LITERATURE SEARCH

REQUESTOR: **Jean Domoradski** ***DATE:*** **9/28/95**

SUBJECT: Vinyl Chloride or Ethylene Dichloride and Leukemia

COSTS: $74.95

DATABASES SEARCHED:

BIOSIS

BIOSIS PREVIEWS, (1969-present) contains citations from *Biological Abstracts* (BA), *Biological Abstracts/Reports, Reviews, Meetings* (BA/RRM), and *Bioresearch Index* (BioI), the major publications of BioSciences Information Service (BIOSIS). *Biological Abstracts* includes approximately 165,000 accounts of original research yearly from over 9,000 primary journal and monograph titles. Biological Abstracts/RRM includes an additional 125,000 citations a year from meetings, reviews, books, preliminary reports, notes, letters, selected institutional and government reports, and research communications.

CAplus

The CAplus File , (1967-present), is the most current and comprehensive chemistry datatbase provided by Chemical Abstracts Service. Bibliographic information and available abstracts for articles from 1,300 core chemical journals are added within one week of receipt. The CAplus file is updated daily. This database includes the literature of chemistry and its applications worldwide and is derived from journal articles, patents, reviews, technical reports, monographs, conference and symposium proceedings, dissertations and books.

CCRIS

CCRIS (Chemical Carcinogenesis Research Information System) is a scientifically evaluated and fully referenced databank, developed and maintained by the National Cancer Institute (NCI). The database contains carcinogenicity, tumor promotion, and mutagenicity test results on approximately 1200 chemicals. The data are derived from the scanning of primary journals, current awareness tools, and a special core set of sources, including a wide range of NCI reports.

EMBASE

EMBASE is one of the leading sources for searching the biomedical literature. It consists of abstracts and citations from 1974 to the present of articles from over 4,000 biomedical journals published throughout the world. It covers the entire field of human medicine and related disciplines. In addition to providing abstracts in all fields of medicine, EMBASE provides extensive coverage of the related sciences such as environmental health and pollution control, forensic science, health economics and hospital management, and public health.

HEALTH and SAFETY SCIENCE ABSTRACTS

HEALTH and SAFETY SCIENCE ABSTRACTS, (1981 - present), covers worldwide literature relating to public health, safety, and industrial hygiene.

JICST-E

The JICST-E file, 1985-present), JICST File on Science, Technology and Medicine in Japan) is a comprehensive bibliographic database with English citations and abstracts covering the literature published in Japan on all fields of science, technology and medicine. The references are collected from approximately 4,500 journals and serials and also consists of conference proceedings and technical reports. The file is produced by the Japan Information Center of Science and Technology (JICST)

LIFE SCIENCES COLLECTION

LIFE SCIENCES COLLECTION, (1978 - present), contains abstracts of literature in the fields of animal behavior, biochemistry, ecology, endocrinology, entomology, genetics, immunology, microbiology, oncology, neuroscience, toxicology, and virology, among others. The worlwide coverage encompasses journal articles, books, conference proceedings, and report literature.

MEDLINE

MEDLINE, (1966 -- present),produced by the U. S. National Library of Medicine (NLM), is one of the major sources for biomedical literature materials. MEDLINE corresponds to the

R&S145685

three printed indexes, *Index Medicus, Index to Dental Literature,* and *International Nursing Index.* MEDLINE coers virtually every subject in the broad field of biomedicine, indexing articles from over 3,700 international journals. Over 360,000 records are added each year.

TOXLINE

TOXLINE is the National Library of Medicine's extensive collection of computerized toxicology information. TOXLINE encompasses the years 1965-presentand is derived from the following sources:

- American Society of Hospital Pharmacists: International Pharmaceutical Abstracts (IPA)
- Aneuploidy (ANEUPL)
- Toxicological Aspects of Environmental Health (BIOSIS formerly HEEP) Developmental and Reproductive Toxicology File (DART)
- Environmental Mutagen Information Center (EMIC)
- Environmental Protection Agency: Pesticide Abstracts (PESTAB)
- Toxic Substances Control Act Test Submissions (TSCATS)
- Environmental Teratogen Information Center (ETIC)
- Epidemiology Information System (EPIDEM)
- Federal Research in Progress (FEDRIP)
- Hazardous Materials Technical Center (HMTC)
- International Labor Office (CIS)
- NIOSHTIC, National Institute for Occupational Safety and Health (NIOSH)
- Toxicity Bibliography (TOXBIB)
- Toxicology Document and Data Depository File (NTIS)
- Poisonous Plants Bibliography (PPBIB)
- Toxicology Research Projects (CRISP)

If you have any questions or if the result of this search does not entirely meet your needs, please call Beth Eisman, 6-3238

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R&S145686

L106 ANSWER 1 OF 34 CANCERLIT DUPLICATE 1
AN 93326743 CANCERLIT
TI Study of a cluster of childhood leukemia.
AU Deschamps M; Band P
CS Division of Epidemiology, Biometry and Occupational Oncology, British Columbia Cancer Agency, Vancouver.
SO Health Rep, (1993). Vol. 5, No. 1, pp. 81-5. Journal code: A57. ISSN: 0840-6529.
DT Journal; Article; (JOURNAL ARTICLE)
FS MEDL; L; Priority Journals
LA English; French
OS MEDLINE 93326743
EM 9309
RN 107-06-2 (ethylene dichloride)

L106 ANSWER 2 OF 34 CANCERLIT DUPLICATE 4
AN 84195272 CANCERLIT
TI CARCINOGENICITY AND EPIDEMIOLOGICAL PROFILE ANALYSIS OF VINYL CHLORIDE AND POLYVINYL CHLORIDE.
AU Kalmaz E E; Kalmaz G D
CS Department of Preventive Medicine and Community Health, University of Texas Medical Branch, Galveston.
SO Regul Toxicol Pharmacol, (1984). Vol. 4, No. 1, pp. 13-27. Journal code: RBH. ISSN: 0273-2300.
DT Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
FS MEDL; L; Priority Journals
LA English
OS MEDLINE 84195272
EM 8407
AB The carcinogenicity of vinyl chloride and polyvinyl chloride (VC/PVC) is reviewed with specific attention to the gaps in knowledge for risk estimation and epidemiological presentation of the available data. Although experimental studies have demonstrated the carcinogenicity and mutagenicity of VC/PVC in general, the epidemiologic studies available for review do not include an assessment of carcinogenic risk among humans exposed to these chemicals. This conclusion is based on the observation that the majority of cohort studies reviewed lacked sufficient statistical power because of small sample sizes. Further, in epidemiological studies, individuals were not followed over an adequate period of time during which cancer could become clinically manifest. (81 Refs)
RN 75-01-4 (Vinyl Chloride); 9002-86-2 (Polyvinyl Chloride)

