

CIS 77-1635 Acute and subacute toxicology and safety evaluation of SMA 1440-H resin. Winek C.L., Burgun J.J. *Clinical Toxicology*, New York, USA, 1977, Vol.10, No.2, p.255-259, 8 ref. (In English)

SMA 1440-H resin is a 35% (wt/vol) ammoniacal solution of the ester (SMA 1440-A) of a water-soluble alcohol and a low-molecular-weight styrene-maleic anhydride (SMA) copolymer. Results of toxicity and teratogenic and foetal activity studies in rats, skin toxicity and eye irritation studies in rabbits, and skin sensitisation reactions in guinea-pigs, are reported. Except for eye irritation, which cleared up in 3 days, all the results were negative.

079051

CIS 77-1636 Comparative toxicity of trivalent and hexavalent chromium to rabbits. Mathur A.K., Chandra S.V., Tandon S.K. *Toxicology*, Amsterdam, Netherlands, Aug. 1977, Vol.8, No.1, p.53-61, illus. 19 ref. (In English)

Histopathological study of the brain, kidney and myocardium showed chromium (Cr) accumulation regardless of the valence. There was no difference 3 or 6 weeks after injection of the Cr. The kidney contained more trivalent Cr than the other organs. There was no correlation between concentration of Cr and degree of histopathological changes, but hexavalent Cr caused greater morphological changes. The kidney contained more trivalent Cr than the other organs. There was no correlation between concentration of Cr and degree of histopathological changes, but hexavalent Cr caused greater morphological changes. The greater toxicity of hexavalent Cr was confirmed; since the trivalent form is also toxic, workers handling it (chromite ore, salts) must be protected.

079061

CIS 77-1637 Polyvinyl chloride film thermal decomposition products as an occupational illness - 1. Environmental exposures and toxicology; 2. Clinical studies. Brooks S.M., Vandervort R. *Journal of Occupational Medicine*, Chicago, USA, Mar. 1977, Vol.19, No.3, p.188-191; 192-196 illus. 41 ref. (In English)

Part 1 is a literature review of studies on: the working environment, wrapping and labelling equipment or hand wrapping, manufacture of PVC film (formulations), thermally activated price labels (composition and manufacture), emissions from hot-wire cutting of film, emissions from thermal activation of label adhesive. Major emissions from hot-wire cutting of PVC are di-2-ethylhexyl adipate and hydrogen chloride. Part 2 reports on studies in 24 meat wrappers and 8 meat cutters. Lung function tests and blood analyses were substantially normal. Approx. one-third of the wrappers had chronic cough, sputum and dyspnoea on exertion, and other complaints were throat, eye and nasal symptoms, chest tightness, wheezing and chest pain. The role of allergic sensitisation is uncertain.

079161

CIS 77-1638 Application of the zinc protoporphyrin (ZP) test as a monitor of occupational exposure to lead. Joselow M.M., Flores J. *American Industrial Hygiene Association Journal*, Akron, USA, Feb. 1977, Vol.38, No.2, p.63-66, illus. 11 ref. (In English)

Zinc protoporphyrin is the main abnormal metabolite resulting from interference by chronic inorganic lead absorption. A very simple and rapid test based on a highly sensitive fluorometric assay of diluted whole blood is described. There is a characteristic dose-response relation between zinc protoporphyrin and absorbed lead. The method has several advantages over blood lead determinations.

079211

CIS 77-1639 A study of benzene exposure versus urinary phenol levels. Roush G.J., Ott G.M. *American Industrial Hygiene Association Journal*, Akron, USA, Feb. 1977, Vol.38, No.2, p.67-75, illus. 3 ref. (In English)

Urinary phenol levels showed a positive statistically significant correlation with benzene exposure. However, the test cannot be used to assess past time-weighted average exposure to less than 5ppm benzene.

