

Engl.). *J. Forensic Sci. Soc.* 1978, 18(1-2), 113-21. (Engl.).
The distribution of 13 elements in 48 samples of container glass was determined using a spark source mass spectrometer fitted with a detection. Fe, Mg, and Al were the most significant elements in differentiating windows from container glass. Elements were homogeneously distributed within a container. The elemental composition of glass produced at 4 factories consecutively was reasonably constant with time. The method may thus also be useful in identifying materials.

90-162786 The use of spark source mass spectrometry for the analysis and classification of small glass fragments. *Forensic Sci., Ser. 2*, 18(1-2), 113-21. (Engl.).
The analysis of glass fragments is a well-established technique. The classification of glass fragments is a more recent development. The classification procedure is then checked for these small particles. Casework applications of the classification scheme are discussed.

90-162785 Hygienic significance of an ion-exchange complex under conditions of dwelling houses and public buildings. *Gubershiy, Yu. D.; Imanolova, D. I. (Inst. Obshch. Kommunal. Gik. im. Sisyina, Moscow, USSR). Vestn. Akad. Med. Nauk SSSR* 1978, 18(1-2), 19-23. (Russian).
The results of the study of the natural radioactivity of the ion-exchange complex used in the premises where O_2 concentration exceeded the permissible levels and in animals which were exposed to chem. substances in concns. exceeding hygienic requirements and to artificial ozonation at the level of natural concns. of O_2 (18-20 mg/m³). Animals kept in an atm. containing 1500-2000/cm³ of light ions and 18-20 g O₂/m³ showed an increased immune potential and a higher tolerance to phys. loading.

90-162794 Identification of three sulfur-containing urinary metabolites of styrene in the rat. *Seiler, Berling, Franca; DeGroot, L. C.; Smoot, R. M.; Katarina, H. C. J. (Univ. Pharmacol., Univ. Nijmegen, Nijmegen, Neth.). Xenobiotica* 1978, 8(7), 413-18. (Engl.).
After administration of styrene (100-425 mg/kg daily for 3 wks, i.p.) to rats, 3 α -hydroxy, 3 β -hydroxy, and 3 γ -hydroxy metabolites were isolated and identified as 3 α -hydroxy-2-hydroxyphenylacetic acid (I) (14519-16-8), 3 β -hydroxy-2-hydroxyphenylacetic acid (II) (14519-16-8), and 3 γ -hydroxy-2-hydroxyphenylacetic acid (III) (14519-16-8). After a single dose of styrene (250 mg/kg) the totally excreted mercapturic acids in the urine amounted to 10.7% of the dose. I, II, and III were isolated in the ratio of 65:34:1.

90-162795 The effect of silver and lead on L-aminolevulinic dehydratase. *Meredith, Peter A.; Moore, Michael R. (Stubbell Chem. Hosp., Univ. Glasgow, Glasgow, Scot.). Biochem. Soc. Trans.* 1978, 6(4), 760-2. (Engl.).
Erythrocyte L-aminolevulinic dehydratase (EC 4.2.1.24) (1958-37-7) was measured in 25 Pb-exposed and 40 control subjects, and whole blood Pb and Zn concns. determined by flameless a.a. absorption spectrometry. Pb-exposed patients showed decreased erythrocyte L activity, associated with elevated blood Pb, compared to control patients. Nonlinear, least-squares regression anal. indicated that Zn does not affect the L activity at normal phys. concns. Extensive industrial exposure to Zn, or disease states resulting in elevated blood Zn levels, may affect the activity of L.

90-162796 Metabolism of dithioethers to formaldehyde and isocyanate. *Alford, R. A.; Anderson, M. (Dep. Pharmacol., Univ. Minnesota, Minneapolis, Minn.). Biochem. Pharmacol.* 1978, 27(16), 2021-5. (Engl.).
Metab. of dibromomethane (I) (74-96-3) by rat liver cytosol fractions yielded HCHO (80-08-0) and Br₂ as products; glutathione (II) (70-18-1) was a cofactor in this reaction. Kinetic studies showed that II on I was the last step in this reaction. The expected product of this reaction would be an S-bromomethyl-glutathione intermediate which should undergo a rapid hydrolysis to yield S-hydroxymethyl-glutathione (33260-87-0). This compd. was the hemiacetal of HCHO and II and provided a mechanism for the formation of HCHO from dibromomethane. It was required by this mechanism but was not consumed, and no primary isotope effect was seen when 1- d_2 was used. S-Hydroxymethyl glutathione was a substrate for hepatic NAD-dependent formaldehyde dehydrogenase (III) (33260-87-0), which converted the hemiacetal to II and HCHO. S-formyl-glutathione (3049-11-8), this being enzymically hydrolyzed to yield HCHO (80-08-0) and II. Thus, addn. of NAD-dependent HCHO yields with a concomitant increase in HCHO concn. Phosphate fractionation studies further substantiated the role of III in this biotransformation.

