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NTIS/PS-77/0365

Toxicity of Vinyl Chloride

A Bibliography with Abstracts

Search period covered

1964 - April 1977

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R&S 040276

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BIBLIOGRAPHIC DATA SHEET	1. Report No.	2.	3. Recipient's Accession No. NTIS/PS-77/0365
4. Title and Subtitle Toxicity of Vinyl Chloride (A Bibliography with Abstracts)			5. Report Date May, 1977 6.
7. Editor: Pernell W. Crockett			8. Performing Organization Rept. No.
9. Performing Organization Name and Address National Technical Information Service 5285 Port Royal Road Springfield, Virginia 22161			10. Project/Task/Work Unit No. 11. Contract/Grant No.
12. Sponsoring Organization Name and Address Same			13. Type of Report & Period Covered 1964 - Apr., 1977 14.

15. Supplementary Notes

Supersedes NTIS/PS-76/0197

16. Abstracts

Research is cited on the health hazards from exposure to vinyl chloride and vinyl chloride resins. Studies are included on the epidemiology, industrial and public exposure to the compound, and its degradation and combustion products. (This updated bibliography contains 69 abstracts, 32 of which are new entries to the previous edition.)

R&S 040278

17c. NTIS Field/Group 57, 68

18. Availability Statement	19. Security Class (This Report) UNCLASSIFIED	21. No. of Pages
	20. Security Class (This Page UNCLASSIFIED	22. Price $25.00

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R&S 040280

Research Program on Hazard Priority Ranking of Manufactured Chemicals (Chemicals 21-40)

Stanford Research Inst., Menlo Park, Calif.*National Science Foundation, Washington, D.C. Research Applied to National Needs. (332 500)

Final rept. on Phase 2
Brown, S. L., Chan, F. Y., Jones, J. L., Liu, D. H., McCaleb, K. E.
D1655I2 Fld: 7A, 6T, 68H*, 68, 99B*, 57Y* GRAI7708
Apr 75 195p*
Project: SRI-ECU-3386
Monitor: NSF/RA/E-190B
See also PB-263 161 and PB-263 163.

Abstract: In Phase II of this two-phase effort, 80 chemicals having the greatest potential for environmental effects were studied. Information was collected on the extent of the exposure of the environment to these chemicals (during manufacture and use) and on the possible environmental effects of this exposure (chemical, physical, and biological properties, persistence, and toxicity). The chemicals studied in this volume are as follows: Benzene (chemical uses), Silicone fluids, Nitrobenzene, Toluenediisocyanate (TDI), Xylenes - mixed total, Aniline, Dimethyl terephthalate, Trichlorofluoromethane, p-Dichlorobenzene, Dithiobis (benzothiazole), o-Dichlorobenzene, Tetrabromoethane, Methylene (bis)-2-chloroaniline, Polyhalogenated biphenyls (Aroclor 1254), Tricresyl phosphate, Fluorescent brightening agents (no. 28), Polyvinyl chloride, Methylene chloride, Dichloropropene, Dichloropropane mixture, and Ethyl chloride. (Portions of this document are not fully legible.)

Descriptors: *Hazardous materials, *Chemical industry, *Environmental impacts, *Organic compounds, Manufacturing, Utilization, Chemical properties, Physical properties, Toxicology, Bioassay, Public health, Tables(Data), Releasing, Air pollution, Water pollution, Chemical analysis, Soil analysis, Benzene, Silicones, Nitrobenzenes, Xylenes, Aniline, Biphenyl, Polyvinyl chloride, Chloroethanes, Fluorescence, Optical brighteners, Industrial wastes, Halogen organic compounds

Identifiers: Methane/trichloro-fluoro, Benzene/dichloro, Ethane/tetra-bromo, Aroclor 1254, Propane/dichloro, Methylene/chloro, Isocyanic acid/(Methylphenylene-ester), Terephthalic acid/(Dimethyl-ester), Benzothiazole thiols, Aniline/N-N-bis(Chloromethyl), Phosphate/tricresyl, NTISNSPRA, NTISSRI

PB-263 162/0ST NTIS Prices: PC A09/MF A01

Toxicology of Plastics Having Contact with Blood. Report of Program Progress

Travenol Labs., Inc., Morton Grove, Ill.*National Heart, Lung, and Blood Inst., Bethesda, Md.

Annual rept.
Josephson, A. M.
D1503C4 Fld: 6T, 6L, 57Y, 95C GRAI7707
May 75 22p
Contract: N01-HB-2-2990, PHS-72-2990
Monitor: NIH-N01-HB-2-2990

Abstract: Di-2-ethylhexyl phthalate (DEHP) was extracted from polyvinyl chloride (PVC). This material was diluted in sterile rat plasma and used to inject, IV, groups or rats with a 3.7 mg/kg/injection, which is equivalent to the DEHP dose that a patient would receive from a total exchange transfusion of blood. Growth rates, gross reactions following injections, hematology and serum chemistry parameters, gross organ pathology, absolute and relative organ weights, histopathology, and residual DEHP levels in plasma and tissues were similar for all groups, including plasma control groups. No toxicology significant changes were observed.

Descriptors: *Toxicology, *Plasticizers, *Polyvinyl chloride, Toxicity , Plastics, Medical supplies, Medical equipment, Blood, Bioassay, Rats , Laboratory animals

Identifiers: *Phthalic acid/bis(Ethylhexyl-ester), *Blood compatible mat rials, Biomaterials, NTISNIHHLI

PB-262 260/3ST NTIS Prices: PC A02/MF A01

Problems of Occupational Hygiene and the State of Health of Workers Employed in Manufacturing Latex Polyvinyl Chloride (Voprosy Gigieny Truda i Sostoyanie Zdorovya Rabochikh, Zanyatykh na Proizvodstve Lateksnoyo Polivinilkhlorida)

Environmental Protection Agency, Research Triangle Park, N.C. Translation Services Section.
Filatova, V. S., Gronsberg, E. Sh., Smirnova, N. A., Stulova, E. A., Oreshkevich, I. V.
D1345G3 Fld: 6J, 6T d7706
1965 10p
Rept No: EPA-TR-76-366
Monitor: 18
Trans. of Gigiena Truda i Professionalnye Zabolevaniya (USSR) v9 n8 p9-14 1965.

Abstract: Pollution of the air with vinyl chloride and resin dust is p ssible during the manufacture of latex polyvinyl chloride. Such pollution is caused by disruption of the seal of equipment and by carrying out certain operations manually. During the study of the state of health of the workers, some of them were found to have changes characteristic for the initial forms of chronic vinyl chloride intoxication: slightly pronounced disorders of the vegetative-vascular regulation, symptoms of vegetative polyneuritis and thermoregulatory disorders. An improvement in the conditions of labor of workers employed in manufacturing latex polyvinyl chloride can be attained by means of sealing the equipment, improving technological operations and improving the function of ventilation.

Descriptors: *Polyvinyl chloride, *Industrial hygiene, *Toxicity, *Hazardous materials, Health status, Toxic diseases, Manufacturing, Industrial medicine, Translations, USSR, Toxicology, Industrial atmospheres, Recommendations, Pathology

Identifiers: Occupational safety and health, Toxic substances, *Air pollution effects(Humans), NTISEPAISD

PB-261 764-T/ST NTIS Prices: PC A02/MF A01

Current Awareness Service for Toxic Substances (CATS). Cumulative Report Number 2. Part II

Little (Arthur D.), Inc., Cambridge, Mass.*Environmental Protection Agency, Washington, D.C. Office of Toxic Substances. (208 850)

Annual rept.
D1241B2 Fld: 13B, 6T, 68*, 57Y* GRAI7705
Nov 76 364p*
Rept No: ADL-C-77355-Pt-2
Contract: EPA-68-01-2694
Monitor: EPA/560/7-76/002a
See also report dated Dec 75, PB-250 075 and Part 1, PB-260 360.