079221

CIS 77-1640 A study of methods for the determination of lead and cadmium. Eller P.M., Haartz J.C. *American Industrial Hygiene Association Journal*, Akron, USA, Mar. 1977, Vol.38, No.3, p.116-124, 17 ref. (In English)

Variations on the dithizone, flame atomic absorption spectrophotometry (AAS), tantalum boat AAS, extraction/aspiration, and graphite furnace AAS methods of determining lead in blood and cadmium and lead on filters were studied. The variables included type and amount of acid, ashing procedure, size of aliquot, and time. Accuracy was acceptable in all cases. Tantalum boat AAS showed wide variability and is unsuitable for use in routine analysis.

079281

CIS 77-1641 Time as a factor in atmospheric sampling. Severs R.K., Neal R.M., Downs T.D. *American Industrial Hygiene Association Journal*, Akron, USA, Mar. 1977, Vol.38, No.3, p.134-141, 15 ref. (In English)

Statistically significant differences were obtained in the results of simultaneous air monitoring of ozone with 3 different methods in the field. It is suggested that these differences are largely due to sampling turbulent atmospheres with instruments having different sampling intervals and time con-

CIS 77-1642 Description of organic solvents from charcoal collection tubes. Fracchi M., Pierce L., Graul R., Stanley R. *American Industrial Hygiene Association Journal*, Akron, USA, Mar. 1977, Vol.38, No.3, p.144-146, 3 ref. (In English)

Carbon disulfide is a poor desorber of many compounds, and it is necessary to determine its desorption efficacy (DE) for each analyte sampled. This paper reports on studies testing the hypothesis that DEs determined for single analytes cannot be used for analysis of complex mixtures. Toluene, n-butanol, cellosolve acetate and n-butyl cellosolve were tested separately and together. A significant increase in DE was noted in the polar analytes of the mixture. There is an urgent need for further investigation of adsorbents and eluting agents using common solvent mixtures.

079281

CIS 77-1643 Outcome of pregnancy among women in anaesthetic practice. Pharosh P.O.D., Alberman E., Doyle P., Chamberlain G. *Lancet*, London, United Kingdom, 1 Jan. 1977, Vol.1, No.8001, p.34-36, illus. 9 ref. (In English)

This survey covers 5,700 women doctors. Conceptions that occurred when the mother was in an anaesthetic appointment resulted in smaller babies, higher stillbirth rates and more congenital malformations of the cardiovascular system than the pregnancies of other women doctors. There was no significant difference in the spontaneous-abortion rate between the two groups.

079311

CIS 77-1644 Acute poisoning - Clinical diagnosis and treatment (Intossicazioni acute - Diagnosi clinica e trattamento). Bozza Marrubini M., Ghezzi Laurenzi R., Uccelli. *Organizzazione Editoriale Medico-Farmaceutica*, Via Edolo 42, 20125 Milano, Italy, 1977, 511p. (In Italian)

Based on 10 years experience at the Milan Poisons Information Centre, this reference manual is intended chiefly for first-aid personnel dealing with poisoning cases, in hospitals or elsewhere, but is also useful for physicians and medical aids. Contents: first aid; resuscitation; measures to prevent or limit the effects of poisoning; diagnosis; antidote treatment (list of 55 antidotes with data on manufacturer, properties, method of administration, etc.); list of some 1,800 toxic substances with detailed information on their toxicity, symptoms of poisoning and emergency treatment. A list of poison treatment and information centres in Europe is appended. Alphabetical index.

079411

CIS 77-1645 Occupational allergy from 1,2-benzisothiazolin-3-one and other preservatives in plastic emulsions. Pedersen N.B. *Contact Dermatitis*, København, Denmark, Dec. 1976, Vol.2, No.6, p.340-342, 11 ref. (In English)

Case reports of 2 workers with contact dermatitis, employed in the production of polyacrylate emulsions for paints and floor waxes. One was exposed to 1,2-benzisothiazolin-3-one (BITO) and ethylene diamine, the other to BITO and formaldehyde.

