

These stds. were adequate to fulfill their function in preventing excessive intake.

106: 55130e Influence of methane coexistence on propagation of coal dust explosion. Tominaga, Toshio; Uchida, Satauki; Kiyono, Fumio; Komai, Takeshi; Ogata, Yuuji; Chi, Shinto; Wan, Chin; Matsuura, Shigeo; Ise, Takehiro (Kyushu Seitoku Kozan Gijutsu Kenkyu Cent., Japan). *Saiko to Hoan* 1986, 32(7), 349-57 (Japan). Flame propagation velocity, flame propagation length, and the pressure of coal dust explosions were studied to clarify the effect of the coexistence of 4% CH₄ [74-82-8]. An enclosed explosion chamber of 3.5 L in capacity was used to measure the max. explosion pressure. Seven kinds of coal dust from Chinese coal and one from Japanese coal were used in the expt. The min. limit of coal dust concn. at which an explosion can propagate through the model gallery decreases with the presence of CH₄ gas in the gallery atm. The flame propagation length become longer and the flame propagation velocity higher in comparison to an atm without CH₄. The max. pressure of the coal dust explosion in the enclosed explosion chamber become higher due to the presence of CH₄.

106: 55131f Personal exposures, indoor and outdoor air concentrations, and exhaled breath concentrations of selected volatile organic compounds measured for 600 residents of New Jersey, North Dakota, North Carolina and California. Wallace, Lance A. (Energy Environ. Pol. Cent., Harvard Univ., Cambridge, MA 02138 USA). *Toxicol. Environ. Chem.* 1986, 12(3-4), 215-36 (Eng). Exposures to 20 volatile org. compds. were measured in personal air, outdoor air, drinking water, and breath of 600 residents of New Jersey, North Carolina, North Dakota, and California. Participants were selected randomly to represent 700,000 inhabitants of 7 cities. Participants carried a personal monitor to collect two 12-h air samples and gave a breath sample at the end of the day. Two consecutive 12-h outdoor air samples were also collected on identical Tenax cartridges in the backyards of some of the participants. Of the 7500 samples collected, 2000 were quality control samples. Eleven compds. were often present in air. Personal exposures were consistently higher than outdoor concns. Indoor sources appeared responsible for much of the difference. Breath concns. also usually exceeded outdoor concns. and correlated more strongly with personal exposures than with outdoor concns. Some activities (e.g., smoking, visiting dry cleaners or service stations) and occupations (e.g., in chem., paint, and plastic plants) were assoc. with significantly elevated exposures and breath levels for certain toxic chems. Residence near major point sources did not affect exposure.

106: 55132g Mortality study of PVC manufacturers in Italy: design of the study and first results. Balli, Stefano; Comba, Pietro; Reggiani, Antonio; Pirastu, Roberto; Bertazzi, Pier Alberto; Foa, Vito; Maltoni, Cesare; Masina, Alceste; Vigotti, Maria Angela (Ist. Sup. Sanita, Confinati, Romi, Italy). *Acqua Aria* 1986, (9), 983-8 (Ital). A cohort study is described of the mortality and exposures of 5000 poly(vinyl chloride) (PVC) [9002-86-2] manufg. workers in 9 Italian plants. Results are presented for 3 plants representing ~25% of the total cohort. In Ferrara, a statistically significant excess of deaths, in comparison with the Italian population mortality, from lung cancer and all malignant tumors was detected, and the best pathol. evidence indicated 4 liver tumors. In Rosignano and Ravenna, the no. of obsd. deaths was small and no conclusions can be drawn about cancer mortality.

106: 55133h Headspace gas-chromatographic method for determination of benzene in blood; the basis for a biological monitoring procedure. Kersting, Helma; Heberer, H. (AHZ Chem., DDR-4220 Leuna, Ger. Dem. Rep.). *Z. Gesamte Hyg. Ihre Grenzgeb.* 1986, 32(9), 552-5 (Ger). The detection limits of a headspace gas chromatog. C₆H₆ [71-43-2] detn., for occupational health control of workers exposed to C₆H₆, are 100nM C₆H₆/L blood for manual sample injection and 25nM/L for automatic injection. The precision of C₆H₆ detn. was 5-15% (at 100-32,000nM/L blood) and 4-10% (at 25-30,000nM/L blood) for manual and automatic sample injection, resp. The method is also applied for the detn. of other solvents (e.g. PhMe [108-88-3]) in blood.