Abstract: The scanning topics included in this two part series are the chemicals and subject areas as follows: Acetonitrile, acrylonitrile, arsenic, aryl phosphates (phenyl, cresyl, mixed phenyl-cresyl), asbestos, benzidine, and salts (hydrochloride, sulfate), boron, brominated biphenyls, dichlorobenzidine, dioxane, ethyleneimine, flame retardants, fluorocarbons, haloethers, hexachlorobenzene, hexachlorobutadiene, hydrazine, derivatives, and salts (sym and unsym - dimethyl, monomethyl), isocyanates (organic), liquefaction and gasification of coal, methylenebis (chloroaniline), model ecosystems (environmental fate testing, microecosystems), naphthylamines (alpha, beta, N-phenyl derivatives), nitrilotriacetic acid, optical brighteners (fluorescent whitening agents, fluorescent dyes), perchloroethylene, phthalates (dioctyl, di-2-ethylhexyl), polyurethanes, propiolactone, trichloroethylene, shale oil extraction and refining, vinyl chloride, vinylidene chloride, ethylene dibromide, and nitrosamines.

Descriptors: *Toxicity, *Chemical elements, *Pollution, Vinylidene chloride resins, Acetonitrile, Acrylonitriles, Arsenic, Phosphates, Cresols, Phenols, Asbestos, Nitrosamines, Lactones, Benzidine, Boron, Biphenyl, Dioxanes, Aziridines, Fire resistant materials, Fluorohydrocarbons, Ethers, Halogenorganic compounds, Coal gasification, Hydrazines, Isocyanates, Ecosystems, Amines, Optical brighteners, Phthalates, Polyurethane resins, Naphthalenes, Shale oil, Extraction, Refining, Vinyl chloride

Identifiers: Biphenyl/bromo, Benzidine/dichloro, Coal liquefaction, Benzene/hexachloro, Butadiene/hexachloro, Aniline/N-N-bis(Chloromethyl), Naphthylamines, Acetric acid/nitrilo-tri, Ethylene/chloro, Ethylene/trichloro, Ethylene/dibromo, NTISEPAOTS

PB-260 361/1ST NTIS Prices: PC A16/MF A01

R&S 040288

The So-Called Vinyl Chloride Disease (Ueber die Sogenannte Vinylchlorid-Krankheit)

Environmental Protection Agency, Research Triangle Park, N.C. Translation Services Section.
Juehe, S., Lange, C. -E., Stein, G., Veltman, G.
D0345B1 Fld: 6J, 6T, 57U, 57Y, 68G GRAI7702
1975 15p
Rept No: EPA-TR-75-6
Monitor: 18
Trans. of Deutsche Medizinische Wochenschrift (West Germany) v98 p2034-2037 n.d.

Abstract: Since the first reports on impairments of health of workers in the vinyl chloride (VC) industry appeared in 1958, and of workers in the polyvinyl chloride (PVC) industry in 1963, attention has been repeatedly directed at this branch of the chemical industry by further reports. A syndrome was observed which was similar in its skin and bone changes to scleroderma, while its etiology and pathogenesis r mained unresolved. Its principal symptom was the Raynaud syndrome -- nodose or surface hard skin changes and band-shaped osteolyses of the finger end-phalanges. The first observations of this disease pattern was reported in Germany in 1972. The authors have recently made an exhaustive report on the results obtained through the end of 1972, which reveal new aspects in the assessment of the disease. The most important features are summarized.

Descriptors: *Occupational diseases, *Vinyl chloride, *Industrial medicine, *Integumentary diseases, *Toxicology, Dermatology, Chemical industry, Skin diseases, Signs and symptoms, Gases, Pathology, Pathophysiology, Histology, West Germany, Translations

Identifiers: Air pollution effects(Humans), Environmental health, Occupational safety and health, NTISEPAISD

PB-258 838-T/ST NTIS Prices: PC A02/MF A01

Evaluation of Vinyl Chloride Emissions in the Long Beach Area, California

National Field Investigations Center, Denver, Colo.
C7694A3 Fld: 13B, 68A, 68D GRAI7625
May 74 47p
Rept No: EPA/330/2-74/002
Monitor: 18

Abstract: A survey of vinyl chloride emissions from the American Chemical Corporation and B.F. Goodrich Chemical Company showed that vinyl chloride monomer was leaving the plants via water, sludge, and air as well as in the final product, polyvinyl chloride. It is estimated that about 2.3 kg (5 lb)/day of PVC leave the B.F. Goodrich plant, and 10 kg (22 lb)/day leave the American Chemical plant in the wastewater effluents. Smaller quantities were found in the sludge. The report presents a plant evaluation and a sampling program.

Descriptors: *Pollution, *Vinyl chloride, *Polyvinyl chloride, Surveys, Water pollution, Sludge, Air pollution, Infrared spectrometers, Evaluation, Industrial plants, Toxicity, Environmental impacts, Safety, Public health, Assessments, Sampling, California

Identifiers: Long Beach(California), NTISEPAO

PB-257 642/9ST NTIS Prices: PC$4.00/MF$3.00

R&S 040292

Sampling and Analysis of Selected Toxic Substances. Task III. Vinyl Chloride, Secondary Sources

Midwest Research Inst., Kansas City, Mo.*Environmental Protection Agency, Washington, D.C. Office of Toxic Substances. (230 350)

Final rept. 1 Nov-31 Dec 75
Going, John E.
C6824L2 Fld: 06T, 06F, 13B, 57Y, 57H, 68A, 68G, 99A GRAI7616
Apr 76 30p
Contract: EPA-68-01-2646
Monitor: EPA/560/6-76/002
S e also report dated Sep 75, PB-246 213.

Abstract: A sampling and analysis program was conducted to determine whether and to what extent vinyl chloride was present in ambient air due to the presence of polyvinyl chloride products. Sampling environments were chosen to represent real life, but nonwork situations where a significant exposure to polyvinyl chloride products might occur. A sampling and analysis protocol was developed with a r covery efficiency of greater than 90% and a detection limit of 10 ppb (v/v). The two general categories of environments sampled were vehicles and commercial products. The interior ambient air was sampled from new and used domestic automobiles, foreign automobiles and domestic mobile homes. No evidence of vinyl chloride was found. The f llowing commercial vinyl products, when sampled in their normal environment, did not produce a measurable quantity of vinyl chloride in the ambient air: vinyl wall covering; vinyl swimming pool liners; and vinyl nursery products. A room being painted with a heavily pigmented red paint was found to contain a very low level of vinyl chloride.

Descriptors: *Toxicology, *Carcinogens, *Vinyl chloride, Air pollution, Automotive industry, Sampling, Exhaust emissions, Combustion products, Public health, Vehicles, Paints, Fabrics, Gas chromatography, Gas analysis, Charcoal, Adsorbents, Sites, Sources

Identifiers: *Air pollution sampling, Cancer, Environmental health, Secondary sources, NTISEPAOTS

PB-252 966/7ST NTIS Prices: PC$4.00/MF$2.25

Toxicology of Plastic Devices Having Contact with Blood

Utah Univ., Salt Lake City. Dept. of Applied Pharmaceutical Sciences.*National Heart and Lung Inst., Bethesda, Md.