90-162800 The effect of polychlorinated biphenyls on plasma steroid levels and hepatic microsomal enzymes in fish. *Sivaraman, K.; Franklin, C. S.; Williams, W. P. (Chelston Coll., Univ. London, London, Engl.). J. Fish Biol.* 1978, 13(4), 403-9. (Engl.).
Arctic 1254 (11097-69-1) was administered (100 mg/kg bw) to rainbow trout, *Salmo gairdneri*, for 4 wks to trout and carp; arachis oil was used as the control.

Activities of the following hepatic microsomal enzymes, *aminopyrine demethylase* (30377-93-8), *p-nitroreductase* (3728-28-1), *UDP-glucuronyltransferase* and *1-leucyl-8-naphthylamidase* were measured in both species; *cytochrome P-450* (9035-51-2) and microsomal protein contents were also determined. The changes in the levels of androgens, estrogens and corticoid hormones were measured in the plasma, blood of androgen and corticoid treated groups at weekly intervals. Results indicated (a) a significant increase in the activities of all the enzymes measured except 1-leucyl-8-naphthylamidase, (b) *cytochrome P-450* and microsomal protein contents were increased in trout, but not in carp, (c) a significant reduction in the levels of androgens, estrogens and corticoid in the treated groups, particularly at the end of the 4th wk, and (d) there was a correlation between increased enzyme activities and a decrease in plasma hormone levels.

90-162801 Growth limitation of a coastal diatom by low zinc levels. *Anderson, M. A.; Morel, F. W. W. (Massachusetts Inst. Technol., Cambridge, Mass.). Nature (London)* 1978, 276(5683), 70-1. (Engl.).
The growth rate of *Thalassiosira weissflogii* in Zn-limiting conditions was determined by the Zn⁶⁵ activity ratio in the total Zn concn. The range of Zn⁶⁵ activity over which *T. weissflogii* grew at its max. rate spanned only 2 orders of magnitude (10^{-10} to 10^{-12} M). Thus, if any org. complexation of Zn occurred in unpolluted coastal water, growth of *T. weissflogii* could easily be limited by Zn deficiency in a polluted situation where the Zn concn. could attain 100-200 times its natural value growth could be impaired by Zn toxicity.

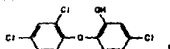
90-162802 Absorption, distribution, and excretion of triphenyltin acetate and stannic chloride in the guinea pig. *Nagamatsu, Kunihiko; Kido, Yasumasa; Urahako, Goro; Aida, Yoshitake; Ikeda, Yasuhiro; Suzuki, Yasuo. (Nat. Inst. Hyg. Sci., Tokyo, Japan). Nippon Eigaku Zasshi* 1978, 79(3), 486-96. (Japanese).
Percutaneous absorption of ¹¹⁵Sn-labeled triphenyltin acetate (I) (900-95-8) was studied in guinea pigs. Of the dose, 3.04% and 7.9% were absorbed through the skin and 16.3% and 12.4% were found in the applied area 1 and 2 days after application, resp. After a single s.c. injection of I-¹¹⁵Sn, the radioactivity was found in the liver, kidney, and brain in large amounts, though absorption from the injected site proceeded slowly. The body retention of radioactivity showed a half-life of 8.4 days, and ~83% of the dose was excreted in the feces within 20 days of dosage. The highest in the bone and kidney after a single s.c. injection of ¹¹⁵SnCl₄. No transfer to the brain was detected. Absorption from the injected site and excretion, whose main route was urinary, were greatly delayed. The bio. half time was estimated to be 29.5 days. Diphenyltin (II) (14519-16-8), monophenyltin (2406-48-0) were identified as the chem. forms of the radioactive compds. excreted in the feces after a single s.c. injection of I-¹¹⁵Sn.

90-162803 Comparative cytotoxic effects of hexavalent and trivalent chromium compounds on cultured cells. *Sasa, Nobuyuki; Furukawa, Yoshinori; Tsubaki, Seichi. (Sch. Anim. Sci., Kitazato Univ., Aomori, Japan). Jpn. J. Vet. Sci.* 1977, 39(3), 325-38. (Japanese).
After HeLa cells and rat embryo were preincubated in Eagle's min. essential medium at 37° for 1 day, the medium was changed to a fresh one containing a given concn. of Cr compd. Fifty percent inhibitory dose (ID₅₀ mg/mL medium) for cell growth was determined. ID₅₀ for Cr(VI) in the culture of HeLa cells were: Na₂CrO₄ 0.34, K₂CrO₄ 0.58, Na₂Cr₂O₇ 0.64, K₂Cr₂O₇ 0.70, and VCrO₄ 0.78. ID₅₀ for Cr(III) in HeLa cells were: CrCl₃ 4.0, CrCl₃ 8.2, Cr(NO₃)₃ 7.0, CrCl₃ 10.0, and CrBr₃ 15.00. ID₅₀ in the culture of rat embryo cells showed a similar trend.