L106 ANSWER 3 OF 34 CANCERLIT
AN 95139027 CANCERLIT
TI Synthesis and cytotoxic activity of 6-vinyl- and 6-ethynyluridine and 8-vinyl-and 8-ethynyladenosine.
AU Manfredini S; Baraldi P G; Bazzanini R; Marangoni M; Simoni D; Balzarini J; De Clercq E

R&S145687

CS Departimento di Scienze Farmaceutiche, Universita di Ferrara, Italy.
SO J Med Chem, (1995). Vol. 38, No. 1, pp. 199-203.
Journal code: J0F. ISSN: 0022-2623.
DT Journal; Article; (JOURNAL ARTICLE)
FS MEDL; Cancer Journals; L; Priority Journals
LA English
OS MEDLINE 95139027
EM 9504
AB It is well-known that the introduction of vinyl and ethynyl moieties into nucleosides is of crucial importance for cytostatic, antiviral, or other biological activities. In this study 6- and 8-vinyl-and -ethynyluridine and -adenosine were prepared by a general procedure involving the palladium-catalyzed cross-coupling of trimethylsilylacetylene or vinyltributyltin. The introduction of a vinyl group at C-6 of uridine or an ethynyl group at C-8 of adenosine resulted in nucleoside derivatives showing cytostatic activity against several murine and/or human tumor cell lines. Interestingly, 8-vinyladenosine had pronounced selective inhibitory effects on human (Molt/4F and MT-4) versus murine (L1210 and FM3A) tumor cell lines.
RN 58-61-7 (Adenosine); 58-96-8 (Uridine)

L106 ANSWER 4 OF 34 TOXLINE DUPLICATE 5
AN 90:17699 TOXLINE
DN EPIDEM-002131
TI OBSERVATIONS OF THE SITE-SPECIFIC CARCINOGENICITY OF ***VINYL*** ***CHLORIDE*** TO ***HUMANS*** .
AU INFANTE PF
SO ENVIRON. HEALTH PERSPECT, (1981). Vol. 41, pp. 89-94.
DT Journal
FS EPIDEM
LA Unavailable
EM 9003
AB EIS: Epidemiology Information System
RN ***75-01-4***

L106 ANSWER 5 OF 34 TOXLINE
AN 90:108612 TOXLINE
DN EPIDEM-
TI THE CAUSES OF CANCER. WHILE SOME CANCERS ARE GENETICALLY FATED TO APPEAR, MOST HAVE NOW BEEN TRACED TO ENVIRONMENTAL FACTORS.
AU REIF AE
SO AM. SCI, (1981). Vol. 69, pp. 437-447.
DT Journal
FS EPIDEM
LA Unavailable
EM 9003
AB EIS: Epidemiology Information System
RN ***75-01-4; 68-26-8; 59-02-9; 50-81-7; 81-07-2; 57-88-5; 1332-21-4; 7440-47-3; 7440-02-0; 71-43-2; 75-21-8; 9055-96-3; 98-92-0; 73467-76-2***

L106 ANSWER 6 OF 34 TOXLINE
AN 90:18380 TOXLINE

R&S145688

DN EPIDEM-002814
TI ESTIMATES OF THE FRACTION OF CANCER IN THE UNITED STATES RELATED TO OCCUPATIONAL FACTORS, REPLY AND DRAFT SUMMARY.
AU AMERICAN INDUSTRIAL HEALTH COUNCIL, STEERING COMMITTEE
SO AM. IND. HEALTH COUNC. REP, (1978). 122 PP.
DT (REPORTS)
FS EPIDEM
LA Unavailable
EM 9003
AB EIS: Epidemiology Information System
RN ***75-01-4; 7440-38-2; 71-43-2; 7440-47-3; 1332-21-4; 7440-02-0***

L106 ANSWER 7 OF 34 TOXLINE
AN 90:16081 TOXLINE
DN EPIDEM-000221
TI RELATIONSHIP BETWEEN ***HUMAN*** TERATOGENS AND CARCINOGENS.
AU MILLER RW
SO J. NATL. CANCER INST, (1977). Vol. 58, No. 3, pp. 471-474.
DT Journal
FS EPIDEM
LA Unavailable
EM 9003
AB EIS: Epidemiology Information System
RN ***54-62-6; 55-98-1; 7439-97-6; 59-05-2; 60-54-8; 50-35-1; 81-81-2; 92-87-5; 134-32-7; 91-59-8; 92-67-1; 92-93-3; 7440-38-2; 1332-21-4; 71-43-2; 542-88-1; 56-75-7; 494-03-1; 7440-47-3; 57-41-0; 67-63-0; 148-82-3; 7440-02-0; 505-60-2; 62-44-2; 75-01-4; 56-53-1***

L106 ANSWER 8 OF 34 TOXLINE
AN 90:22117 TOXLINE
DN EPIDEM-006582
TI GEOPREVALENCE AND ETIOLOGY OF CANCER.
AU BURDETTE WJ
SO BULL. SOC. INT. CHIR, (1975). Vol. 5, pp. 345-354.
DT Journal
FS EPIDEM
LA Unavailable
EM 9003
AB EIS: Epidemiology Information System
RN ***1332-21-4; 91-59-8; 92-67-1; 92-87-5; 7440-38-2; 7440-47-3; 7440-02-0; 75-01-4; 64-17-5; 7631-99-4; 7632-00-0***

L106 ANSWER 9 OF 34 TOXLINE
AN 76:18739 TOXLINE
DN PESTAB-76-1504
TI Conference on toxicology-epidemiology-health effects of pesticides. A review of the problem.
AU Kay K
SO Clin. Toxicol. 8(3): 289-300, (1975). 1975 (60 references). CODEN: CTOXAO.
FS PESTAB