Final rept. 24 Aug 72-23 Aug 75
Petersen, Robert V., Lyman, Donald J., Roll, David B., Swinyard, Ewart A.
C6282K3 Fld: 06T, 06L, 57Y, 95A, 95C GRAI7610
23 Aug 75 248p
Contract: PHS-73-2908
Monitor: NIH/NHLI-72-6-F
See also report dated 1 May 75, PB-244 753.

Abstract: The project was primarily concerned with toxicological valuation of polyvinyl chloride and, more specifically, the commonly used plasticizer, di(2-ethylhexyl) phthalate (DEHP). Evaluations are primarily concerned with long range, subtle toxicity potential, although many basic acute and subacute studies were also conducted. Th project is divided into twelve tasks including an organizational phase, plastic composition studies, acute toxicity studies, tissue culture studies, subacute toxicity studies, metabolite identification, t ratogenic studies, neurologic studies, larger animal studies, analyses of human blood exposed to plastics during hospital pr cedures, and possible statistical analysis of human patients following extensive exposure of blood to plastics.

D scriptors: *Polyvinyl chloride, *Plastics, *Plasticizers, *Toxicology, Patients, Tissue culture, Bioassay, Laboratory animals, Pathology, Rats, Heart, Phthalates, Body fluids, Neurology, Mice, Reproduction(Biology), Medical supplies, Mechanical organs, Humans, Blood.

Identifiers: *Blood compatible materials, Biomaterials, Phthalic acid/bis(ethylhexyl-ester), Metabolites, NTISNIHHLI

PB-250 102/1ST NTIS Prices: PC$8.00/MF$2.25

Scientific and Technical Assessment Report on Vinyl Chloride and Polyvinyl Chloride

Environmental Protection Agency, Research Triangle Park, N.C.

Final rept.
C6105G3 Fld: 06T, 06J, 13B, 57Y*, 57U, 68G*, 68A, 68D GRAI7608
Dec 75 125p*
Rept No: EPA/600/6-75/004
Monitor: 18
See also PB-246 820.

Abstract: Vinyl chloride (VC) is a chemical of widespread industrial and commercial use. Occupational experience and experimental evidence strongly indicate that it is a carcinogen. Additionally, there is experimental evidence that indicates that it may be a teratogen and mutagen. An increased incidence of liver angiosarcoma, excessive liver damage, and acroosteolysis has been reported among VC workers, and the frequency and severity of the liver pathology is related to the length of exposure. The principal route of exposure is thought to be air inhalation. Sources of increased importance for the general population include food and water. Tumors at multiple and diverse sites have been observed in all species of experimental animals tested for carcinogenicity by inhalation and ingestion of VC. In addition to the h alth effects of VC, this document also considers the sources, distribution, and control technology.

D scriptors: *Polyvinyl chloride, *Vinyl chloride, *Toxicology, *Industrial medicine, Air pollution, Public health, Liver, Malignant neoplasms, Carcinogens, Mutagens, Water pollution, Food chains, Humans , Laboratory animals, Experimental data, Chemical compounds, Chemical industry

Identifiers: *Air pollution effects(Humans), *Environmental health, Teratogens, Air pollution control, Water pollution effects(Humans), NTISEPAORD

PB-249 461/5ST NTIS Prices: PC$5.50/MF$2.25

Health Hazard Evaluation/Toxicity Determination Report H.H.E. 75-81-252, Artex Manufacturing Company, Inc., Overland Park, Kansas

National Inst. for Occupational Safety and Health, Cincinnati, Ohio. (390 766)

Final rept. May-Jun 75
Hervin, Raymond L.
C6104L2 Fld: 06J, 06T, 57U, 94D, 68G GRAI7608
Dec 75 11p
Rept No: NIOSH-TR-HHE-75-81-252
Monitor: 18
See also PB-249 431.

Abstract: A health hazard evaluation was conducted by NIOSH at a plant involved in the silk screen dyeing of decals onto various textile garments. It was determined that employees in the two main production areas were not exposed to toxic concentrations of vinyl chloride and organic solvents, including 1,1,1-trichloroethane, toluene, xylene, and petroleum naphtha. It was further determined that the clean room operator was exposed to potentially toxic concentrations of organic solvents from cleaning silk screens with an organic solvent containing primarily naphtha.

Descriptors: *Hazardous materials, *Industrial medicine, *Vinyl chloride, *Toluene, *Xylenes, Toxicity, Criteria, Inspection, Standards, Recommendations, Industrial hygiene, Industrial atmospheres, Fumes, Organic solvents, Exposure, Chloroform, Naphthas, Textile industry

Identifiers: *Occupational Safety and Health Act of 1970, *Toxic hazards, NTISHEWOSH

PB-249 432/6ST NTIS Prices: PC$3.50/MF$2.25

Health Hazard Evaluation/Toxicity Determination Report H.H.E. 73-173-244, Borden Chemical Company, Leominister, Massachusetts

National Inst. for Occupational Safety and Health, Cincinnati, Ohio. (390 766)

Final rept.
Polakoff, Phillip Lee
C6104J2 Fld: 06J, 06T, 57U, 94D, 68G GRAI7608
Dec 75 14p
Rept No: NIOSH-TR-HHE-73-173-244
Monitor: 18

Abstract: NIOSH investigated an alleged health hazard from trypsin, a prot olytic enzyme, and Nekal B-78, a surfactant, in a plant manufacturing polyvinyl chloride resins. Employees were administered non-directed medical questionnaires, skin tests and pulmonary function tests. It was determined that a number of employees had developed allergic sensitization to trypsin, resulting in respiratory impairment. Some employees who have not been sensitized have still developed mild upper respiratory tract irritation. It was also determined that several employees who handled the surfactant Nekal B-78 had periodically experienced upper airway irritation, gagging, and shortness of breath. This problem was judged to be the result of poor work practices and no serious health consequences from this exposure were observed or anticipated.

escriptors: *Hazardous materials, *Industrial medicine, *Polyvinyl chloride, *Trypsin, *Surfactants, Toxicity, Criteria, Inspection, Standards, Recommendations, Industrial hygiene, Industrial atmospheres, Exposure, Respiratory system, Chemical industry, Allergic diseases

Identifiers: *Occupational Safety and Health Act of 1970, *Toxic hazards, NTISHEWOSH

PB-249 424/3ST NTIS Prices: PC$3.50/MF$2.25

Health Hazard Evaluation/Toxicity Determination Report H.H.E. 74-61-232, Gates Rubber Company, Denver, Colorado

National Inst. for Occupational Safety and Health, Cincinnati, Ohio. (390 766)

Final rept. Jun 74-May 75
Gunter, Bobby J., Lucas, James B.
C6104G2 Fld: 06J, 06T, 57U, 94D, 68G GRAI7608
Nov 75 16p
Rept No: NIOSH-TR-HHE-74-61-232
Monitor: 18
See also PB-249 413.

Abstract: A plant manufacturing extruded hose, principally from the extrusion of polyvinyl chloride, was investigated by NIOSH to evaluate employee exposures to cyclohexanone, TDI, trichloroethylene, Estane thermoplastic polyurethane, methylene chloride, Nigrosine, Di-2-ethyl hexyl phthalate (DOP oil), dust, and vinyl chloride. It was determined that a potential health hazard may exist from exposure to cyclohexanone, and that several cases of primary irritant dermatitis had occurred following repeated exposure to solvents. Although only one of 38 vinyl chloride samples was found to exceed the Federal Standard action level, it was recommended that airborne concentrations be reduced to levels not detected by the recommended analytical techniques.