079531

CIS 77-1646 The investigation of quindoxin photosensitivity. Zaynoun S., Johnson B.E., Frein-Bell W. *Contact Dermatitis*, København, Denmark, Dec. 1976, Vol.2, No.6, p.343-352, illus. 12 ref. (In English)

Quindoxin (quinoxaline di-N-oxide) was used as a pig feed additive until its withdrawal in 1973. This article reports studies of 8 individual cases of photosensitivity, observing the changes occurring in the action spectrum with time, and reporting the skin responses to photopatch testing. There was evidence of persistent light reaction and photoallergy, probably to the parent substance, with clinical and photobiological similarities to idiopathic photosensitivity dermatitis and the actinic reticuloid syndrome.

079541

CIS 77-1647 Allergic contact dermatitis from ultraviolet cured inks. Emmett E.A., Kominsky J.R. *Journal of Occupational Medicine*, Chicago, USA, Feb. 1977, Vol.19, No.2, p.113-115, 12 ref. (In English)

Report on clinical features and results of patch tests in 8 men employed in the manufacture of ultraviolet-cured inks who developed allergic contact dermatitis, predominantly on exposed areas. They were sensitive to one or several of trimethylolpropane triacrylate, 1,6-hexanediol diacrylate, pentaerythritol triacrylate, and epoxy acrylate oligomers. It is not established whether multiple reactions were due to cross-sensitisation or concomitant exposure.

079561

CIS 77-1648 *Bacillus subtilis* enzymes: A 7-year clinical, epidemiological and immunological study of an industrial allergen. Juniper C.P., How M.J., Goodwin B.F.J., Kinshott A.K. *Journal of the Society of Occupational Medicine*, Bristol, United Kingdom, Jan. 1977, Vol.27, No.1, p.3-12, 20 ref. (In English)

This study in 1,642 workers at a factory producing enzyme detergents confirmed that atopic subjects are more likely to become skin prick-test positive (PT+) than non-atopics. The main areas of investigation were: assessment and follow-up of acute respiratory illness, identification of long-term trends in pulmonary function, and confirmation of the prick test as an effective diagnostic tool by relation to serological results. After atopic subjects had been

provement of the work environment and careful health surveillance are therefore recommended for these categories of workers. (05433)

CIS 76-1325 Hydrofluoric acid (Fluorovodična kiselina). Filipan T., Uhlík B. Monograph No.7, Safety Institute (Institut za sigurnost), Zagreb. 16p. Published also in *Sigurnost*, Zagreb, Yugoslavia, 1975, Vol.17, No.2, p.9-25. (In Serbocroatian)

Contents: physical and chemical properties, TLV, effects on the human body; protective measures (ventilation, protection against fires due to chemical reactions, storage, personnel information, medical supervision of exposed workers, warning labels, personal protection (eyes, skin, respiratory tract), emergency shower facilities); decontamination of workpost; first aid; detection and monitoring of atmospheric concentrations; cleaning and repair of vessels which have contained hydrofluoric acid; environmental protection; review of Yugoslav and European regulations. (05435)

CIS 76-1326 Methyl chloride poisoning (Otravy metylchloridem). Borovská D., Jindřichová J., Klíma M. *Praktický lékař*, Praha, Czechoslovakia, 4 July 1975, Vol.55, No.13, p.504-508. 19 ref. (In Czech)

Analysis of 30 cases of chloromethane (methyl chloride) poisoning observed in Eastern Bohemia between 1951 and 1972. Some particularly interesting cases are analysed in depth. Of the 30 cases observed, 24 were workers engaged in assembling or repairing refrigerators; the 6 others were not occupationally exposed (leakage from refrigerators). Subjective symptoms: vertigo, nausea, headache, ataxia. Objective symptoms: staggering and difficulty in walking, limitation of field of vision, scotoma (in 28% of the cases). Recommended preventive measures: replacement of chloromethane by a less toxic freon; adequate maintenance of existing installations; pre-employment ophthalmological, neurological and psychiatric examinations. (05443)