106: 55134j Environmental and occupational exposure to inorganic arsenic. Vahter, Marie (Natl. Inst. Environ. Med., Stockholm, Swed.). *Acta Pharmacol. Toxicol., Suppl.* 1986, 59(7), 31-4 (Eng). In humans, As is excreted in the urine as inorg. As(III) and As(V) compds., methylarsonic acid (I) [124-58-2], and dimethylarsonic acid (II) [75-60-5]. The concns. of these compds. in the urine of workers exposed to As₂O₃ at a nonferrous smelter were higher than in the general population, but the ratios of I and II to inorg. As were similar, suggesting that methylation is not satd. at the exposure levels of smelter workers.

106: 55135k Synergistic neurotoxicity of carbon tetrachloride/carbon disulfide (80/20 fumigants) and other pesticides in grain storage workers. Peters, Henry A.; Levine, Rosa L.; Matthews, Charles G.; Sauter, Steve; Chapman, Larry (Dep. Neurol., Univ. Wisconsin, Madison, WI USA). *Acta Pharmacol. Toxicol., Suppl.* 1986, 59(7), 535-46 (Eng). Dysfunctions of peripheral axons, the auditory nerve, the optic nerve, and the extrapyramidal system among grain storage workers occupationally exposed to CCl₄ and CS₂ are CS₂-dose-related. The chelating ability of diethyl dithiocarbamate [147-84-2] derived from CS₂ and its ability to increase Cu and Zn within the central nervous system

suggest Cu intoxication and may explain the extrapyramidal symptoms. Synergism of CS₂ and CCl₄ in the prodn. of neurotoxic symptoms cannot be ruled out.

106: 55136m Emergency systems, their application and their implementation. Von Brecht, Richard; Clark, Steve; Scharringhausen, Don (M. W. Kellogg Co., Houston, TX 77046-0395 USA). *Adv. Instrum.* 1985, 40(2), 1201-10 (Eng). The recommendations are given for designing, application, and implementation of practical, reliable, and safe emergency systems to provide safety and protection of equipment and processes. The guidelines for providing safe and reliable combustion safety controls for gas-fired burners on furnaces and heaters are also presented.

106: 55137n Microprocessor-based safety systems designed for fire and gas and emergency shutdown applications. Wilkinson, James A.; Balla, Basil W. (Ind. Control Serv. Ltd., Maldon/Essex, UK). *Adv. Instrum.* 1985, 40(2), 1211-21 (Eng). The use of programmable controllers in safety systems designed for monitoring of hazards caused by accidental release of flammable or toxic materials is discussed with regards to elimination of unrevealed, or fail-danger faults. A fault-tolerant microprocessor-based safety system designed using safety engineering principles is described. Modular hardware and software used in the system enable flexible application without impairing the 99.999% availability of the safety system.

106: 55138p Role of expert systems in disaster prevention. Rajaram, N. S.; Tschae, Haile (Ind. Eng. Dep., Univ. Houston, Houston, TX 77004 USA). *Adv. Instrum.* 1985, 40(2), 1471-4 (Eng). The feasibility of improving industrial plant operation safety by incorporating expert systems for automatic control of information processing functions, esp. those dealing with emergency situations, is discussed and demonstrated by the use of a prototype ESCPEM (Expert System for Chem. Plant Emergency Management) system. The ESCPEM system deals with feedstock failure, circulating gas failure, coolant failure, fuel system failure, and instrumentation air failure. The system is interactive and leads the user through a question and answer session and states its conclusion.