R&S145689

LA Unavailable
EM 7607
AB PESTAB. Six developments occurring in 1974 related to pesticides are reviewed: the ***vinyl*** ***chloride*** case; the regulation of 14 carcinogens under OSHA; the banning of aldrin and dieldrin; cancer among U.S. arsenic ***workers*** ; the relation of neurotoxicity and carcinogenicity; ***human*** poisoning due to chlorinated-p-dioxins; and the encapsulation of pesticides. The findings of cases of hemangiosarcoma of the liver among ***workers*** in polyvinyl chloride demonstrated that there is a need to retest older pesticides and associated materials that have never been adequately assessed on a long-term basis to disclose carcinogenicity. Of the 14 carcinogenic chemicals brought under control on Feb. 11, 1974 by the OSHA, only two, beta-propiolactone and ethyleneimine, could be considered pesticidal. They constitute a potential occupational hazard for an extremely small percentage of ***workers*** exposed to pesticides. In 1974 dieldrin and aldrin were established as carcinogens. Large numbers of ***workers*** have been exposed to occupational contact with these carcinogens before. Hemangioendothelioma of the liver was diagnosed in vineyard ***workers*** . Last year there ***leukemia*** was reported in a U.S. ***worker*** using arsenic pesticides. Studies of ***workers*** manufacturing arsenical sheep dip have strongly suggested that lung cancer occurs in higher than expected rates in these arsenic exposure occupations. Pesticides as a class of compounds appears to strengthen the idea of a relation between neurotoxicity and carcinogenicity. For a time, toxicologic test procedures were not adequately modified to avoid marketing products which contained high toxicity contaminants. A technique has been developed for the microencapsulating of pesticides to provide slow controlled release. Two years of field trials are cited during which the encapsulated methyl parathion diffusing through the pores of the polyamide microspheres maintained levels on crops for much longer than did conventional methyl parathion treatment. Residues of the encapsulating polyamide are inert and nontoxic in certain food crops. Microcapsules can be readily sprayed on as a water slurry. Caution is advised as the ***vinyl*** ***chloride*** case has alerted the health-related professions to the occurrence of unreated monomers and additives in seemingly nonreactive plastics. Even smaller nylon type polymer spheres are available. These could be inspired into the periphery of the lung where release of unreacted monomers and additives would presumably ensue.

L106 ANSWER 10 OF 34 MEDLINE DUPLICATE 6
AN 80065412 MEDLINE
TI A cohort study of mortality and cancer incidence in ethylene oxide production workers.
AU Hogstedt C; Rohlen O; Berndtsson B S; Axelson O; Ehrenberg L
SO Br J Ind Med, (1979 Nov) 36 (4) 276-80.
Journal code: AXS. ISSN: 0007-1072.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals

R&S145690

EM 8004
AB Ethylene oxide, important as an intermediate product in the chemical industry and for sterilising hospital equipment, is mutagenic in several organisms; carcinogenicity has been suspected although this had not been supported by clinical data. Ethylene oxide has been produced by a Swedish company since the beginning of the 1940s. This paper describes a cohort study of the mortality and the cancer incidence among full-time exposed workers in ethylene oxide production, a group of maintenance workers with intermittent exposure and a group of unexposed controls. Investigation of the production processes in the building at different times has shown that workers were exposed to ethylene dichloride, ethylene chlorohydrin, ethylene, and small amounts of bis-(2-chloroethyl) ether as well as to ethylene oxide and traces of other chemicals. The full-time exposed cohort shows a considerable excess mortality deriving mainly from increased mortality from tumours and also from diseases of the circulatory system. The cancer incidence study, including living persons with malignancies, showed a significant excess in the full-time cohort. Of the 16 patients with tumours in the two more exposed cohorts there were three cases of leukaemia, six of tumours in the alimentary tract and four of urogenital malignancy. The excess mortality and cancer incidence cannot be attributed to any particular chemical in the production process, but ethylene oxide and ethylene dichloride are the prime suspects.

L106 ANSWER 11 OF 34 MEDLINE DUPLICATE 7
AN 79031143 MEDLINE
TI [Need for environmental anamnesis in leukemia and malformations in children].
Behov av miljoanamnes vid leukemi och missbildning hos barn.
AU Haglund B; Kjellman B
SO Lakartidningen, (1978 Sep 27) 75 (39) 3436-7.
Journal code: L0N. ISSN: 0023-7205.
CY Sweden
DT Journal; Article; (JOURNAL ARTICLE)
LA Swedish
EM 7902

L106 ANSWER 12 OF 34 MEDLINE
AN 80029534 MEDLINE
TI Synthesis and biological activities of ftorafur metabolites. 3'- and 4'-hydroxyftorafur.
AU Lin A J; Benjamin R S; Rao P N; Loo T L
SO J Med Chem, (1979 Sep) 22 (9) 1096-100.
Journal code: J0F. ISSN: 0022-2623.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 8002
AB Four isomers of ftorafur were synthesized as authentic samples of possible ftorafur (FT) metabolites. 2,3-Dihydrofuran was treated with perbenzoic acid in MeOH to give 2-methoxy-3-hydroxytetrahydrofuran, which upon treatment with Ac2O/pyridine

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yielded the key intermediate 2-methoxy-3-acetoxytetrahydrofuran. The other intermediate, 2-ethoxy-4-acetoxytetrahydrofuran, was prepared by acid hydrolysis (HCl/50% EtOH) of 1,1-diethoxy-3,4-dihydroxybutane, followed by acetylation (Ac2O/pyridine). Treatment of 2,4-bis(trimethylsilyl)-5-fluorouracil with either 2-methoxy-3-acetoxytetrahydrofuran or 2-ethoxy-4-acetoxytetrahydrofuran in ***1*** , ***2*** -dichloroethane at room temperature using SnCl4 as catalyst afforded cis- and trans-3'-OAc-FT or 4'-OAc-FT, respectively. However, trans-3'-OAc-FT and cis-4'-OAc-FT were the major condensation products. In each case, separation of these cis and trans isomers was achieved by silica gel column chromatography. Treatment of 3'- or 4'-OAc-FT with NH3/CH3OH at 5 degrees C overnight yielded the described hydroxylated FT. Both trans-3'-OH-FT and cis-4'-OH-FT showed no significant activity against L1210 up to 100 mg/kg. These two agents produced an inhibitory effect on HeLa cell growth equal to that of ftorafur, with ID50 = 200 MICROGRAMS/KG.