CIS 76-1327 Symposium on the non-skeletal phase of chronic fluorosis. Singla V.P., Garg G.L., Jolly S.S., Zarfagna, Kaul R.D., Susheela A.K., Teotia S.P.S., Teotia M., Teotia N.P.S., Waldbott G.L., McLaren J.R., Franke J. *Fluoride*, Warren, USA, Jan 1976, Vol.9, No.1, p.5-41. illus. 78 ref. (In English)

This symposium was held in Williamsburg, Virginia, USA, on 7-9 Nov. 1974. The 8 papers read are reproduced in this issue; they discuss the level at which the functions of certain organs are adversely affected. Contents: muscle, joints, arteries, thyroid, spinal cord and kidneys. Also included is allergy to fluoride, where the differential diagnosis between allergy and intolerance is outlined. (05445)

CIS 76-1328 A case-referent study on neuropsychiatric disorders among workers exposed to solvents. Axelson O., Hane M., Hogstedt C. *Scandinavian Journal of Work, Environment and Health*, Helsinki, Finland, Mar. 1976, Vol.2, No.1, p.14-20. 17 ref. (In English)

Published reports give justification for the belief that long-term exposure to solvents might induce chronic but non-specific neuropsychiatric conditions (disturbances in memory, emotional disorders, etc.). This case-referent study of data from a regional Swedish pension fund register indicated a risk ratio of 1.8 in regard to non-specific neuropsychiatric disorders among workers such as painters, varnishers and carpetlayers who are exposed to various solvents (turpentine and mixtures of aliphatic and aromatic hydrocarbons) as compared to workers not so exposed. Moreover a dose-response relation seems to exist between exposure in terms of years in occupation and neuropsychiatric conditions, the exposure to various solvents possibly playing an aetiological role. (05452)

CIS 76-1329 Occupational lead exposure in Finland - V. Shipyards and shipbreaking. Tola S., Karskela V. *Scandinavian Journal of Work, Environment and Health*, Helsinki, Finland, Mar. 1976, Vol.2, No.1, p.31-36. 8 ref. (In English)

3 Finnish shipyards and 2 shipbreaking enterprises were studied for lead exposure. Blood lead (Pb-B) concentration was measured for 568 workers in the shipyards and 13 workers in the shipbreaking enterprises. Erythrocyte δ -aminolaevulinic acid dehydratase (ALAD) activity was determined for 139 workers in one shipyard and 7 workers in one shipbreaking enterprise. Haemoglobin level was determined for 545 workers in the 3 shipyards and 7 workers in one shipbreaking enterprise. Lead exposure in the shipyards was relatively low. No Pb-B value exceeded 70 $\mu\text{g}/100\text{ml}$. The most exposed occupations were welders, plumbers, painters, repairmen, and sheet metal workers. The mean Pb-B did not exceed 40 $\mu\text{g}/100\text{ml}$ in any of these groups. In both shipbreaking enterprises one Pb-B value exceeded 70 $\mu\text{g}/100\text{ml}$, the mean Pb-B values of all the workers in the two enterprises being 51 and 46 $\mu\text{g}/100\text{ml}$, respectively. ALAD values corresponded well with the respective Pb-B values. All the haemoglobin mean values were normal, and there were no statistically significant differences between the haemoglobin values of different groups. For Part IV, see CIS 76-240. (05453)

CIS 76-1330 Genetic risks of vinyl chloride. Infante P.F., Wagoner J.K., McMichael A.J., Waxweiler R.J., Falk H. *Lancet*, London, United Kingdom, 3 Apr. 1976, Vol.1, No.7962, p.734-735. 13 ref. (In English)

This study covered 95 vinyl chloride polymerisation workers, and 158 rubber and PVC fabrication workers as controls. A significant excess of foetal loss was found among wives of the vinyl chloride group. Possible mechanisms by

which foetal loss may arise are briefly discussed: either foetal or maternal toxicity or germ-cell mutagenesis in the mother through indirect vinyl chloride exposure from the father might be considered, although the high volatility of vinyl chloride seems to exclude this possibility, the most probable cause being germ-cell damage in the father through direct exposure. Further details of the method of data collection are added in a letter from the authors to the Editor in: *Lancet*, London, United Kingdom, 12 June 1976, Vol.1, No.7972, p.1289-1290. 3 ref. (05454)

