany)
Z. Lebensm. Untersuch. Forsch. 151, No. 6: 376-83 (1973)(In German)

GC was employed for the residue anal. of chlorinated pesticides and polychlorinated biphenyls (PCB) in fish and waters. The pesticides are extracted with n-hexane and the extract is purified. The purified extract is sepd. by GC using several cols. (Cols. A-D). In a case where the sample contains both chlorinated hydrocarbons and PCB's these are sepd. from each other on a Florisil col. The Florisil col. is eluted with 200 ml n-hexane, followed by 150 ml n-hexane-diethyl ether, 1:1. The hexane eluate (containing the PCB's) and the hexane-diethyl ether (containing the chlorinated hydrocarbons) are each anal. by GC on the 2% SE-30 col. employing an ECD.

Instrument: Hewlett-Packard dual col. Model 5750G
Detector: Dual FID (one of which is a P-detector Model 15110A) or ECD
Col. L/d: 2 m x 1/8 in., glass
Stat. ph./concn.: (I) 2% SE-30; (II) 5% SE-30; (III) 5% QF-1; (IV) 5% XE-60
Support/mesh size: Not specified
Carrier gas/flow rate: He, 50 ml/min
Oper. temp.: 210°C
Retention data: Chromatograms, p. 377-78.

89-64-61b-61a-54b

No. 74-1043 1043

COMPARISON OF FOUR METHODS OF ESTERIFICATION WITH THE FATTY ACIDS FROM "VERNIX CASEOSA" AS TEST SUBSTANCES
C. Reichmann, D. Jakobza, and P. Schulze (Hautklinik, Humboldt, Univ. (Charite), Berlin, Germany)
Z. Med. Labortech. 12, No. 5: 233-40 (1971)(In German)

MONS 206027