L106 ANSWER 13 OF 34 MEDLINE
AN 79010215 MEDLINE
TI [Hematological damage of occupational origin in industry]. I danni ematologici da causa professionale nell'industria.
AU Saita G
SO Med Lav, (1978 Jun) 69 (3 Suppl) 350-5. Journal code: M4U. ISSN: 0025-7818.
CY Italy
DT Journal; Article; (JOURNAL ARTICLE)
LA Italian
EM 7901

L106 ANSWER 14 OF 34 MEDLINE
AN 79006123 MEDLINE
TI An evaluation of the use of peripheral blood lymphocyte systems for assessing cytological effects induced in vivo by chemical mutagens. pp. 268-74.
AU Natarajan A T; Van Buul P P; Raposa T
SO In: Evans HJ, Lloyd DC, ed. Mutagen-induced chromosome damage in man. Edinburgh, Univ Press, 1978. QH 462.A1 M992 1977, . Journal code: IDM. Call number: QH 462.A1 M992 1977.
CY United States
DT Book; (MONOGRAPH)
LA English
EM 7901

L106 ANSWER 15 OF 34 JICST-EPlus COPYRIGHT 1995 JICST
AN 870128374 JICST-EPlus
TI Toxic chemical substances and health in working place of industry. 6. Chemical substances and carcinogenesis in Japan. Epidemiological observation on occupational cancers in Japan.
AU OKUBO TOSHITERU
CS Sangyoidai Sangyoseitaikaken
SO Sangyo Igaku Janaru (Occupational Health Journal), (1986) vol. 9, no. 6, pp. 52-59. Journal Code: Z0568B (Fig. 5, Tbl. 5, Ref. 15) ISSN: 0388-337X

R&S145692

CY Japan
DT Journal; Commentary
LA Japanese
STA New

L106 ANSWER 16 OF 34 HEALSAFE COPYRIGHT 1995 CSA DUPLICATE 2
AN 93:3015 HEALSAFE
TI Solvents in pesticides.
AU Petrelli, G.; Siepi, G.; Miligi, L.; Vineis, P.
CS Lab. Epidemiol. e Biostat., Ist. Super. Sanita, viale Regina Elena 299, Roma, Italy
SO SCAND. J. WORK, ENVIRON. HEALTH., (1993) vol. 19, no. 1, pp. 63-65. ISSN: 0355-3140.
DT Journal
FS H
LA English
SL English
AB Solvents are extensively used in pesticide formulations. This study concerns the solvents notified to the Italian Registry of Pesticides, which has information on approximately 8000 pesticide formulations. Solvents with evidence of carcinogenicity in humans or animals, including benzene, chloroform, carbon tetrachloride, ***1*** , ***2*** - ***dichloroethane*** , 1,4-dioxane, and 2-nitropropane, have been notified for use in pesticides. Exposure to such solvents could partly explain some of the reported excesses of ***leukemia*** and non-Hodgkin's lymphoma among farmers.

L106 ANSWER 17 OF 34 LIFESCI COPYRIGHT 1995 CSA
AN 82:58115 LIFESCI
TI Cause-specific mortality study on VCM workers.
AU Ebihara, I.
CS Div. Work Environ. and Occup. Dis., Inst. Sci. Labour, Tokyo, Japan
SO J. SCI. LABOU., (1982) vol. 58, no. 8, pp. 383-389.
DT Journal
TC General Review
FS X
LA Japanese
SL English
AB Cause-specific mortality study on VCM workers employed in M-company was carried out. The cohrt was set up by 226 workmen on 1960 and observed until 1979. No cause of death were statistically significant with $p<0.05$. However, death from all cause, all cancer, gastric cancer, liver and bilialy tract cancer, lung cancer, ***leukemia*** , hypertension, other heart disease, liver cirrhosis, and accident were higher than expected. Death from all cause, all cancer, liver and bilialy tract cancer and lung cancer were not significantly higher with $p<0.05$ level, however, these causes were significantly higher than Japanese male with $p<0.10$ level. Moreover, the relative death rates of both liver and bilialy tract cancer and lung cancer were increased in accordance with the length of VCM exposure. The results revealed the possibility of carcinogenic effect of VCM on these sites.

L106 ANSWER 18 OF 34 BIOSIS COPYRIGHT 1995 BIOSIS DUPLICATE 3

R&S145693

AN 88:179824 BIOSIS
DN BA85:91926
TI INCREASING EVIDENCE OF THE RISE OF CANCER IN WORKERS EXPOSED TO VINYLCHLORIDE.
AU SMULEVICH V B; FEDOTOVA I V; FILATOVA V S
CS ALL-UNION CANCER RES. CANCER, AMS USSR, MOSCOW.
SO BR J IND MED 45 (2). 1988. 93-97. CODEN: BJIMAG ISSN: 0007-1072
LA English
AB The results of a cancer mortality study among workers employed in the production of vinylchloride and polyvinylchloride between 1939 and 1977 suggest a significant increase in deaths from malignancies of the lymphatic and haemopoietic tissues. Mortality for tumours of the digestive organs, respiratory system, bone and connective tissues, brain, and skin are also greater than in the general population. There were no registered cases of liver angiosarcoma in the study cohort during the follow up period. The risk of cancer was highest among the workers exposed to concentrations of VC of 300 mg/m3 and more who had worked at the plant for 15 to 19 years. The relatively high number of leukaemias and lymphomas in the study group and the absence of liver angiosarcomas probably reflects specific carcinogenic action of different doses of vinylchloride.
RN ***75-01-4*** (VINYLCHLORIDE)
9002-86-2 (POLYVINYLCHLORIDE)