CIS 76-1331 Exposure to trichloroethylene monitored by analysis of metabolites in blood and urine. Vesterberg O., Åstrand L. *Journal of Occupational Medicine*, Downers Grove, USA, Apr. 1976, Vol.18, No.4, p.224-226. illus. 13 ref. (In English)

Experimental studies in 3 groups of 5 men subjected to different regimens (in time and intensity) of trichloroethylene (TRI) exposure at rest and during work. The levels of TRI in the blood and alveolar air, as well as the blood and urinary levels of trichloroethanol (TCE) were studied. Conclusions: analysis of TCE in blood and urine give valuable information, but urinary TCA appears to provide a better index of TRI uptake. (05456)

CIS 76-1332 Components of variability in blood cholinesterase assay results. Yager J., McLean H., Hudes M., Spear C. *Journal of Occupational Medicine*, Downers Grove, USA, Apr. 1976, Vol.18, No.4, p.242-244. 3 ref. (In English)

Use of blood cholinesterase as an index of organophosphate pesticide exposure presents the problem of variability among individuals and from day to day. This article describes attempts to use commercially available lyophilised control sera as laboratory standard. However, results showed that the control sera used cannot serve as laboratory controls for red blood cell enzyme assays, and that they are unsatisfactory for determining day-to-day variability. It appears that different factors account for daily variability in plasma and red blood cell assay results. (05458)

CIS 76-1333 Methods of analysis for the determination of metals in biological fluids (Metodi di analisi per la determinazione dei metalli nei liquidi biologici). Pozzoli L., Minoia C., Angeleri S. *Edizioni Aurora*, Legatoria Cartotecnica di Ge Carla, Via Palestro 26, Pavia, Italy, 1976. 331p. 469 ref. (In Italian)

Contents of this textbook: techniques and apparatus used; characteristic parameters; preparation of standard solutions; calibration; definitions; determination of the following metals in blood and/or urine (by atomic absorption spectrometry): aluminium, arsenic, cadmium, cobalt, chromium, copper, iron, manganese, mercury, nickel, lead, zinc. (05459)

CIS 76-1334 Proportional mortality among vinyl-chloride workers (Mortalité proportionnelle des travailleurs exposés au chlorure de vinyle). Monson R.R., Peters J.M., Johnston M.N. Traduction INRS 97 B-75, Institut national de recherche et de sécurité, 30 rue Olivier-Noyer, 75680 Paris Cedex 14, France, 1975. 6p. 4 ref. (In French)

Translation of: Proportional mortality among vinyl-chloride workers. *Lancet*, London, United Kingdom, 17 Aug. 1974, Vol.2, No.7877, p.397-398. illus. 4 ref. (CIS 74-1676). Results of a proportional-mortality analysis of 161 deceased workers in 2 U.S. plants, one producing vinyl chloride monomer (26 workers) and the other polymerising the monomer into polyvinyl chloride (135). A 50% excess of deaths due to all types of cancer was found. Specific sites of cancer with the greatest excess included the liver and biliary tract, the lung and the brain. The excess in fatal cancer cases was seen mainly in men who died before age 60. (05468)

CIS 76-1335 Principles applicable to preventive medical examinations - Hazards associated with hexavalent chromium compounds (Principes applicables aux examens médicaux préventifs - Risques associés aux composés du chrome hexavalent). Traduction INRS 54 B-75, Institut national de recherche et de sécurité, 30 rue Olivier-Noyer, 75680 Paris Cedex 14, France, 1975. 12p. 13 ref. (In French)