Descriptors: *Hazardous materials, *Industrial medicine, *Vinyl chloride resins, *Cyclohexanones, *Solvents, Organic solvents, Polyvinyl chloride, Isocyanates, Polyurethane resins, Plastics, Toxicity, Criteria, Inspection, Standards, Recommendations, Industrial hygiene, Industrial atmospheres, Chloromethanes, Hoses, Manufacturing, Dermatitis, Carcinogens

Identifiers: *Occupational Safety and Health Act of 1970, *Toxic hazards, Air sampling, NTISHEWOSH

PB-249 412/8ST NTIS Prices: PC$3.50/MF$2.25

Health Hazard Evaluation/Toxicity Determination Report H.H.E. 75-94-219, Proto Production Plastics, Inc., Boulder, Colorado

National Inst. for Occupational Safety and Health, Cincinnati, Ohio. (390 766)

Final rept.
Ruhe, Raymond L.
C6104D1 Fld: 06J, 06T, 57U, 94D, 68G GRAI7608
Sep 75 6p
Rept No: NIOSH-TR-HHE-75-94-219
Monitor: 18
See also PB-249 400.

Abstract: A plant manufacturing polyvinyl chloride telephone switchbox covers by means of an injection molding process was investigated by NIOSH to evaluate exposure of employees to vinyl chloride. Air samples w re obtained for vinyl chloride analysis and there were no detectable amounts of vinyl chloride found. Non-directed medical questionnaires were also administered and on the basis of medical and environmental data, it was determined that a health hazard did not exist at the time of this evaluation.

Descriptors: *Hazardous materials, *Industrial medicine, *Polyvinyl chloride, Vinyl chloride resins, Plastics industry, Carcinogens, Gases, Exposure, Toxicity, Criteria, Inspection, Standards, Recommendations, Industrial hygiene, Industrial atmospheres

Identifiers: *Occupational Safety and Health Act of 1970, *Toxic hazards, Air sampling, NTISHEWOSH

PB-249 399/7ST NTIS Prices: PC$3.50/MF$2.25

Health Hazard Evaluation/Toxicity Determination Report H.H.E. 74-59-217, Goodyear Tire and Rubber Company, St. Marys, Ohio

National Inst. for Occupational Safety and Health, Cincinnati, Ohio. (390 766)

Final rept. Jul 74-Mar 75
Vandervort, Robert
C6104C3 Fld: 06J, 06T, 57U, 94D, 68G GRAI7608
Aug 75 6p
Rept No: NIOSH-TR-HHE-74-59-217
Monitor: 18
See also PB-249 398.

Abstract: NIOSH evaluated employee exposures to vinyl chloride monomer in the mixing and film casting processes during the manufacture of cl ar plastic films by the solvent casting method. Air samples were obtained and no detectable levels of vinyl chloride were found. It was determined that a health hazard did not exist at the time of this evaluation.

Descriptors: *Hazardous materials, *Industrial medicine, *Vinyl chloride, *Polyvinyl chloride, Plastics industry, Carcinogens, Toxicity, Criteria, Inspection, Standards, Recommendations, Industrial hygiene, Industrial atmospheres

Identifiers: *Occupational Safety and Health Act of 1970, *Toxic hazards, Air sampling, NTISHEWOSH

PB-249 397/1ST NTIS Prices: PC$3.50/MF$2.25

R&S 040308

Health Hazard Evaluation/Toxicity Determination Report, H.H.E. 75-20-209, Richdel Corporation, Carson City, Nevada

National Inst. for Occupational Safety and Health, Cincinnati, Ohio. (390 766)

Final rept. Mar-Apr 75
Okawa, Melvin T.
C6104A3 Fld: 06J, 06T, 57U, 94D, 68G GRAI7608
Jul 75 8p
Rept No: NIOSH-TR-HHE-75-20-209
Monitor: 18
See also PB-249 390.

Abstract: A regrinding operation in a plant manufacturing molded plastic valves was studied by NIOSH. Based upon environmental air sampling measurements, analysis of work practices, and on available information regarding the toxicity of vinyl chloride, it was determined that a potential health hazard does exist.

Descriptors: *Hazardous materials, *Industrial medicine, *Vinyl chloride, *Carcinogens, Toxicity, Criteria, Inspection, Standards, Recommendations, Industrial hygiene, Industrial atmospheres, Plastics, Valves, Moldings

Identifiers: *Occupational Safety and Health Act of 1970, *Toxic hazards, Air sampling, NTISHEWOSH

PB-249 389/8ST NTIS Prices: PC$3.50/MF$2.25

R&S 040310

Health Hazard Evaluation/Toxicity Determination Report H.H.E. 74-134-193, PBC Industries, Inc., Camden, New Jersey

National Inst. for Occupational Safety and Health, Cincinnati, Ohio. (390 766)

Final rept.
Gilles, Dawn
C6103I3 Fld: 06J, 06T, 57U, 94D, 68G GRAI7608
May 75 6p
Rept No: NIOSH-TR-HHE-74-134-193
Monitor: 18
See also PB-249 374.

Abstract: NIOSH conducted a health hazard evaluation at a plant which manufactured handles from PVC resins. On the basis of environmental sampling conducted at the molding and extrusion processes, it was determined that a health hazard from exposure to vinyl chloride monomer did not exist at the time of this evaluation.

D scriptors: *Hazardous materials, *Industrial medicine, *Vinyl chloride, *Polyvinyl chloride, *Carcinogens, Toxicity, Criteria, Inspection, Standards, Recommendations, Industrial hygiene, Industrial atmospheres, Extrusion, Exposure, Moldings, Polymers

Identifiers: *Occupational Safety and Health Act of 1970, *Toxic hazards, Air sampling, NTISHEWOSH

PB-249 373/2ST NTIS Prices: PC$3.50/MF$2.25

R&S 040312

Epidemiology Studies. Task III. Vinyl Chloride

American Public Health Association, Washington, D.C.*Environmental Protection Agency, Washington, D.C. Office of Toxic Substances.

Final rept.
AUTHOR: Landau, Emanuel, Brinkman, Charles P., Manos, Nicholas E.
C5875H1 FLD: 06J, 57U*, 68G* USGRDR7605
Nov 75 106p*
CONTRACT: EPA-68-01-2490
MONITOR: EPA/560/6-75/002

ABSTRACT: Using data from the 1970 Census of Population estimates of the number of people living within a 5 mile radius of industrial plants producing vinyl chloride and vinyl chloride resins was prepared. Findings are reported. The sex, and age characteristics are provided.

DESCRIPTORS: *Epidemiology, *Vinyl chloride, *Industrial medicine, *Public health, Vinyl chloride resins, Industrial plants, Exposure, Populations, Demography, Tables(Data), Environments

IDENTIFIERS: NTISEPAOTS

PB-248 426/9ST NTIS Prices: PC$5.50/MF$2.25

Health Hazard Evaluation/Toxicity Determination Report 74-149-180, Protecto Wrap Company, Denver, Colorado

National Inst. for Occupational Safety and Health, Cincinnati, Ohio. (390 766)

Final rept.
AUTHOR: Butler, George J.
C5793H4 FLD: 06J, 06T, 57U, 94D, 68G USGRDR7604
Apr 75 7p
REPT NO: NIOSH-TR-HHE-74-149-180
MONITOR: 18

ABSTRACT: The environmental survey of a plant manufacturing a polyvinyl chloride backed material by NIOSH investigators revealed potentially hazardous levels of vinyl chloride gas. It was recommended that airborne concentrations of vinyl chloride be reduced to non-detectable levels and that respirators be worn by exposed employees until control measures are effective.