L106 ANSWER 19 OF 34 BIOSIS COPYRIGHT 1995 BIOSIS
AN 94:451903 BIOSIS
DN 97464903
TI A comparison of two ultrasensitive methods for measuring 1,N-6-etheno-2'-deoxyadenosine and 3,N-4-etheno-2'-deoxycytidine in cellular DNA.
AU Misra R R; Chiang S-Y; Swenberg J A
CS Dep. Environmental Sci. and Eng., Univ. North Carolina at Chapel Hill, NC 27599, USA
SO Carcinogenesis (Oxford) 15 (8). 1994. 1647-1652. ISSN: 0143-3334
LA English
AB 1,N-6-Ethenodeoxyadenosine (edA) and 3,N-4-ethenodeoxycytidine (edC) are two mutagenic adducts associated with exposure to ethyl carbamate (urethane) and ***vinyl*** ***chloride*** . We have recently developed two ultrasensitive methods for determining the molecular dose of these adducts in cellular DNA. In both methods, purified DNA was first enzymatically digested to 2c-deoxyribonucleotide 3c-monophosphates. Etheno-modified nucleotides were then separated from normal nucleotides in one of two ways: either by reverse phase, ion-pair HPLC coupled with 260 nm UV detection, or by immunoaffinity chromatography using reusable microcolumns containing specific monoclonal antibodies coupled to Protein A-Sepharose. Fractions enriched for the adducted nucleotides were labeled using T4 polynucleotide kinase and (32P)ATP, and individual nucleotides were subsequently resolved by two-dimensional TLC, visualized by autoradiography, and quantified by liquid scintillation counting. When used to analyze the same sample of etheno-modified calf thymus DNA, both assays produced similar results. However, when both methods were used to analyze rat liver DNA 'spiked' with known amounts of etheno nucleotide standards, the immunoaffinity/32P TLC procedure

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proved to be more sensitive and more reproducible than the HPLC/32P TLC method: while the detection limit of the immunoaffinity/32P TLC technique was lt 4 etheno adducts/109 parent deoxynucleotides, the HPLC/32P TLC method often failed to detect adducts at concentrations lt 2/10-8. In other experiments, the immunoaffinity/32P TLC method was used to demonstrate formation of edA and edC in cells treated with ***vinyl*** ***chloride*** monomer. Because of its exquisite sensitivity, the immunoaffinity/32P TLC method promises to be extremely useful for measuring both background and induced levels of etheno adducts, making it possible to examine the role of these adducts in inducing mutations and/or carcinogenesis.
RN 51-79-6 (URETHANE)
75-01-4 (VINYL CHLORIDE)

L106 ANSWER 20 OF 34 BIOSIS COPYRIGHT 1995 BIOSIS
AN 89:337018 BIOSIS
DN BA88:40018
TI THE ROLE OF SOME CHEMICALS IN THE DEVELOPMENT OF MALIGNANCIES INCLUDING ***LEUKEMIA*** .
AU AKSOY M
CS TUBITAK, TEMEL BILIMLER ARASTIRMA ENST., BIYOL. BOLUMU, GEBZE, KOCAELI-TURKIYE.
SO DOGA TIP ECZACILIK 12 (3). 1988. 190-197. CODEN: DTECES ISSN: 1010-7584
LA Turkish
AB Possible etiologic role of some chemical agents such as benzene, chloramphenicol, ***vinyl*** - ***chloride*** , acryl nitrile and asbestos in the development of some malignancies including ***leukemia*** are explained.
RN 56-75-7 (CHLORAMPHENICOL)
71-43-2 (BENZENE)
75-01-4 (VINYL CHLORIDE)

L106 ANSWER 21 OF 34 BIOSIS COPYRIGHT 1995 BIOSIS
AN 87:489257 BIOSIS
DN BA84:123900
TI CAUSE-SPECIFIC MORTALITY AMONG MALE CHEMICAL WORKERS.
AU BOND G G; MCLAREN E A; CARTMILL J B; WYMER K T; SOBEL W; LIPPS T E; COOK R R
CS THE DOW CHEM. COMPANY, DEP. EPIDERMIOL., 1803 BUILDING, MIDLAND, MI 48674.
SO AM J IND MED 12 (4). 1987. 353-384. CODEN: AJIMD8 ISSN: 0271-3586
LA English
AB Cause specific mortality was surveyed among 37,682 male employees with three of more days of service between 1940 and 1982 at the Midland or Bay City, Michigan, locations of Dow Chemical USA. Vital status was ascertained through 1982 for 97.5% of the cohort members, and death certificates were obtained for 97.1% of the 7,751 decedents. Comparisons of observed mortality with expected levels based on any of three general population groups (USA, Michigan, or sevel local counties) consistently demonstrated lower mortality in the cohort from each of the major causes of death, including total malignant neoplasms. Unique among hourly employees was significant excess mortality in the categories of cancer of other lymphatic

R&S145695

tissue, and motor vehicle accidents, and both hourly and salaried nonexempt employees experienced significantly higher from other and ill-defined cancers. The influence of duration of employment and age at and period of hire were explored with the Mantel-Haenszel method as adapted for a cohort study. Results were evaluated both including and excluding the mortality experience of subsets of employees with past exposure to known human carcinogens (arsenic, asbestos, bis-chloromethyl ether, benzene, organic dyes, and ***vinyl*** ***chloride***). The use of the general mortality survey in monitoring whether or not there are major health problems among the employees and in setting research priorities is emphasized.

L106 ANSWER 22 OF 34 BIOSIS COPYRIGHT 1995 BIOSIS
AN 85:67340 BIOSIS
DN BR28:67340
TI ARCHIVES OF RESEARCH ON INDUSTRIAL CARCINOGENESIS VOL 2. EXPERIMENTAL RESEARCH ON ***VINYL*** ***CHLORIDE*** CARCINOGENESIS.
AU MALTONI C; ET AL
CS BOLOGNA INST. ONCOL, BOLOGNA, ITALY.
SO MALTONI, C. ET AL. (ED.). ARCHIVES OF RESEARCH ON INDUSTRIAL CARCINOGENESIS, VOL. 2. EXPERIMENTAL RESEARCH ON VINYL CHLORIDE CARCINOGENESIS. V+533P. PRINCETON SCIENTIFIC PUBLISHERS, INC.: PRINCETON, N.J., USA. ILLUS. 0 (0). 1984. V+533P. CODEN: ARCAEX ISBN: 0-911131-36-1
DT Book
LA English
AB This text provides the results of studies which were performed on ***vinyl*** ***chloride*** (VC) and its connection with carcinogenesis at the Bentivoglio Laboratories of the Bologna Institute of Oncology from 1971 to 1983. The text consists of 4 parts. Part 1 reviews the available data on general pathology and carcinogenicity. Included in this part are chemical and physical data on ***vinyl*** ***chloride*** , exposed population and regulatory measures, general pathology, and carcinogenicity. The second part on the experimental carcinogenicity studies performed at the Bentivoglio Laboratories of the Bologna Institute of Oncology includes the plan of the studies, data on the historical control animal groups, results and conclusions. The last 2 parts of the text discuss the history of VC carcinogenicity and conclusive remarks. The text is mainly comprised of tables, graphs and micrographs. An appendix is included which contains tables and graphs on the results of the single experiments of the project.
RN ***75-01-4*** (VINYL CHLORIDE)