Translation of: Berufsgenossenschaftliche Grundsätze für arbeitsmedizinische Vorsorgeuntersuchungen - Gefährdung durch Chrom-VI-Verbindungen. *Arbeitsmedizin - Sozialmedizin - Präventivmedizin*, Stuttgart, Germany (Fed.Rep.), Jan. 1974, Vol.9, No.1, p.17-19. 13 ref. (CIS 74-1370). Principles defined by the Federation of Industrial Mutual Accident Insurance Associations of the Fed. Rep. of Germany for the prevention or early detection of diseases which could be caused by hexavalent chromium compounds. They cover the extent of aptitude tests and check-ups, as well as the following points: hazard sources, absorption and mode of action of chromium trioxide and the chromates, clinical picture of acute and chronic poisoning, restrictions on employment. (05469)

CIS 76-1336 Mortality study of workers in the manufacture of vinyl chloride and its polymers (Etude de la mortalité des travailleurs d'une usine fabriquant le chlorure de vinyle et ses polymères). Tabershaw I.R., Gaffey W.R. Traduction INRS 98 B-75, Institut national de recherche et de sécurité, 30 rue Olivier-Noyer, 75680 Paris Cedex 14, France, 1975. 21p. 11 ref. (In French)

of the caking of crystallised or granulated products containing ammonium nitrate, or the thermal decomposition of ammonium nitrate in pure form. Physical, thermodynamic and chemical properties of ammonium nitrate; fire and explosion hazards (reference to many explosions on cargo vessels transporting this substance, giving the IMCO Shipping Code classification of oxidising agents; review of 16 disasters with ammonium nitrate in the USA between 1949 and 1959, as published by the U.S. National Fire Protection Association); speed of thermal decomposition; effect of pressure; stability tests; rules for storage and transport. (05429)

CIS 76-1214 A summary of experimental data on the maximum experimental safe gap. Lunn G.A., Phillips H. Safety in Mines Research Establishment, Sheffield. SMRE Report R2, Department of Industry, Technology Reports Centre, Orpington, Kent, BR5 3RE, United Kingdom, 1973. 39p. Illus. 59 ref. Price: £0.45. (In English)

Many organisations have carried out work to determine maximum experimental safe gaps (MESG) for the flameproof enclosure of electrical equipment for use in flammable atmospheres, with the result that the data are widely scattered and not always easily available. This report presents a collection of experimental data from a wide range of literature from several countries and gives a list of MESGs for 25.4mm (1-inch) and 25mm flanges. The experimental conditions are described, with information on the numbers of tests and the gap size increments employed (only data from tests in which the increments were 0.05mm or less are included). The 2 main types of vessel that have been used for MESG determinations are the British 8-litre spherical vessel and its modifications, and the International Electrotechnical Commission (IEC) 20ml vessel and its modifications. Earlier determinations in other vessels have been repeated in one of these "standard" vessels. (05450)

CIS 76-1215 Protection against the fire hazard associated with the use of liquefied petroleum gases on building sites (Protection contre l'incendie lors de l'utilisation des gaz de pétrole liquéfiés sur les chantiers). Losansky G. Traduction INRS 41 B-75, Institut national de recherche et de sécurité, 30 rue Olivier-Noyer, 75680 Paris Cedex 14, France, 1975. 15p. Illus. (In French)

Translation of: Brandschutz beim Umgang mit Flüssiggas auf Baustellen. *Hochbau*, München, Germany (Fed.Rep.), Jan.-Feb. 1974, Vol.62, No.1, p.9-13 and 19. Illus. (CIS 74-1212). Review of the major causes of fire: recommendations concerning portable dry powder or CO₂ extinguishers; fire prevention and fire fighting techniques. (05468)

CIS 76-1216 National fire codes, 1976. National Fire Protection Association, 470 Atlantic Avenue, Boston, Massachusetts 02210, USA, 1976. 16 vol., approx. 11,000p. Illus. Price: US-\$10.00 per volume; US-\$90.00 per set. (In English)