106: 55139q Asthma caused by isocyanates. Baur, X. (Med. Klin., Univ. Muenchen, D-8000 Munich, 70 Fed. Rep. Ger.). *Allergologie* 1986, 9(11), 487-96 (Ger). Epidemiol. survey showed recurrent exposure-related asthma attacks and chronic pulmonary obstruction among isocyanate-exposed workers. In some cases there was evidence of hypersensitivity pneumonitis. IgE-mediated sensitization was detected by skin and radioallergen sorbent tests in ~14% of symptomatic workers. The most reliable diagnoses of isocyanate-induced bronchopulmonary diseases were obtained by the TD₀₁ [26471-42-5]-provocative test.

106: 55140h Relation between pathological grading and lung fiber concentration in a patient with asbestosis. Gylbeth, B.; Skaug, V. (Inst. Occup. Health, 0033 Oslo, 1 Norway). *Br. J. Ind. Med.* 1986, 43(11), 754-9 (Eng). The fiber concn. and extent and severity of fibrosis were analyzed in 48 specimens from the left lung of a patient with asbestosis. Two different methods of fiber anal. were used. The results obtained by transmission electron microscopy were 2-2.5 times higher than those obtained by SEM. Low-temp.-ashed samples showed on av. twice the no. of fibers after wet digestion. The transmission electron microscope detected considerably shorter fibers than the scanning electron microscope. Low-temp. ashing also produced shorter fibers compared with the wet-digestion procedure. A statistically significant correlation between fiber concn. and the grade of fibrosis was found only for low-temp.-ashed samples analyzed using the transmission electron microscope. Dividing the lung into 9 anatomical compartments and pooling the grade of fibrosis and the fiber concn. data within each compartment produced better correlation.

106: 55141j Formaldehyde and the risk of squamous cell carcinoma of the sinonasal cavities. Olsen, J. H.; Aanaes, S. (Danish Cancer Society, Inst. Cancer Epidemiol., Copenhagen, DK-2100 Den.). *Br. J. Ind. Med.* 1986, 43(11), 769-74 (Eng). A study of histol. verified cancers of the nasal cavity, paranasal sinuses, and nasopharynx, and cancer controls diagnosed in Denmark between 1970 and 1982 was conducted to det. the importance of occupational exposure to HCHO [50-90-0]. Information on job history for cases and controls was derived from a national data linkage system and exposure to HCHO and wood dust was assessed by industrial hygienists unaware of the case-control status of the patients. The exposure rates for HCHO among male and female controls were 4.2% and 0.1%, resp. After proper adjustment for contemporary wood dust exposure, relative risks of 2.3 for squamous cell carcinomas and 2.2 for adenocarcinoma of the nasal cavity and paranasal sinuses were detected among men who have ever been exposed to HCHO in their job compared with those never exposed. The introduction of a 10 yr latency period did not change the risk ests. substantially. It was considered unlikely that the results were due to bias or misclassification of exposure although the effect of change could not be excluded.

106: 55142k Occupational factors and pancreatic cancer. Norell, S.; Ahlborn, A.; Olin, R.; Erwald, R.; Jacobson, G.; Lindberg-Navier, I.; Wiechel, K. L. (Dep. Epidemiol., Natl. Inst. Environ. Med., Stockholm, Swed.). *Br. J. Ind. Med.* 1986, 43(11),

CIS 86-677 Sampling and analytical methods for the determination of monochloroacetic acid in air. Mason DW Dillon H K Glaser RA. *American Industrial Hygiene Association Journal* Jan 1986 Vol 47 No 1 p 14-21 Illus 9 ref (In English)

Monochloroacetic acid (MCA) is collected on silica gel, desorbed with water and analysed by ion chromatography. The method has been validated in the concentration range of 0.35 to 29mg/m³ in 3L air samples. The capacity of the silica gel tubes allows for up to 8h of sampling at concentrations < 40mg/m³. There are no significant interferences from glycolic acid, dichloroacetic acid, trichloroacetic acid, fluoride or chloride compounds or water vapour. The effects of temperature, humidity, sample storage time and analytical parameters were minimal. (45804)