L106 ANSWER 23 OF 34 BIOSIS COPYRIGHT 1995 BIOSIS
AN 84:45616 BIOSIS
DN BR26:45616
TI THE INCIDENCE OF MALIGNANT NEOPLASMS AMONG WORKERS ENGAGED IN THE MANUFACTURE OF ***VINYL*** ***CHLORIDE*** AND POLY ***VINYL*** ***CHLORIDE*** .
AU FEDOTOVA I V
CS INST. IND. HYG. OCCUP. DIS., GORKI, USSR.
SO GIG TR PROF ZABOL 0 (4). 1983. 30-32. CODEN: GTPZAB ISSN: 0016-9919

R&S145696

LA Russian
RN ***75-01-4*** (VINYL CHLORIDE)
9002-86-2 (POLY VINYL CHLORIDE)

L106 ANSWER 24 OF 34 BIOSIS COPYRIGHT 1995 BIOSIS
AN 76:158235 BIOSIS
DN BA61:58235
TI HEPATIC DRUG METABOLISM AND ADVERSE HEPATIC DRUG REACTIONS.
AU SCHAFFNER F
SO VET PATHOL 12 (2). 1975 145-156. CODEN: VTPHAK ISSN: 0300-9858
LA Unavailable
RN 50-78-2 (ASPIRIN)
54-85-3 (ISONIAZID)
56-23-5 (CARBON TETRA CHLORIDE)
59-05-2 (METHOTREXATE)
75-01-4 (VINYL CHLORIDE)
103-90-2 (ACETAMINOPHEN)
125-13-3 (OXYPHENISATIN)
555-30-6 (ALPHA METHYL DOPA)

L106 ANSWER 25 OF 34 BIOSIS COPYRIGHT 1995 BIOSIS
AN 75:182233 BIOSIS
DN BA60:12229
TI CLINICAL RELEVANCE OF PLATELET FUNCTION TESTS IN 1000 PATIENTS WITH HEMORRHAGIC DIATHESIS.
AU BACHNER U; MUELLER N; EGLI H
SO THROMB RES 6 (2). 1975 139-150. CODEN: THBRAA ISSN: 0049-3848
LA Unavailable
RN ***75-01-4*** (VINYL CHLORIDE)
75-01-4 (VINYL CHLORIDE)

L106 ANSWER 26 OF 34 BIOSIS COPYRIGHT 1995 BIOSIS
AN 69:52495 BIOSIS
DN BR05:52495
TI TREATMENT OF NEOPL CHRONIC ***LEUKEMIA*** IN CHILDREN ABSTRACT FROM PEDIATRIIA-MOSCOW 45-10 15-18 OCTOBER 1966 BUSULFAN ANTI NEOPLASTIC PREDNISOLONE ANTI NEOPLASTIC MERCAPTO PURINE ANTI NEOPLASTIC CHLORO ETHYLENE ANTI NEOPLASTIC.
AU KOSHEL I V
SO DRUG DIG 3 (3). 1967/68 144 CODEN: DDFLAC
LA Unavailable
RN 50-24-8 (PREDNISOLONE)
55-98-1 (BUSULFAN)
75-01-4 (CHLORO ETHYLENE)
50-44-2Q, 31441-78-8Q (MERCAPTO PURINE)

L106 ANSWER 27 OF 34 EMBASE COPYRIGHT 1995 ELSEVIER SCI. B.V.
AN 95184355 EMBASE
TI Letter to the editor.
AU Ramlow J.M.; Aschengrau A.
CS Dow Chemical Company, Midland, MI, United States
SO Archives of Environmental Health, (1995) 50/2 (170-173).
ISSN: 0003-9896 CODEN: AEHLAU
CY United States

R&S145697

DT Journal
FS 016 Cancer
025 Hematology
035 Occupational Health and Industrial Medicine
052 Toxicology
LA English
RN 127-18-4; 75-01-4; 76-03-9; 14357-05-2; 7732-18-5; 35576-91-1

L106 ANSWER 28 OF 34 EMBASE COPYRIGHT 1995 ELSEVIER SCI. B.V.
AN 94177924 EMBASE
TI Cancer and the environment.
AU Inskip H.
CS MRC Environmental Epidemiology Unit, Southampton General Hospital, Southampton SO16 6YD, United Kingdom
SO J. R. SOC. HEALTH, (1994) 114/3 (157-161).
ISSN: 0264-0325 CODEN: JRSHDS
CY United Kingdom
DT Journal
FS 016 Cancer
017 Public Health, Social Medicine and Epidemiology
025 Hematology
035 Occupational Health and Industrial Medicine
046 Environmental Health and Pollution Control
LA English
SL English
AB The evidence that problems in the environment are causing cancer is reviewed. Although there is concern that our environment is deteriorating, there is little evidence that this is leading to an increased cancer burden as, although rates in the elderly have been increasing, rates in younger people are declining. It is estimated that only about 5% of cancers are due to environmental factors and more than half of these are due to the geophysical properties of the environment, rather than manmade pollutants. Hazards to which people are exposed at work do contribute to increased cancer rates. Once such a hazard is identified then legislation is used to limit, or eliminate, exposure to it, both at work and in the environment. This paper describes certain specific hazards, but concludes that the largest contribution to cancer prevention would be a reduction in smoking rather than any environmental measure.
RN 39413-28-0; 64-17-5; 1332-21-4; 75-01-4; 7440-43-9; 22537-48-0; 71-43-2; 10043-92-2

L106 ANSWER 29 OF 34 EMBASE COPYRIGHT 1995 ELSEVIER SCI. B.V.
AN 94166838 EMBASE
TI Risk communication: Health risks associated with environmentally contaminated private wells versus chloroform in a public water supply.
AU Sidhu K.S.; Chadzynski L.
CS Div. of Health Risk Assessment, Michigan Dept. of Public Health, 3423 N. Logan St./M. L. King Blvd., Lansing, MI 48909, United States
SO J. ENVIRON. HEALTH, (1994) 56/10 (13-16).
ISSN: 0022-0892 CODEN: JEVHAH
CY United States
DT Journal