These codes consist of 231 safety standards, guides, recommended practices, manuals and model laws, in 16 volumes covering, inter alia, the following subjects: flammable liquids, boiler-furnaces, ovens; gases; combustible solids, dusts and explosives; building construction and facilities; electrical equipment; sprinklers, fire pumps and water tanks; alarm and special extinguishing systems; portable and manual fire control equipment; occupancy standards and process hazards; transportation, etc. They include the 1974 National Fuel Gas Code (USA) and the 1975 National Electrical Code (USA). (05471)

CIS 76-1217 Detection of explosive atmospheres by explosimeter (Detección de atmósferas explosivas mediante la utilización del explosímetro). Ortega F.M. Ministry of Labour, General Directorate of Social Services, Occupational Safety and Health Social Service, (Ministerio de Trabajo, Dirección General de Servicios Sociales, Servicio Social de Higiene y Seguridad del Trabajo). Madrid. Documento D-10-75, Centro Nacional de Información y Documentación, Servicio Social de Higiene y Seguridad del Trabajo, Instituto Territorial, Barcelona, Spain, 1975. 16p. Illus. 7 ref. (In Spanish)

This information sheet describes the necessary conditions for a gas or vapour to reach the critical concentration in mixture with air for an explosive reaction and shows how to detect the existence of this hazard and evaluate it by means of an explosimeter. Description of an explosimeter (basic principles: Wheatstone bridge; circuit diagram; how to operate and read off results; calibration; limitations; precision). (05504)

CIS 76-1218 Fire and explosion hazards with power transformers (Riesgos de incendio y explosión en transformadores de potencia). Gonzalbez P.B. Ministry of Labour, General Directorate of Social Services, Occupational Safety and Health Social Service, (Ministerio de Trabajo, Dirección General de Servicios Sociales, Servicio Social de Higiene y Seguridad del Trabajo), Madrid. Documento D-11-75, Centro Nacional de Información y Documentación, Servicio Social de Higiene y Seguridad del Trabajo, Instituto Territorial, Barcelona, Spain, 1975. 22p. Illus. 5 ref. (In Spanish)

This information sheet is devoted to the prevention of fires and explosions which may occur (a) in mineral oil-cooled high-voltage (2,000kVA or over) power transformers (flashpoint of mineral oil 130-140°C; causes of fires and explosions (overloading; overheating; insufficient ventilation; electric arc due to rupture of installation; faulty insulation; short circuit); prevention; diagrams of safety systems and circuits) and (b) in low-voltage distribution transformers cooled with pyralene (a polychlorinated biphenyl). Disadvantages of

pyralene (human toxicity in liquid and vapour form, release of toxic gas in contact with electric arc); hazards of transformer overloading, overheating and short circuits. Permissible durations of overloading of oil-cooled transformers and a list of insulating materials with their characteristic properties are appended in tabular form. (05507)

CIS 76-1219 Fire protection in storage depots for highly flammable liquids and liquid fuel (Protection contre le feu dans les parcs de stockage de liquides facilement inflammables et de carburants liquides). Traduction INRS 96 B-75, Institut national de recherche et de sécurité, 30 rue Olivier-Noyer, 75680 Paris Cedex 14, France, 1975. 36p. Illus. 7 ref. (In French)

Translation of: Brandschutz in Tanklagern für leichtentzündliche Flüssigkeiten und Flüssigtreibstoffe. Communication by the USSR delegation to the 8th Symposium of the International Technical Committee for the Prevention and Extinction of Fire (CTFI), Luxembourg, 25-29 Sep. 1974. Photocopy. 31p. Illus. 7 ref. A system of measures determined by the Government has been established in the USSR for protecting liquid fuel depots against fire hazards. Principal causes of fire outbreaks (dangerous concentration of air/vapour mixtures in tanks; calculation of hazard; calculation of time between fire outbreak and projection of tank contents; calculation of area of explosion hazard zones). Fire protection methods (prevention of loss of petroleum products; protection of tanks against overpressure and underpressure, etc.). General directives for the layout and equipment of storage depots. Calculation of safe distances. Fire extinguishing systems. (05560)