DESCRIPTORS: *Hazardous materials, *Industrial medicine, *Vinyl chloride, *Polyvinyl chloride, Toxicity, Criteria, Inspection, Standards, Recommendations, Industrial hygiene, Industrial atmospheres, Exposure, Evaluation, Plastics industry, Respirators, Gases, Surveys

IDENTIFIERS: *Occupational Safety and Health Act of 1970, *Toxic hazards, Air sampling, NTISHEWOSH

PB-246 496/4ST NTIS Prices: PC$3.50/MF$2.25

Health Hazard Evaluation/Toxicity Determination Report 74-89-189, New York Telephone and Telegraph Company, New York, N.Y

National Inst. for Occupational Safety and Health, Cincinnati, Ohio. (390 766)

Final rept.
AUTHOR: Straub, Wesley E.
C5793H1 FLD: 06J, 06T, 57U, 94D, 68G USGRDR7604
Apr 75 7p
REPT NO: NIOSH-TR-HHE-74-89-189
MONITOR: 18

ABSTRACT: NIOSH conducted an environmental survey to determine employee exposure to vinyl chloride, styrene, benzene, and hydrogen chloride during the application of heat shrinkable tape to telephone cables. It was determined that air concentration levels were below detectable levels for all substances tested and therefore were judged to be not toxic under the conditions noted during this evaluation.

DESCRIPTORS: *Hazardous materials, *Industrial medicine, *Styrene, *Benzene, *Hydrogen chloride, *Vinyl chloride, Toxicity, Criteria, Inspection, Standards, Recommendations, Industrial hygiene, Industrial atmospheres, Evaluation, Exposure, Coatings, Polyvinyl chloride, Thresholds(Perception), Toxic tolerances

IDENTIFIERS: *Occupational Safety and Health Act of 1970, *Toxic hazards, Air sampling, Maximum permissible exposure, NTISHEWOSH

PB-246 493/1ST NTIS Prices: PC$3.50/MF$2.25

Health Hazard Evaluation/Toxicity Determination Report 74-71-142, Delco Remy Division, Anaheim, California

National Inst. for Occupational Safety and Health, Cincinnati, Ohio. (390 766)

Final rept.
AUTHOR: Okawa, Melvin T.
C5793G1 FLD: 06J, 06T, 57U, 94D, 68G USGRDR7604
Sep 74 5p
REPT NO: NIOSH-TR-HHE-74-71-142
MONITOR: 18

ABSTRACT: An operation in which polyvinyl chloride was being used to manufacture the separators used in automobile batteries was studied by NIOSH investigators. It was determined that vinyl chloride vapors were not toxic at the concentrations measured during normal operating conditions. This determination was based upon the environmental levels of chloride, the conditions of use of polyvinyl chloride, and current information available on the toxicity of vinyl chloride.

DESCRIPTORS: *Hazardous materials, *Industrial medicine, *Vinyl chloride, *Battery separators, Toxicity, Criteria, Inspection, Standards, Recommendations, Industrial hygiene, Industrial atmospheres, Vapors, Exposure, Evaluation, Electric batteries

IDENTIFIERS: *Occupational Safety and Health Act of 1970, *Toxic hazards, Battery industry, Air sampling, NTISHEWOSH

PB-246 489/9ST NTIS Prices: PC$3.50/MF$2.25

R&S 040320

Toxicology of Plastic Devices Having Contact with Blood

Children's Hospital Medical Center, Boston, Mass.*National Heart and Lung Inst., Bethesda, Md. (082 790)

Comprehensive rept. Sep 72-Sep 75
AUTHOR: Kevy, Sherwin V., Button, Lawrence N., Jacobson, May S.
C5751F1 FLD: 06T, 13I, 06L, 57Y*, 710, 95C USGRDR7603
Oct 75 112p*
CONTRACT: PHS-72-2968
MONITOR: NIH/NHLI-72-2969-CR
See also PB-244 753.

ABSTRACT: The objectives of this research were twofold: (1) the utilization of an animal model to evaluate the functional effect of Di-2-ethylhexylphthalate (DEHP) accumulation, and (2) the development of an in vitro testing procedure that could be correlated with the animal studies. The rate of extraction of DEHP from polyvinyl chloride (PVC) is dependent upon both the temperature during storage and the lipid content of the medium. DEHP so obtained is in true solution, with particle sizes less than 0.22 micron. Tissue culture studies demonstrate that solubilized DEHP in varying concentrations inhibits the growth and ultimately kills human diploid fibroblasts. PVC and siliconized glass transfused rhesus had abnormalities in liver histopathology and liver functions for up to 14 months following cessation of transfusions. DEHP or silicon persisted in the tissues for up to 14 months post-transfusion. Both the control rhesus and those transfused with platelets processed in polyethylene containers were normal.

DESCRIPTORS: *Plastics, *Toxicology, *Polyvinyl chloride, Blood, In vitro analysis, In vivo analysis, Tissue culture, Body fluids, Blood plasma, Blood serum, Blood cells, Plasticizers, Polymers, Blood transfusion, Liver, Spleen, Tissues(Biology), Histology, Pathology, Monkeys, Experimental data, Accumulation

IDENTIFIERS: *Biomaterials, *Blood compatible materials, Animal models, *Phthalic acid/bis(ethylhexyl-ester), Histopathology, Bioaccumulation, NTISNIHHLI

PB-247 168/8ST NTIS Prices: PC$5.50/MF$2.25

Registry of Toxic Effects of Chemical Substances. 1975 Edition

National Inst. for Occupational Safety and Health, Rockville, Md.
AUTHOR: Christensen, H. E., Luginbyhl, T. T., Carroll, B
C5673A3 FLD: 06T, 06J, 57Y*, 57U, 68G* USGRDR7602
Jun 75 1399p*
REPT NO: NIOSH-TSL-75
CONTRACT: PHS-CDC-99-74-92
MONITOR: 18

ABSTRACT: The 1975 Edition of the Registry of Toxic Effects of Chemical Substances, formerly known as the NIOSH Toxic Substances List, is the fifth Edition prepared in compliance with the requirements of the Occupational Safety and Health Act of 1970 (PL-91-596). This Registry contains toxicity information on approximately 17,000 unique chemical substances along with about 48,000 synonyms. Information is given on route of entry, toxic dose and toxic effects including an indication of existing evidence of the substance may be carcinogen, mutagen, teratogen, etc.

DESCRIPTORS: *Toxicity, *Chemical compounds, *Hazardous materials, Indexes(Documentation), Public health, Dosage, Industrial medicine, Standards, Chemical properties, Exposure, Asbestos, Pesticides, Carcinogens, Vinyl chloride, Mutagens, Aquatic animals, Toxicology

IDENTIFIERS: Occupational Safety and Health Act of 1970, Maximum permissible exposure, Teratogens, *Occupational safety and health, NTISHEWOSH

PB-246 557/3ST NTIS Prices: PC$41.75/MF$2.25

Toxicology of Plastic Devices Having Contact with Blood

tah Univ., Salt Lake City. Dept. of Applied Pharmaceutical Sciences.*National Heart and Lung Inst., Bethesda, Md.