R&S145698

FS 016 Cancer
046 Environmental Health and Pollution Control
052 Toxicology
LA English
SL English
AB During March 1988, 16 private wells in Sault St. Marie, Michigan, were found to be contaminated with one or more environmental contaminants. In accordance with the Michigan Environmental Response Act, the state provided the affected residents with bottled water for drinking purposes. Risk assessments for carcinogens (benzene, 1,2-dichloroethane, dichloromethane, trichloroethylene, and tetrachloroethylene) were formulated. The total excess cancer cases attributable to the consumption of contaminated water from these wells were estimated to be 14 per one million persons. The maximum concentration of chloroform in the city public water supply was 26 ug/L. The high concentration of chloroform was the result of chlorination of the unfiltered river water by the public water facility. The relative health risk from the consumption of chlorinated surface water from the public water supply system would be approximately 4.3 times greater compared to that of consuming groundwater from the contaminated private wells. The affected residents were given three options: (a) continue consumption of bottled water; (b) connection to the existing public water supply system; or (c) construction of deep water wells. The citizens voted for the second option of connecting to the public water supply system and voluntarily accepted the relatively higher health risk. The State of Michigan later proposed to further improve the water purity by upgrading the public water supply system by the incorporation of a filtration plant. The project was completed in August 1993.
RN 71-43-2; 107-06-2; 75-09-2; 79-01-6; 127-18-4; 71-55-6

L106 ANSWER 30 OF 34 EMBASE COPYRIGHT 1995 ELSEVIER SCI. B.V.
AN 82093296 EMBASE
TI [A study of the cytotoxicity of chloroform, 1-2-dichloroethane, 1,1,1-trichloroethane and hexachlorobutadiene to mouse L cells].
ETUDE DE LA CYTOTOXICITE DU CHLOROFORME, DU DICHLORO-1,2-ETHANE, DU TRICHLORO-1,1,1-ETHANE ET DE L'HEXACHLOROBUTADIENE SUR LES CELLULES L DE SOURIS.
AU Elias Z.; Hartemann P.; Chau N.
CS Lab. Hyg. Rech. Sante Publ., 54500 Vandoeuvre-les-Nancy, France
SO TOXICOL. EUR. RES., (1981) 3/6 (293-298).
CODEN: TOERD
CY France
LA French
SL English
AB A cytotoxicity test based on residual protein determination is described and the in vitro toxicity of certain chlorinated aliphatic hydrocarbons is evaluated with this test. The results obtained are sufficiently reproducible to yield an order of cytotoxicity: hexachlorobutadiene is about 100-fold more toxic than chloroform or 1,2-dichloroethane; whereas, 1,1,2-trichloroethane is 10-fold more toxic than these two compounds. The method is fast and lends itself to the toxic evaluation of large numbers of samples.

R&S145699

L106 ANSWER 31 OF 34 EMBASE COPYRIGHT 1995 ELSEVIER SCI. B.V.
AN 78044664 EMBASE
TI The trade unionist's view of occupational cancer.
AU Blyghton A.C.
CS Gen. Workers Union Transport House, Smith Square Westminster London, United Kingdom
SO I.A.R.C.SCI.PUBL., (1976) Vol. 13 (425-430).
CODEN: IARCCD
LA English
AB The Transport and General Workers' Union (UK) has an active programme devoted to monitoring the health of its 1.8 million members. Files on members who died of bladder cancer after exposure to .beta. naphthylamine go back to the late 1920's. From the same period come data on members suffering from asbestosis which included some cases of lung cancer before the industrial cause of the disease was recognized. These and other more recent examples including Nonox S and vinyl chloride amply justify the need for setting up registers of all workers who are at risk from industrial exposure. The scientific community has a responsibility for communicating data regarding hazards both to employers and employees who can then ensure that all who have been exposed can be notified and screened. The trade unions have a part to play in ensuring that industry accepts conditions of greater control under the new regulations in the United Kingdom. There must be a continuing tripartite discussion between industrial management, trade unions and the responsible government official.

L106 ANSWER 32 OF 34 EMBASE COPYRIGHT 1995 ELSEVIER SCI. B.V.
AN 76102594 EMBASE
TI Vinyl chloride exposure in a controlled industrial environment. A long term mortality experience in 594 employees.
AU Ott M.G.; Langner R.R.; Holder B.B.
CS Dow Chem. Co., Midland, Mich. 48640, United States
SO ARCH.ENVIRONM.HLTH, (1975) 30/7 (333-339).
CODEN: AEHLAU
LA English
AB Vinyl chloride has been associated recently with findings of angiosarcoma in animals and man. The present study examines the mortality experience of individuals occupationally exposed to vinyl chloride and lesser amounts of vinylidene chloride and other compounds. Employees were grouped into four exposure categories according to the highest levels of vinyl chloride exposure experienced for at least one month. Although no angiosarcomas were found and there were no deaths due to any liver malignancy, the observed malignancy deaths exceeded the expected among workers in the high exposure category. Fewer than expected malignancy deaths were observed in the remaining exposure categories.

L106 ANSWER 33 OF 34 EMBASE COPYRIGHT 1995 ELSEVIER SCI. B.V.
AN 75190585 EMBASE
TI Sputum cytology among frequent users of pressurized spray cans.
AU Good W.O.; Ellison C.; Archer V.E.
CS Montrose Mem. Hosp., Montrose, Colo. 81401, United States

R&S145700

SO CANCER RES., (1975) 35/2 (316-321).
CODEN: CNREA8
LA English
AB Sputum samples were collected from a group of private patients who had no respiratory symptoms but who frequently used aerosols generated by pressurized cans, and from 2 groups of controls. Atypical metaplastic changes in exfoliated cells were compared between the groups. An excess of moderate and marked atypical metaplastic cells was found among the frequent aerosol users. This association, which suggests that some aerosol preparations either alter the flora of the bronchial tree or contain carcinogenic agents, strongly suggests that additional studies be done on aerosol can ingredients, and that these sprays be used in a manner to minimize inhalation of the resultant aerosol, except for medical preparations where proper control is exercised.