90-162804 Lead detoxification by a copper-tolerant fungus. *Brown, B. R. (Dove Mar. Lab., Cultercoast, Engl.). Nature (London)* 1978, 276(5688), 388-90. (Engl.).
When Pb and Cu-tolerant *Aeridium mercuriale* from the Hayle river (cont. 0.10-0.25 mg Cu/L and <0.01 mg Pb/L) and Pb-tolerant organisms from the Gannell river (cont. 0.19-0.35 mg Pb/L and 0.01-0.04 mg Cu/L) were exposed to solns. cont. Cu or Pb or Cu + Pb, the uptake of Cu by Hayle animals was considerably reduced by the addn. of increasing levels of Pb, and uptake of Cu by Gannell animals was lower than that of Hayle animals and was apparently unaffected by addn. of increasing concns. of Pb. Pb uptake by the Gannell population was lower than that of the Hayle. With cont. Pb and increasing Cu levels, uptake of Pb by Hayle animals was reduced at higher concns. and uptake of Cu was not as marked as uptake in the 1st exp., suggesting that Pb may be more preferentially bound than Cu. Pb uptake by the Gannell population was unaffected by increasing Cu concns. and Cu uptake was low compared with that of Hayle animals. Thus, in Cu-tolerant, lead-resistant, tolerant to copper tolerance to Pb. Pb was present only in the cuproproteins of the hepatopancreas of exposed animals and is probably more readily bound than Cu, which was released into the lumen of the hepatopancreas. Cu-tolerant invertebrates from the Hayle can apparently detoxify Pb by storing the metal in the cuproproteins at the expense of Cu.

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NONS

- Science Spectrum, Inc.) Brit. 1,515,881 (Cl. G01N21/24), 28 Jun 1978, US Appl. 468,992, 10 May 1974; 30 pp. A differential light scattering app. is described for testing the sensitivity or susceptibility of bacteria to antibiotics. The log of the intensity of radiant energy scattered at a no. of angular locations was measured and compared with controls to give a differential scattering pattern. Thus, exponential-phase bacterial samples were incubated with a variety of antibiotics at differential concns., diltd. with water and subjected to differential light scattering; min. inhibitory concns. of 0.02, 0.05, 0.05, and 0.002 µg/ml, were detd. for tetracycline (80-84-8), neomycin [1404-04-2], streptomycin [57-82-1], and penicillin [61-33-6], resp.
- 90:38047b Synergistic microbiocidal composition. Polony, Rudolf; Raueche, Adolf; Heizer, Fritz (Ciba-Geigy A.-G.) Swiss 604,523 (Cl. A01N5/26), 15 Sep 1978, Appl. 75/18,278, 15 Dec 1975; 5 pp. The antibacterial effects of halogenated



hydroxydiphenyl ethers, such as 2,4,4'-trichloro-2'-hydroxydiphenyl ether (I) [3380-34-5], for *Pseudomonas aeruginosa* were synergistically enhanced by the presence of anionic surfactants.

For papers of related interest see also Section:

- 1 97342g Biologically active thiazolidinones.
1 97450r Effect of 5-ascytidine on simian virus 40 DNA replication.
97492f Activity of derivatives and analogs of dapsone against *Mycobacterium leprae*.

4-TOXICOLOGY

Available in the computer-readable files Chemical, Biological Activities (CBAC), Food and Agricultural Chemistry, and Ecology and Environment

- 90:38048c Neurobiology of lithium. Navon, Sofia (Fac. Med., Univ. Buenos Aires, Buenos Aires, Argent.). *Medicina (Buenos Aires)* 1978, 38(1), 93-104 (Span). A review with 15 refs.
- 90:38049d General summary and conclusions [to the health effects of PCBs and PBBs]. Kolbye, A. C., Jr. (Bur. Environ. Res. Div., U.S. Environ. Prot. Agency, Wash., D.C.). *Environ. Health Perspect.* 1978, 24, 191-8 (Engl). A review with 68 refs. on the health effects of polychlorinated and polybrominated biphenyls.
- 90:38050e Genetic control of enzyme activities in relation to individual differences in cancer risk. Nebert, Daniel W. (Natl. Inst. Child Health Hum. Dev., NIH, Bethesda, Md.). *Biochem.* 1978, 1019-28 (Engl). A review with 35 refs.
- 90:38051f Early metabolic alterations in pulmonary tissue following administration of toxic agents. Karcow, S.; Narbaitz, R. (Fac. Med., Univ. Ottawa, Ottawa, Ont.). *Fed. Proc., Fed. Am. Soc. Exp. Biol.* 1978, 37(11), 2489-95 (Engl).