Annual rept. 1 May 74-30 Apr 75
AUTHOR: Petersen, Robert V., Lyman, Donald J., Roll, David B., Swinyard, Ewart A.
C5332D3 FLD: 06T, 06L, 57Y*, 95A*, 95C USGRDR7523
1 May 75 116p
CONTRACT: PHS-73-2908
MONITOR: NIH/NHLI-72-6
See also PB-233 701.

ABSTRACT: The project is concerned with toxicological evaluation of polyvinyl chloride (PVC) and, more specifically, the commonly used plasticizer, di-(2-ethylhexyl) phthalate (DEHP). Selected findings indicate that (1) the acute and subacute LD50 of a metabolite of DEHP (mono-(2-ethylhexyl) phthalate) given intravenously or intraperitoneally in mice or rats is highly toxic and irritant. (2) Analysis of particle size distribution of DEHP dispersed in fetal calf serum by sonication indicates that the vast majority of particles are less than 2 microns diameter. (3) DEHP appears to have some effect on chromosomes in human leukocytes and human fetal lung cells in tissue culture. (4) DEHP prolongs hexobarbital sleep. Phthalate-contaminated sheets caused greater adhesion and aggregation of platelets than methanol-cleansed PVC when exposed to sheep blood in ex-vivo experiments.

DESCRIPTORS: *Polyvinyl chloride, *Plastics, *Plasticizers, *Toxicology, Lethal dosage, Pathology, Body fluids, Blood, Laboratory animals, Tissue culture, Bioassay, Humans, Phthalates, Medical supplies, Mechanical organs

IDENTIFIERS: *Blood compatible materials, Biomaterials, Phthalic acid/bis(ethylhexyl-ester), NTISNIHHLI

PB-244 753/0ST NTIS Prices: PC$5.25/MF$2.25

Ambient Air Measurements of Vinyl Chloride in the Niagara Falls Area

National Environmental Research Center, Research Triangle Park, N.C. Chemistry and Physics Lab.

Environmental monitoring series
AUTHOR: Gay, Bruce W. Jr, Noonan, Richard C.
C5175A3 FLD: 13B, 07A, 06F, 68A, 99B, 57U USGRDR7521
May 75 19p
REPT NO: EPA/650/4-75/020
PROJECT: EPA-ROAP-21AKC
MONITOR: 18

ABSTRACT: A 6-day survey was conducted in the Niagara Falls area to determine the concentration of vinyl chloride in the atmosphere. Samples were obtained in a residential area adjacent to the chemical plants where vinyl chloride emissions were suspected, in areas around the plants, and in other areas of Niagara Falls. The highest concentration of vinyl chloride measured was 40 ppb for a 5-hour integrated sample observed at a residential area two blocks east of a vinyl chloride polymerization plant. Grab samples taken downwind of chemical plants exhibited a high of 28 ppb. Samples taken from downtown Niagara Falls and upwind north of the chemical plants contained no detectable vinyl chloride. The areas surrounding the chemical plants, including the adjacent residential areas, are also affected by emissions into the atmosphere of chlorine and other halogenated compounds as exhibited by the deterioration of metal urfaces, particularly aluminum windows and doors.

DESCRIPTORS: *Air pollution, *Vinyl chloride, *Chemical plants, New York, Angiosarcomas, Chlorine organic compounds, Halohydrocarbons, Aluminum, Buildings, Corrosion, Sampling, Public health

IDENTIFIERS: Air quality, Niagara Falls(New York), *Air pollution sampling, Air pollution effects(Materials), Air pollution effects(Humans), NTISEPAORD

PB-243 695/4ST NTIS Prices: PC$3.25/MF$2.25

Evaluation of Vinyl Chloride Associated with Heat Sealing PVC Products

Environmental Health Lab Mcclellan AFB Calif (407601)

Final rept.
AUTHOR: Smith, Billy S., Burnett, Ronald D., Diamond, Philip, Greathouse, Jack E.
C4745F3 FLD: 6J, 57U USGRDR7515
Dec 74 70p
REPT NO: EHL-74M-17
PROJECT: HAF-351
MONITOR: 18

ABSTRACT: Potential vinyl chloride (VC) exposures were evaluated during meat packaging and during welding operations using heat to join polyvinyl chloride (PVC) sheets or film. The potential for VC exposure was evaluated by analyzing the PVC materials for entrained or encapsulated VC and by analyzing air samples collected during the meat wrapping and welding operations for VC. The results of all analyses are shown. The potential for exposure to vinyl chloride monomer at the 0.1 ppm level was not found to exist in either of the two operations studied. No vinyl chloride monomer was detected in the PVC materials.

DESCRIPTORS: *Industrial hygiene, *Packaging, *Welding, Exposure(Physiology), Polyvinyl chloride, Gas analysis, Heat, Food processing

IDENTIFIERS: *Vinyl chloride, Indoor air pollution, Gas sampling, Air pollution standards, NTISDODAF

AD-A009 997/8ST NTIS Prices: PC$4.25/MF$2.25

Experimental Data Serving as a Basis for Separate Permissible Concentrations of Dibutylphthalate

National Institutes of Health, Bethesda, Md. Translation Unit.*Environmental Protection Agency, Research Triangle Park, N.C. Translation Services Section.
AUTHOR: Spasovski, Hincho
C4045C2 FLD: 06J, 06T USGRDR7504
Jul 73 8p
REPT NO: NIH-73-370C
MONITOR: EPA-TR-29-74
Trans. of Khigiena, Epidemiologiya i Mikrobiologiya (Bulgaria) v7 p38-44 1964.

ABSTRACT: Based on experiments using animals subjected to single and multiple inhalatory, oral and skincoating dosages, and which are supported by mathematical and analogical methods, the separate permissible standard for concentrations of industrial dibutylphthalate heated above 140C is 0.001 milligrams per liter of atmosphere. The toxicity of dibutylphthalate depends upon the modality of its introduction to the organism. Most toxic are its fumes heated above 140C which penetrate and consume the lungs. The substance is weakly toxic in oral application. It does not possess skin absorptive capability. Dibutylphthalate possesses a highly cumulative effect in inhalation and ingestion. The cumulative coefficient falls just short of one, which explains the hypersensitivity associated with it.

DESCRIPTORS: *Phthallates, *Toxicology, *Plastics, *Industrial medicine, Industrial atmospheres, Polyvinyl chloride, Bulgaria, Translations, Lung, Laboratory animals, Experimental data, Exposure, Permissible dosage, Fumes

IDENTIFIERS: Phthallic acid/(dibutyl-ester), Indoor air pollution, NTISEPAISD, NTISNIH

PB-237 886-T/ST NTIS Prices: PC$3.25/MF$2.25

R&S 040334

Accumulation of DI-2-Ethylhexyl Phthalate (DEHP) in Whole Blood, Platelet Concentrates, and Platelet-Poor Plasma

Naval Blood Research Lab Chelsea Mass (387481)
AUTHOR: Contreras, T. J., Sheibley, R. H., Valeri, C. R.
C3611I1 PLD: 6L USGRDR7424
4 Sep 73 15p
PROJECT: MR041.02
TASK: MR041.02.01
MONITOR: 18
Revision of report dated 30 Mar 73. See also AD-766 554.
Availability: Pub. in Transfusion, v14 n1 p34-46 Jan/Feb 74.