CIS 86-678 Evaluation of an ISO draft proposal for sampling and analysis of chlorinated hydrocarbon solvent vapors in workplace atmospheres. Spee T. *American Industrial Hygiene Association Journal* Jan 1986 Vol 47 No 1 p 27-36 Illus 8 ref (In English)

The ISO proposed method (ISO/TC 146/SC 2/WG4 N41) was evaluated by means of a round-robin test. Samples were taken by 11 participants in 6 countries. A statistical evaluation of the results showed that improvements were necessary for the determination of tetra- and trichloromethane. For the other 3 compounds (1,1,1-trichloroethane, trichloroethylene, tetrachloroethylene) repeatability and reproducibility were sufficient. Possible error sources and possibilities of improving the method are discussed. (45806)

CIS 86-679 A solid sorbent air sampling and analytical procedure for methyl-, dimethyl-, ethyl-, and diethylamine. Elskamp C J, Schultz G R. *American Industrial Hygiene Association Journal* Jan 1986 Vol 47 No 1 p 41-49 Illus 11 ref (In English)

The title compounds are collected using sorbent tubes containing Amberlite XAD-7 resin coated with the derivatising agent 7-chloro-4-nitrobenzo-2-oxa-1,3-diazole and analysed by high pressure liquid chromatography with a fluorescence and/or UV/visible detector. All 4 amines can be monitored simultaneously and neither collection nor storage is affected by humidity. Samples are stable at room temperature for at least 2 weeks. The method is valid for concentrations ranging from 0.5 to 30ppm, based on a 10L air sample volume. (45807)

CIS 86-680 Health effects of nitrogen dioxide and oxidants. Lindvall T. *Scandinavian Journal of Work, Environment and Health* 1985, Vol 11, suppl.3, p.3-9 59 ref. (In English)

This document is intended to serve as a basis for establishing Swedish air quality standards. The minimum adverse effect level for human short-term exposure is estimated to be 900µg/m³ for nitrogen dioxide and 200µg/m³ for ozone. These values should be lower for sensitive persons. Large safety factors should be added to these values before they are used for air pollution control purposes. (45819)

CIS 86-681 Evaluation of exposure levels of vanadium in 3 groups of workers by urinary vanadium monitoring. (Evaluation de l'intensité d'exposition au vanadium de 3 groupes de travailleurs par le dosage du vanadium urinaire). Buchet J.P., Lauwerys R., De Maere E., Desloovere J., Casier P. *Cahiers de médecine du travail - Cahiers voor arbeidsgeneeskunde* 1985, Vol.22, No.4, p.247-254. Illus. 10 ref. (In French)

This study involved 3 groups of workers with potential exposure to vanadium: I - 11 men whose work included chimney sweeping and the maintenance of domestic oil heaters; II - 17 men exposed to vanadium dust used in the manufacture of special steels; III - Subjects whose work involved the maintenance of an oil furnace in a thermal power station. The largest absorption of vanadium was among workers in group II. Vanadium contamination of the air in the power station during furnace maintenance was considerable (more than 50% of the measurements by personal samplers showed air concentrations of more than 70µg/m³), but appropriate preventive measures led to very low levels of vanadium absorption by the workers. Workers in group I did not seem to be exposed to significant levels of vanadium. (45829)

CIS 86-682 Isotachophoretic determination of thiodiglycolic acid in the urine of persons exposed to vinyl chloride. (Izotachoforetické stanovení thiodiglykolové kyseliny v moči u lidí exponovaných vinylchloridu). Křivánková L., Boček P., Samcová E. *Pracovní lékařství* May 1984, Vol.36, No.5, p.163-165. Illus. 6 ref. (In Czech)

The vinyl chloride metabolite thiodiglycolic acid can be determined by applying untreated urine samples (5µL) to the columns of a commercial isotachopheresis apparatus. The method is suitable for exposure tests. In the urine of exposed persons, concentrations were 1.65-7.45µmol thiodiglycolic acid/mmol creatinine. In non-exposed persons concentrations were ≤3.0µmol/mmol creatinine. (45836)

CIS 86-683 Nordic Expert Group for Documentation of Threshold Limit Values - 55. Acrylonitril. (Nordiska expertgruppen för gränsvärdesdokumentation - 55 Akrylonitril). Alexander J. Arbete och Hälsa 1985:4. Arbetskyddsstyrelsen. Publikationsservice 171 R4 Solna, Sweden 1985.