L106 ANSWER 34 OF 34 EMBASE COPYRIGHT 1995 ELSEVIER SCI. B.V.
AN 76051699 EMBASE
TI Vinyl chloride carcinogenesis: current results and perspectives.
AU Maltoni C.; Lefemine G.; Chieco P.; Carretti D.
CS Ist. Oncol., Bologna, Italy
SO MED.LAVORO (Milano), (1974) 65/11-12 (421-444).
CODEN: MELAAD
LA English
AB Available experimental and epidemiological data on carcinogenesis by VC are reviewed. Experimental bioassays on the oncogenic potentialities of VC are described in detail. Based on these experiments, when given by inhalation, VC produces: in rats, Zymbal gland carcinomas, nephroblastomas, angiosarcomas and angiomas of the liver and other sites, skin carcinomas, hepatomas, brain neuroblastomas, and possibly mammary carcinomas; in mice, lung adenomas (frequently undergoing malignant transformation), mammary carcinomas; in mice, lung adenomas (frequently undergoing malignant transformation), mammary carcinomas of a peculiar type angiosarcomas and angiomas of the liver and of other sites, and skin epithelial tumors; in hamsters, liver angiosarcomas and, as early evidence seems to suggest, skin trichoepitheliomas, lymphomas, and forestomach papillomas and acanthomas. These early results promoted clinical and epidemiological investigations which led to the discovery of occupational liver angiosarcomas among workers of VC PVC industries. The need for experimenal carcinogenicity bioassays for all industrial compounds before they are produced and become widespread is stressed.

L109 ANSWER 1 OF 4 CA COPYRIGHT 1995 ACS
AN 115:119345 CA
TI A collaborative study of cancer incidence and mortality among vinyl chloride workers
AU Simonato, L.; L'Abbe, K. A.; Andersen, A.; Belli, S.; Comba, P.; Engholm, G.; Ferro, G.; Hagmar, L.; Langard, S.; et al.
CS Unit Anal. Epidemiol., Int. Agency Res. Cancer, Lyon, F-69372, Fr.
SO Scand. J. Work, Environ. Health (1991), 17(3), 159-69
CODEN: SWEHDO; ISSN: 0355-3140
DT Journal

R&S145701

LA English
AB A large European multicentric cohort study was coordinated by the International Agency for Research on Cancer with the objectives of investigating the dose-response relation between liver cancer and exposure to vinyl chloride and assessing cancer risk for sites other than the liver. A .apprx.3-fold increase in liver cancer was detected on the basis of 24 obsd. deaths and 8.4 expected (standardized mortality ratio 286, 95% confidence interval 186-425). The excess from liver cancer was related to time since 1st exposure, duration of employment, and estd. ranked and quant. exposures. Other cancer sites investigated on the basis of a priori hypotheses were either not in excess (lung) or apparently unrelated to the exposure variables (brain and lymphoma).
RN ***75-01-4***

L109 ANSWER 2 OF 4 CA COPYRIGHT 1995 ACS
AN 109:134308 CA
TI A mortality study of vinyl chloride monomer workers employed in the United Kingdom in 1940-1974
AU Jones, Robert D.; Smith, Deborah M.; Thomas, Peter G.
CS Epidemiol. Med. Stat. Unit, Health Saf. Exec., Bootle/Merseyside, L20 3QZ, UK
SO Scand. J. Work, Environ. Health (1988), 14(3), 153-60
CODEN: SWEHDO; ISSN: 0355-3140
DT Journal
LA English
AB The mortality of 5498 male workers employed for .gtoreq.1 yr during 1940-1974 in the vinyl chloride industry of the UK was followed up to Dec. 31, 1984. There was a significant increase in nonsecondary liver tumors with 11 deaths, of which 7 were angiosarcomas. All the angiosarcoma deaths occurred in autoclave workers with a median latency of 25 yr from date of 1st exposure. Other than that for liver cancer, no increased incidence of cancer deaths attributable to vinyl chloride monomer exposure was found. There was no evidence of increased mortality from chronic liver disease. The incidence of death from respiratory disease was low and was not affected by poly(vinyl chloride) dust exposure.
RN ***75-01-4***
RN 9002-86-2

L109 ANSWER 3 OF 4 CA COPYRIGHT 1995 ACS
AN 108:155773 CA
TI Increasing evidence of the rise of cancer in workers exposed to vinyl chloride
AU Smulevich, V. B.; Fedotova, I. V.; Filatova, V. S.
CS All-Union Cancer Res. Cent., Moscow, USSR
SO Br. J. Ind. Med. (1988), 45(2), 93-7
CODEN: BJIMAG; ISSN: 0007-1072
DT Journal
LA English
AB The results of a cancer mortality study among workers employed in the prodn. of vinyl chloride and poly(vinyl chloride) between 1939 and 1977 suggest a significant increase in deaths from malignancies of the lymphatic and hemopoietic tissues. Mortality for tumors of

R&S145702

the digestive organs, respiratory system, bone and connective tissues, brain, and skin are also greater than in the general population. There were no registered cases of liver angiosarcoma in the study cohort during the follow up period. The risk of cancer was highest among the workers exposed to concns. of vinyl chloride of .gtoreq.300 mg/m3 who had worked at the plant for 15-19 yr. The relatively high no. of ***leukemias*** and lymphomas in the study group and the absence of liver angiosarcomas probably reflects specific carcinogenic action of different doses of vinyl chloride.
RN 9002-86-2P
RN ***75-01-4***

L109 ANSWER 4 OF 4 CA COPYRIGHT 1995 ACS
AN 98:131571 CA
TI Vinyl chloride exposure and mortality of German chemical industry workers compared to the mortality of unexposed chemical industry workers and PVC workers
AU Greiser, E.; Reinl, W.; Weber, H.
CS Duesseldorf, Fed. Rep. Ger.
SO Zentralbl. Arbeitsmed., Arbeitsschutz, Prophyl. Ergon. (1982), 32(2), 44-62
CODEN: ZAAEDK; ISSN: 0173-3338
DT Journal
LA German
AB In a long-term study the mortality rates from malignant liver tumors in male workers showed a significant dose-dependent increase compared to the male population of the Federal Republic of Germany in 11 factories manufg. vinyl chloride [***75-01-4***] and PVC [9002-86-2] and 2 factories processing PVC. Unexposed chem. industry workers had slightly high rates. The standardized mortality rates (SMR) for malignancies of lymphatic and hematopoietic tissues were significantly high in exposed workers. PVC processing workers had esp. elevated SMR for brain malignancies. All workers had elevated SMR for ischemic heart diseases and acute cardiac infarctions. Mortality rates for other diseases were also analyzed statistically.
RN ***75-01-4***
RN 9002-86-2

R&S145703