ABSTRACT: The concentration of the plasticizer, di-2-ethylhexyl phthalate (DEHP), in the plasma was measured after storage of the whole blood in polyvinyl chloride plastic bags at 4C for up to 38 days in either ACD or CPD. The plasma from ACD-stored whole blood contained more DEHP than that from CPD-stored whole blood. The continuous-flow centrifugation washing procedures removed about 98 per cent of the DEHP from ACD whole blood stored for 33 days at 4C. DEHP was assayed in the platelet-rich plasma, platelet-poor plasma, supernatant of the platelet concentrate, washed platelets, and washed red blood cells prepared from CPD whole blood. Very little DEHP was found in the washed red blood cells and platelets, a small amount was found in the platelet-poor plasma, and a large amount in the supernatant of the platelet concentrate. A greater amount of DEHP accumulated in the platelet concentrates that were stored at 22C than in those stored at 4C. When platelet concentrates from CPD whole blood were stored at 22C for 72 hours, the amount of DEHP was about four times that observed after 4C storage for the same length of time. (Author)

DESCRIPTORS: *Blood, *Phthalates, *Plasticizers, *Polyvinyl chloride, Plastics, Bags, Blood plasma, Blood platelets, Accumulation, Blood banks, Storage, Blood transfusion, Toxicity

IDENTIFIERS: Phthalic acid/bis(ethylhexyl-ester), NTISDODN

AD-786 253/5SL NTIS Price: Reprint

Toxicology of Plastic Devices Having Contact with Blood

Utah Univ., Salt Lake City. Coll. of Pharmacy.

Interim rept. 24 Aug 72-1 May 74
AUTHOR: Lyman, Donald J., Roll, David B., Swinyard, Ewart A.
C3283I1 FLD: 6T, 6L, 57Y*, 95A*, 95C USGRDR7419
May 74 206p*
GRANT: PHS-73-2908
MONITOR: NIH/NHLI-73-2908-B

ABSTRACT: The project is primarily concerned with toxicological evaluation of polyvinyl chloride and, more specifically, the commonly used plasticizer, di(2-ethylhexyl) phthalate (DEHP). Evaluations are concentrated on long range, subtle toxicity potential, although basic acute and subacute studies are also utilized. Plastic composition studies, acute toxicity studies, tissue culture studies, subacute toxicity studies, metabolite identification, teratogenic studies, neurologic studies, larger animal studies, analyses of human blood exposed to plastics during hospital procedures, and possible statistical analysis of human patients following extensive exposure of blood to plastics are included. Selected findings indicate that: Plastic components which contain DEHP as a plasticizer are toxic to L-929 cells in tissue culture; DEHP appears to prevent implantation of fertilized ova in rats and mice; DEHP affects rate and amplitude of contractions in isolated rat hearts; DEHP is hydrolyzed in vitro by liver microsomes and mitochondria but not by cytosol.

DESCRIPTORS: *Polyvinyl chloride, *Plastics, *Toxicology, *Plasticizers, Blood, Medical supplies, Tissue culture, Mechanical organs, Experimental data, Phthalates, Laboratory animals, Humans, Bioassay, Neurology

IDENTIFIERS: *Blood compatible materials, *Pathalic acid/bis(ethylhexyl-ester), Biomaterials, NTISHEWHLI

PB-233 701/2 NTIS Prices: PC$5.75/MF$1.45

R&S 040336

Health Hazard Evaluation/Toxicity Determination. John Morrell Company, Sioux Falls, South Dakota

National Inst. for Occupational Safety and Health, Cincinnati, Ohio. (390 766)

Final rept. Oct 72-Jan 73
AUTHOR: Polakoff, Phillip L., Vandervort, Robert
C3084E2 FLD: 6J, 6T, 57G, 94D, 68G USGRDB7416
Oct 73 15p
REPT NO: NIOSH-TR-089-74, HHE-71-29-89
MONITOR: 18

ABSTRACT: In response to a request received from a representative of employees, the National Institute for Occupational Safety and Health (NIOSH) conducted a health hazard survey to evaluate exposure to thermal decomposition products of polyvinyl chloride meat packaging film at John Morrell Company, Sioux Falls, South Dakota. Based on medical evidence compiled during a limited study of meat wrapping employees it was determined that air contaminants generated by the thermal cutting of polyvinyl chloride packaging films in conjunction with the wrapping of meat are potentially toxic to some meat wrapping employees. Symptoms range from mild eye, nose and throat irritation to more serious respiratory problems for meat wrappers who have an underlying predisposition to respiratory difficulties. Recommendations have been suggested to management regarding preemployment examinations and work practices.

DESCRIPTORS: *Hazardous materials, *Industrial medicine, *Polyvinyl chloride, Toxicity, Criteria, Inspection, Standards, Recommendations, Industrial hygiene, Packaging, Pyrolysis, Respiratory infections

IDENTIFIERS: *Occupational Safety and Health Act of 1970, Packaging materials, *Meat packing industry, *Toxic hazards, Air pollution effects(Humans), NTISNIOSH

PB-252 576/5 CSCL Prices: PC$4.00 MF$1.45

R&S 040338

Coal Mine Combustion Products: Identification and Analysis

Ultrasystems, Inc., Irvine, Calif. (Not given)

Annual rept. FY 1972-73
AUTHOR: Paciorek, K. L., Kratzer, R. H., Kaufman, J., Nakahara, J. H.
C2314G2 FLD: 7D, 21B, 8I, 11I, 11L, 48A, 71O, 99F, 81A, 71R
USGRDR7406
Aug 73 160p
REPT NO: SN-8220/A1
CONTRACT: H0133004
MONITOR: BuMines-OFR-8-74

ABSTRACT: The toxic products formed during thermal oxidative degradation of neoprene and polyvinyl chloride compositions, urethane foams and various untreated and treated woods were determined quantitatively on a g/g basis. Quiescent and dynamic decomposition conditions were employed. Analyses were performed using high vacuum separations, gas chromatography, mass spectrometry, infrared spectroscopy, and wet chemical methods. The main toxic species found were among others CO, HCl, HCN, SO2, anhydride, aniline, and furfural. Thermogravimetric analyses were performed on all the compositions, and the data were correlated to available formulating information and product formation.

DESCRIPTORS: *Combustion products, *Plastics, *Wood, *Coal mining, Mining equipment, Chloroprene resins, Polyvinyl chloride, Polyurethane resins, Carbon monoxide, Decomposition reactions, Hydrogen chloride, Sulfur dioxide, Hydrogen cyanide, Anhydrides, Anilines, Furfurals, Toxicity, Thermal analysis, Gas chromatography, Mass spectroscopy, Chemical analysis, Oxidation, Safety, Organic compounds

IDENTIFIERS: BM

PB-226 944/7 NTIS Prices: PC$11.00/MF$1.45

Toxicology of Plastic Devices Having Contact With Blood

Utah Univ., Salt Lake City. (326 900)

Interim rept. for 24 Aug 72-15 Sep 73
AUTHOR: Petersen, Robert V., Lyman, David J., Roll, David B., Swinard, Ewart A.
C1901C4 FLD: 6T, 6L, 57Y*, 95A*, 95C USGRDR7324
Sep 73 117p*
CONTRACT: NIH-NHLI-73-2908-B
MONITOR: NIH/NHLI-72-6

ABSTRACT: The project is primarily concerned with toxicological evaluation of polyvinyl chloride and, more specifically, the commonly used plasticizer, di(2-ethylhexyl) phthalate (DEHP). The project is divided into twelve tasks including an organizational phase. Plastic composition studies, acute toxicity studies, tissue culture studies, subacute toxicity studies, metabolite identification, teratogenic studies, neurologic studies, larger animal studies, analyses of human blood exposed to plastics during hospital procedures, and possible statistical analysis of human patients following extensive exposure of blood to plastics. Selected findings indicate that: DEHP is poorly absorbed from i.p. = intraperitoneal administration of massive doses; the 30-day subacute i.v. = intravenous LD50 of DEHP in mouse serum is 355 mg/kg in mice; DEHP accumulates in lungs of dogs for at least 2 weeks during daily i.v. = intravenous administration; an efficient m thod for analyzing DEHP by gas chromatography utilizing an internal standard has been developed; and some components of renal dialysis and cardiac bypass units are toxic to L929 cells by tissue culture methods. Portions of this document are not fully legible.