The acute toxicity of acrylonitrile is relatively high in tests on animals. The first acute symptoms produced at low concentrations include eye irritation, sneezing, headache, nausea, weakness and vomiting. Acute exposure to higher concentrations causes profound weakness, respiratory distress and asphyxia. Acrylonitrile can be absorbed through the skin. Metabolism of acrylonitrile liberates cyanide. Acrylonitrile is teratogenic in rats and hamsters. Acrylonitrile is mutagenic, induces breaks in DNA strands and causes unscheduled DNA synthesis, sister chromatid exchange and cell transformation. Acrylonitrile is carcinogenic in rats. Epidemiological studies of workers exposed to acrylonitrile supply limited, although consistent, evidence of carcinogenicity in human. Thus, the carcinogenic properties of acrylonitrile should be the biological effects used in establishing an occupational exposure limit. (45838)

CIS 86-684 Sulfur dioxide or sulfurous anhydride. (Dioxyde de soufre ou anhydride sulfureux). *Promosafe* Mar-Apr 1985 Vol 12 No.2 p 167-181 34 ref (In French)

This gas is colourless, asphyxiating, toxic and has highly irritant properties. As one of the most widespread and dangerous atmospheric pollutants, it has been chosen by specialists to serve as the reference pollutant. Aspects covered in this data sheet: identification, production, uses, pollution sources, physical and chemical properties, detection and determination in air and at the emission level, explosion and fire risks, health risks, damage to vegetation and materials, regulations in effect in Belgium, emergency measures, medical supervision, preventive measures. (45842)

CIS 86-685 Ethylene oxide. (Oxyde d'éthylène). De Craecker W. *Promosafe* May-June 1985 Vol 12 No 3 p.265-276 Illus 34 ref (In French)

Technical data sheet. Ethylene oxide is a highly flammable and explosive gas that has already caused major accidents. It is included in the EEC Seveso Directive, which became effective in Belgium on 1 Feb. 1985. Recent discoveries indicate that the substance is more toxic than previously thought, and that it has mutagenic and carcinogenic properties, leading occupational hygienists to recommend a lowering of the TLV from 10 to 1ppm. The introduction, in the near future, of a Belgian standard on the safe utilisation of ethylene oxide for sterilisation in medicine will contribute to its safe use. (45844)

CIS 86-686 Vinyl chloride. (Chlorure de vinyle). *Promosafe* Sep.-Oct 1985, Vol.12, No 4, p.364-376. Illus. 48 ref. (In French)

Vinyl chloride, used heavily in the plastics industry, is carcinogenic, inflammable and toxic. Aspects treated in this technical information note: preparation, uses, physical and chemical properties, detection and determination, explosion and fire risks, health hazards (acute and chronic poisoning, carcinogenicity, teratogenicity, mutagenicity), emergency measures, medical supervision, Belgian regulations, recommendations for storage, handling of the product and waste disposal. (45847)

CIS 86-687 Evaluation of the carcinogenic risk of chemicals to humans. Alkyl compounds, aldehydes, epoxides and peroxides. IARC Monographs 36. International Agency for Research on Cancer, 150 cours Albert Thomas, 69372 Lyon Cedex 2, France, Feb. 1985, 369p. Illus. Bibl. Price: US\$25.00; SF.70.00. ISBN 92-832-1236-3 (In English)