- A review with 44 refs. on changes in lung morphol. and metab. following the administration of Pb, Cd, chlorophenylmercuric (I) [661-18-3], and phenylmercuric [122-66-8].
- 90:38052a Ecotoxicological aspects of the European Environmental Action Programme. Smeets, J. (Div. Prev. Pollut. Nuisances, Air Chem. Subst., Comm. Eur. Communities, Brussels, Belg.). *Ecotox. Environ. Saf.* 1978, 2(2), 143-80 (Engl). A review discussion with no refs. on environmental pollutants and their potential risks to humans.
- 90:38053a Chemical and biological implication of organic compounds formed in simulated and real urban atmospheres. Pitts, James N., Jr. (Dep. Chem., Univ. California Statewide Air Pollut. Res. Cent., Riverside, Calif.). *Ecotox. Environ. Saf.* 1978, 2(2), 199-217 (Engl). A review with many refs. on the formation and fate of several nitrogenous org. compds. in real and simulated urban atm. and the mutagenic properties of ambient org. particulates.
- 90:38054b Use of structure-activity analysis in toxicology. Lamm, W. (Inst. Wirkstoffforsch., DAW, Berlin, E. Ger.). *Arch. Exp. Veterinarmed.* 1978, 32(4), 579-84 (Ger). A review with 32 refs.
- 90:38055c Conformational analysis in QSAR investigations. Hopfinger, Anthony J. (Case West. Reserve Univ., Shaker Heights, Ohio). *DJXW Publ. (EIA)* (U. S.) 1977 (Pub. 1978). FDA 78 1046, Struct. Correl. Carcinog. Mutagen., 74-81 (Engl).

- A review and discussion with 15 refs.
- 90:38056d Changes in the respiratory tract due to paragonimiasis. Firlik, Mieczyslaw (Akad. Med., Poznan, Pol.). *Med. Pr.* 1978, 29(4), 325-8 (Pol). A review with 18 refs.



- covering pathogenesis and pathomorphol. of respiratory tract changes in people poisoned with parathion (I chlorides) [1910-42-5]. J. Giesler
- 90:38057e Biochemistry and physiology of the effect of sulfur dioxide on plants. Ziegler, Irmgard; Ziegler, W. (Inst. Biochem. Ges. Strahlen-Umweltforsch., Munich, Ger.). *VDI Ber.* 1978, 314, 219-23 (Ger). A review with 17 refs.
- 90:38058f Drugs for suppression of alcohol. Barncard, D.; Royer, R. J. (Serv. Toxicol., Cent. Hosp. Univ. Nancy, Nancy, Fr.). *Ann. Med. Nancy* 1978, 17(Oct.), 1187-8, 1191-2, 1194-6 (Fr). A review with 19 refs. mainly emphasizing the clin. use and the mechanism of action of disulfiram [97-77-8] in the treatment of alcoholism.
- 90:38059g A review of recent literature on lead poisoning. I. Analytical methods for lead in biological materials. Horieuchi, Shunichi; Shingawa, Kazuo; Kiyota, Ikuko (Dep. Prev. Med. Public Health, Osaka City Univ. Med. Sch., Osaka, Japan). *Sumitomo Sangyo Eisei* 1978, 14, 29-34 (Japan). A review with 48 refs.
- 90:38060a Methodological aspects of post-mortem investigations of human brain with special reference to monoamines and related enzymes. Adolfsson, R.; Gottfries, C. G.; Winblad, B. (Dep. Psychiatry, Univ. Umea, Umea, Swed.). *Neuro-Psychopharmacol., Proc. Congr. Coll. Int. Neuro-Psychopharmacol.* 10th 1976 (Pub. 1978), 2, 1397-404 (Engl). Edited by Deniker, Pierre; Radouco-Thomas, C.; Vilhenaux, André; Pergament, Oxford, Engl. A review with 32 refs.
- 90:38061b Distal axonopathy: one common type of neurotoxic lesion. Spencer, Peter S.; Schaumburg, Herbert H. (Rise F. Kennedy Cent., Albert Einstein Coll. Med., Bronx, N. Y.). *Environ. Health Perspect.* 1978, 28, 97-105 (Engl). A review with 18 refs. on neurotoxic compds. and distal axonopathy.
- 90:38062c Strategy for the assessment of neurobehavioral consequences of environmental factors. Tilson, Hugh A.; Caba, Patrick A. (Lab. Behav. Neurol. Toxicol., Nat. Inst.