CIS 76-1220 Rapid estimation of carboxyhaemoglobin level in fire fighters. Stewart R.D., Stewart R.S., Stamm W., Seelen R.P. *Journal of the American Medical Association*, Chicago, USA, 26 Jan. 1976, Vol.235, No.4, p.390-392. Illus. 19 ref. (In English)

Report of a study in which fire fighters were trained to use a portable electrochemical breath analyser to measure the carbon monoxide (CO) in their expired air and estimate their exposure to the gas. The relation between breath CO and blood carboxyhaemoglobin was determined from samples from 56 firemen. The method, which was rapid, accurate, economical and non-invasive, was quickly learnt by the firemen, who enthusiastically endorsed its use. The accuracy of the method is sufficient to ensure compliance with the (U.S.) regulations governing occupational exposure to CO. (05565)

CIS 76-1221 Polyvinyl chloride toxicity in fires - Hydrogen chloride toxicity in fire fighters. Dyer R.F., Esch V.H. *Journal of the American Medical Association*, Chicago, USA, 26 Jan. 1976, Vol.235, No.4, p.393-397. 10 ref. (In English)

This article is a broad-based review of this problem, starting with a description of a fire involving plastic in which the fire fighters experienced unusual chest pain and dyspnoea, and one died with severe pulmonary haemorrhage and oedema. The characteristics of burning polyvinyl chloride (PVC) and the resulting hazards are outlined. Results of a clinical study of 175 fire fighters known to have been exposed to thermal degradation products of PVC are reported. Mandatory use of self-contained breathing apparatus in these conditions and protection by masks during the "overhaul phase" (the period just after the fire has been extinguished, when the area is being cleaned up, but toxic smoke and fumes are still being emitted), are advocated. (05568)

CIS 76-1222 Fire and explosion hazards of fluorene and its derivatives (Požaro- i vzrývoopasnost' fluorena i ego proizvodnyh). Korol'chenko A.J., Ivanov A.V., Aristova E.M. *Himičeskaja promyšlennost'*, Moskva, USSR, Dec. 1975, No.12, p.23. 6 ref. (In Russian)

Results of research to establish flammability limits and the lower explosive limits of aerosols of fluorene and its derivatives. Aerogels (except for those of 2-dimorpholinocetylfluorenone) do not ignite when in contact with weak sources of energy, but aerosols liberated at temperatures above the melting point are easily flammable. The flammability of aerogels of fluorene derivatives depends on the nature of the aliphatic substituent in the lateral chain. The explosibility of the aerosols of these derivatives can be inhibited by the presence of 2 bromine atoms or the SO₃Na group in the molecule. (05600)

CIS 76-1223 Vent efficiency - Study of dust explosions in 1, 10 and 100m³ vessels: influence of type of the dust and effect of a conduit forming an extension to the vent (Efficacité des événements - Etude d'explosions de poussières en récipients de 1, 10 et 100m³: influence de la nature de la poussière et de la présence d'une canalisation prolongeant l'événement). Pineau J., Giltaire M., Dangreux J. *Cahiers de notes documentaires - Sécurité et hygiène du travail*, Paris, France, 2nd quarter 1976, No.83, Note No.1005-83-76, p.191-203. Illus. 3 ref. (In French)

The purpose of this study is to plot a series of curves for calculating the surfaces of vents to be installed on vessels of a given volume (taking into account the pressure they can withstand and the explosive characteristics of dust clouds), and to test the validity of a law concerning the extrapolation of the venting coefficient in relation to the volume of the vessel. Characteristics of dust explosions in isolated vessels. Tests carried out on sawdust in 1, 10 and 100m³ vessels. Tests in 1 and 10m³ chambers containing maize dust, aspirin, powdered milk, powdered epoxy resin, icing sugar. Tests on aluminium powder in a 1m³ chamber. Tests in a 10m³ chamber on diminished efficacy of vents with extension ducts for removing combustion gases (the value of the