Conclusions of a meeting of experts (Lyon, France, June 1984). There is limited or inadequate evidence for the carcinogenicity of alkyl chloride, alkyl isothiocyanate, alkyl isovalerate and eugenol in animals; in the absence of epidemiological data, no evaluation of human carcinogenicity could be made. There is sufficient evidence that acetaldehyde is an animal carcinogen, but inadequate evidence of its carcinogenicity in humans. Evidence of the carcinogenicity of acrolein and malonaldehyde in animals or humans is inadequate or absent. There is sufficient evidence for the carcinogenicity of diglycidyl resorcinol ether, ethylene oxide, propylene oxide and styrene oxide in animals, but only ethylene oxide can be identified as "probably carcinogenic" in humans. Evidence of the carcinogenicity of benzoyl, hydrogen and lauroyl peroxides is limited or inadequate for animals and inadequate or absent for humans. (45857)

CIS 86-688 International symposium on occupational exposure limits. ACGIH Annals Vol.12. American Conference of Governmental Industrial Hygienists, 6500 Glenway Avenue, Building D-5, Cincinnati, OH 45211, USA, 1985, Vol.12, 389p. Illus. Bibl. ISBN 0-936712-62-7 (In English)

Proceedings of a symposium held in Copenhagen, Denmark, on April 16-19, 1985 and sponsored by the ACGIH, WHO and Novo Industri A/S. Aspects covered: ACGIH TLVs, their background, current developments, impact; development of occupational exposure limits in Europe; exposure limits for short and extended work intervals and for special compound classes; special problems in using airborne exposure limits; exposure limits for physical agents. The proceedings of activities in 3 workshops on airborne exposure limits, biological exposure indices and exposure limits for physical agents are also included. (45859)

CIS 86-689 The role of early detection in the prevention of occupational disease - A review of work in the People's Republic of China. Gu X. *Scandinavian Journal of Work, Environment and Health* 1985, Vol.11, suppl.3, p.1-10 10 ref. (In English)

Clinical, statistical and comparative studies of 145 cases of vibration disease and 60 controls. A positive correlation was found between the elbow-joint disorders and the patients' ages in both groups, which implies that the elbow-joint disorder will in no case fall under the category of vibration-specific disorder. In addition, no remarkable correlation was recognised between spasmodic albedo (whiteness), elbow-joint disorder and age distribution. The incidence of abscess was 14 cases (9.6%) in the vibration-affected group and 1 case (1.67%) in the control group. The disorder as such cannot be regarded as specific to vibration disease, but it can be useful information for diagnosis. (46301)

CIS 86-1084 Case of multiple myeloma in a vinyl chloride polymerization worker. Sakakibara F., Kawamura T., Fukumura A. *Japanese Journal of Traumatology and Occupational Medicine*, Oct. 1984, Vol.32, No.10, p.737-740. Illus. 9 ref. (In Japanese)

Case report of a 50-year-old male with multiple myeloma. The patient had been engaged in the cleaning of vinyl chloride polymerisation chambers in a chemical factory from Nov. 1964 to Aug. 1968. He was hospitalised in Nov. 1981 because of a compression fracture of a thoracic-lumbar vertebra, and marked hyperproteinemia was found on admission. IgG-kappa type M-protein was detected by electroimmunodiffusion. He was treated with recombinant alpha interferon followed by melphalan, cyclophosphamide, vincristin and prednisolone, and has been fairly well maintained for 4 years. (46304)

CIS 86-1085 A study on residues of organochlorine pesticides and PCBs in the human body. Takamatsu M., Oki M., Maeda K., Suenaga T., Sakurai T., Yamada T. *Journal of the Japanese Association of Rural Medicine*, July 1984, Vol.33, No.2, p.153-158. Illus. 10 ref. (In Japanese)

The BHC (lindane), DDT and PCB (polychlorinated biphenyl) levels in the plasma of 127 farmers in Japan and 21 in China were examined. β -BHC, pp'-DDT and pp'-DDE were detected in all of these specimens. Regional differences in the Japanese residual level were found, and the Japanese levels were lower than the Chinese. These differences seem to be related to the history of the use of BHC and DDT. PCBs were detected in all of the Japanese (1.1-22.8ppb in the plasma), whereas the PCB levels of 15 Chinese women were <1ppb and some Chinese men showed high PCB levels. (46308)