DESCRIPTORS: (*Plastics, *Blood), (*Toxicology, Plastics), (*Plasticizers, Toxicology), Medical supplies, Polyvinyl chloride, Addition resins, Elastomers, Thermoplastic resins, Tissue culture, Medical equipment, Mechanical organs, Experimental data, Phthalates, Bioassay, Humans, Laboratory animals

IDENTIFIERS: Phthalic acidbis(ethylhexyl-ester), Biocompatible materials, *Blood compatible materials, NHLI

PB-224 558/7 NTIS Prices: PC$4.25/MF$1.45

R&S 040342

R&S 040344

Combustion Products from the Incineration of Plastics

Michigan Univ., Ann Arbor. School of Public Health.

Final rept.
AUTHOR: Boettner, E. A., Ball, G. L., Weise, B.
C1501A3 FLD: 13B, 7C, 68C*, 68A, 59H USGRDR7319
1973 154p*
CONTRACT: EP-00386
MONITOR: EPA-670/2-73-049

ABSTRACT: Analysis of the combustion products of plastics was undertaken to provide scientists and engineers with information needed to design incinerators in order to maximize their efficiency while minimizing maintainance and pollution, to identify products of incomplete combustion potentially recoverable for their fuel or crude chemical value; and to identify products of incomplete combustion which would be acutely toxic in an accidental fire. Plastics studied were polyvinyl chloride, polysulfone, polyurethanes, polyimide, Lopac, Barex, phenol formaldehyde, urea formaldehyde, polyethylene, polypropylene, polystyrene, polycarbonate, polyphenylene oxide, polyester, synthetic fabrics (Dacron, Orlon, nylon), and natural products (wood and wool). (Modified author abstract)

DESCRIPTORS: (*Plastics, *Combustion products), (*Air pollution, Combustion products), (*Incinerators, Air pollution), (*Solid waste disposal, Plastics), Decomposition reactions, Incinerators, Chemical analysis, Gas chromatography, Infrared spectroscopy, Mass spectrometers, Data, Polyvinyl chloride, Thermogravimetric analysis, Polyurethane resins, Polyimide resins, Urea formaldehyde resins, Polyethylene, Polypropylene, Polystyrene, Polycarbonate resins, Polyester resins

IDENTIFIERS: NERC

PB-222 001/0 NTIS Prices: PC$8.00/MF$1.45

Chemical and Physical Properties and Thermal Deconposition Products of Certain Natural Products and Synthetic Materials

Environmental Health Lab Kelly AFB Tex (s00925)

Technical rept.
AUTHOR: Melvin, Walter W. Jr
C0072I2 FLD: 11I, 11E, 13L, 710, 71H, 71I, 83C USGRDR7302
May 72 170p*
REPT NO: EHL(K)-72-14
PROJECT: EHL-70-7
MONITOR: 18

ABSTRACT: A limited review of the literature including the early history and current data on deaths, injuries and costs due to the combustion and pyrolysis of resins, plastics and natural materials is provided. There is a limited discussion of the chemistry and physical properties of plastics. Applications of these materials in wearing apparel, construction trades, the aircraft industry, and others are discussed. Experimental data on the pyrolysis products of five synthetic and natural fiber carpets are presented. An extensive collection of tables from a number of sources give data on the trad name, type of plastic and manufacturer, physical and chemica properties, decomposition products, and other information. (Author)

DESCRIPTORS: (*Plastics, *Combustion), (*Textiles, Combustion), (*Floor coverings, Combustion), Reviews, Burning rate, Toxicity, Clothing, Nylon, Corrosive gases, Fire resistant materials, Pyrolysis, Thermal properties, Woolen textiles, Polyvinyl chloride, Plasticizers, Carbon monoxide

IDENTIFIERS: Fire safety, *Carpets, *Flammability testing, Smoke, Hydrogen chloride, Hydrogen cyanide

AD-751 899 NTIS Prices: PC$3.00/MF$0.95

R&S 040346

ON THE QUESTION OF IMPROVING SOME POLYVINYL CHLORIDE POLYMERS AND A METHOD OF IMPROVING THEIR TOXICITY

Air Force Systems Command, Wright-Patterson AFB, Ohio. Foreign Technology Div.
AUTHOR: Gorban, G. M.
6011F1 FLD: 11G STAR0709
Apr 68 13p
REPT NO: AD-680924, FTD-HT-23-1464-67
Tran- Transl. Into English From Kosmich. Biol. Med. (USSR), V. 1, No. 2, 1967 P 47-51

DESCRIPTORS: *Electrical properties, *Plastic tapes, *Polyvinyl chloride, *Ureas, Degassing, Electrical insulation, Nitrogen compounds

N69-20342 CFSTI Prices: PC$3.00 MF$0.95

ABSTRACT:

A method is developed for improving the polyvinyl chloride tapes for the purpose of decreasing their gas emanation. The overall gas emission of organic substances from the improved specimens of polyvinyl chloride tapes as a result of the treatment with 50% urea solution is reduced by a factor of 2-1/2. The improved polyvinyl chloride tapes give off volatile chemical substances in small concentrations, which with long duration of their action on the organism cause only a weak biilogical effect. As a result of the treatment with a solution of urea there is an improvement in the electrical insulation properties of the polyvinyl chloride tapes serving the purpose for which the materials are intended without change in their strength characteristics.

ON THE QUESTION OF IMPROVING SOME POLYVINYL CHLORIDE POLYMERS AND A METHOD OF IMPROVING THEIR TOXICITY

Foreign Technology Div Wright-Patterson AFB Ohio (141600)
AUTHOR: Gorban, G. M., Yablochkin, V. D.
5603E1 FLD: 11I, 22A USGRDR6906
15 Apr 68 12p
REPT NO: FTD-HT-23-1464-67
Unedited rough draft trans. of Kosmicheskaya Biologiya i Meditsina (USSR) v1 n2 p47-51 1967, by E. Harter.

ABSTRACT: A method is developed for 'improving' the polyvinyl chloride tapes for the purpose of decreasing their gas emanation. The overall gas emission of organic substances from the 'improved' specimens of polyvinyl chloride tapes as a result of the treatment with 50% urea solution is reduced by a factor of 2 1/2. The 'improved' polyvinyl chloride tapes give off volatile chemical substances in small concentrations, which with long duration of their action on the organism cause only a weak biological effect. As a result of the treatment with a solution of urea there is an improvement in th electrical insulation properties of the polyvinyl chloride tapes serving the purpose for which the materials are intended without change in their strength characteristics. (Author)

DESCRIPTORS: (*Polyvinyl chloride, Processing), Tapes, Gases, Urea, Spacecraft cabins, Carbon dioxide, Aldehydes, Carbon monoxide, Hydrocarbons, Toxicity, Degasification, USSR

IDENTIFIERS: Translations

AD-680 924 CFSTI Prices: PC$3.00 MF$0.95

R&S 040350