CIS 86-1086 Changes in the functional state of the visual analyser in female workers checking ampoules (Promeni vav funkcionalnoto sastojanje na zritelija analizator pri kontroliorki na ampuli). Kojčeva V., Rizova R., Zlateva V. *Problemi na Higijena*, July 1984, Vol.9, p.9-16. 5 ref. (In Bulgarian)

The state of the visual analyser and its functional changes due to the work performed were studied in 60 female workers engaged in checking the quality of ampoules in a pharmaceutical plant. There was a high percentage of complaints about the visual system as well as high visual strain at the end of the working day, due to the small size of the objects to be checked and the irregular illumination of the visual field, as well as to the high rate of work. Pathological changes were found in the anterior segment and the fundus of the eye in a great number of the workers. It is recommended that workers have thorough eye examinations before employment and at regular intervals thereafter, and that workers be given a 10min break every 2h (away from the workplace if possible). (46315)

CIS 86-1087 Changes in some biochemical indices in workers exposed to vinyl chloride and dichloroethane (Promeni v njakoi biokemični pokazatelji pri delavcih izpostavljenih na vinilhidrid i dichloroetan). Spasovski M., Stančev S., Nosko M., Zlatev Z., Popov T. *Problemi na Higijena*, July 1984, Vol.9, p.50-58. 4 ref. (In Bulgarian)

Laboratory investigations were carried out on 280 workers exposed to vinyl chloride (VCh) and dichloroethane. Some haematological indices and liver function were examined. The significance of elevated transaminase and transpeptidase levels as a diagnostic sign of VCh disease was confirmed. An inhibitory effect of VCh on the mixed-function oxidases in the exposed workers was observed for the first time. A new case of VCh disease was diagnosed, in which the combined effect of VCh and dichloroethane was apparent. (46316)

CIS 86-1088 Quantitative assessment of the irritating effect of butanol, octanol, acetaldehyde and crotonaldehyde on human skin (Količestveno opredelene na kožnoto dražešto dejstvie na butanol, oktanol, acetaldehid i krotinov aldehyd v rhu hora). Bajnova A., Madžunov N. *Problemi na Higijena*, July 1984, Vol.9, p.66-72. 17 ref. (In Bulgarian)

A method was elaborated for quantitative assessment of the irritating effect of 4 solvents after a 24h contact with healthy subjects. The irritating effect of octanol is significantly weaker than that of butanol. Crotonaldehyde is the strongest irritant. The threshold skin irritating concentrations are 12% octanol, 7.8% butanol, 1.2% acetaldehyde and 0.12% crotonaldehyde in vegetable oil. The following allergic concentrations in vegetable oil are recommended for epicutaneous testing of subjects with occupational or everyday home contact allergy to paints, varnishes, glues, cleaning and defatting agents and anti-corrosive preparations: 6% octanol, 4% butanol, 0.6% acetaldehyde and 0.06% crotonaldehyde. (46317)

CIS 86-1089 Kinetics of fluorine elimination in exposed workers (Kinetika na eliminirane na fluor pri eksponirani rabotnici). Čuturkova R. *Problemi na Higijena*, July 1984, Vol.9, p.73-78. 4 ref. (In Bulgarian)

The 14-day kinetics of fluorine (F) elimination in urine was followed in 24 operators from a plant for phosphorus fertilisers. The concentration of F in urine was determined at the beginning, after 6h and during the last 2h of a working shift on 4 successive days, and after 64h without exposure. Gaseous F compounds in air were also determined in parallel. A potentiometric method with an F-selective electrode was used in both urine and air analyses. A clear tendency to increased excretion was established by the end of the working shift and in the course of the working cycle. The rate of F elimination was highest during the last 2h of exposure. It was highest in workers in a superphosphate plant, lower in workers in a phosphoric acid plant and lowest in workers in a triphosphosphate plant. The concentration of fluoride ions in urine for the 3 groups of workers was higher than control values, both after 6h and during the last 2h. (46318)

CIS 86-1090 Experimental study on Endodan for teratogenicity and embryotoxicity (Eksperimentalno proučvane na endodan za teratogenost i embriotoksičnost). Vergieva T. *Problemi na Higijena*, July 1984, Vol.9, p.88-95. Illus. 13 ref. (In Bulgarian)

An experiment was carried out on albino rats for assessment of the effect, during gestation, of the fungicide endodan (ethylene-thiuram monosulfide) on the intrauterine and postnatal development of the progeny. A low teratogenic and embryotoxic activity was found after a single treatment with 1/2LD₅₀ on the 13th day of gestation. The preparation has a pronounced cumulative effect on daily administration of 1/5, 1/10 and 1/20LD₅₀, manifested by clinical symptoms and death of a part of the pregnant animals. Behavioural abnormalities were observed in the progeny but no changes in viability and weight gain during the postnatal period. (46319)

CIS 86-1091 Results of a longitudinal study of coronaropathies in relation to occupational carbon sulfide exposure (Rezultati ot longitudinalno proučvane na koronaropatii pri profesionalno vždeistvie na serovälerod). Dimitrova M., Uševa G., Pavlova S. *Problemi na Higijena*, July 1984, Vol.9, p.107-111. 2 ref. (In Bulgarian)

A 7-year longitudinal study was carried out on the risk of coronaropathy in workers exposed to carbon disulfide. An increased number of the subjects with manifestations of positive and probable ischaemic heart disease was observed, no increase being found among the controls. The significance of carbon disulfide as a basic risk factor to and as a potentiator of the effects of smoking and hypertension still cannot be determined. (46320)

CIS 86-1092 Contact dermatitis in hairdressers. Nethercott J.R., MacPherson M., Choi B.C.K., Nixon P. *Contact Dermatitis*, Feb. 1986, Vol.14, No.2, p.73-79. 18 ref. (In English)

Eighteen cases of hand dermatitis in hairdressers seen over a 5-year period are reviewed. The diagnosis in these patients are discussed with reference to other studies of hand dermatitis in hairdressers. Contact allergy due to paraphenylenediamine and related hair dyes was the presenting complaint in younger hairdressers, while formaldehyde allergy occurred in those who were older. The prognosis in the former group of workers with respect to continued employment in the trade tended to be poorer than in the latter. Follow-up revealed that hand dermatitis often resulted in the worker not continuing to work in the hairdressing trade. (46325)

CIS 86-1093 Principles of toxicokinetic studies. Environmental Health Criteria 57, World Health Organization, Distribution and Sales Service, 1211 Genève 27, Switzerland, 1986. 166p. Illus. Bibl. Price: SF.14.00. ISBN 92-4-154257-8 (In English)

Aspects covered in this document: analytical methods; absorption; distribution; binding; metabolism; excretion; kinetic models; toxicokinetic methodology in the assessment of human exposure; assessment of toxicokinetic studies. (46329)

CIS 86-1094 Pathological study of magnetite miners' pneumoconiosis. Yu S. *Industrial Health and Occupational Diseases*, 1985, Vol.11, No.5, p.271-275. Illus. 3 ref. (In Chinese)

Pathomorphological changes and pathological classification of pneumoconiosis were studied in post-mortem lung materials from 60 magnetite miners. The pathomorphological changes characteristic of magnetite miners' pneumoconiosis were: 1) formation of atypical silicotic nodules and mixed-type pneumoconiotic nodules in addition to the typical onion-like nodules; 2) occurrence of interstitial diffuse and pneumoconiotic fibrosis mainly around small bronchi and their associated small vessels. Suggestions on pathological diagnosis and classification of magnetite miners' pneumoconiosis are offered. (46331)

CIS 86-1095 Frequency of lymphocyte sister chromatid exchanges in coke oven workers. Yuan C. *Industrial Health and Occupational Diseases*, 1985, Vol.11, No.6, p.336-338. (In Chinese)

The analysis of sister chromatid exchange (SCE) might be a useful technique for the study of genetic damage in humans exposed to environmental mutagens and carcinogens. In the present study, lymphocyte sister chromatid

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