Determination Of Btex In Cigarette Filter Fibers Using Gc

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From Sampling to Risk Assessment in the Light of New Legislations
Recent Advances in Environmental Analysis

ALANA STRICKLAND

Advanced Oxidation Processes for Water and Wastewater Treatment CRC Press
Authored by two longtime researchers in tobacco science, The Chemical Components of Tobacco and Tobacco Smoke, Second Edition chronicles the progress made from late 2008 through 2011 by scientists in the field of tobacco science. The book examines the isolation and characterization of each component. It explores developments in pertinent analytical
Handbook of GC-MS World Health Organization
This publication evaluates or re-evaluates the carcinogenic risks to humans posed by exposure to 16 organic industrial chemicals. These included some aromatic amines, some thanolamies, and three esters. Seven of the 16 compounds were evaluated previously.
Energy-Efficient HVAC Design National Academies Press
Needle trap device (NTD) is a technique that is useful for a wide variety of applications involving the sample preparation of compounds with a wide range of chemico-physico properties, and varying volatilities. A newly designed NTD that improves the performance relative to previous NTD designs is simple to produce is developed. The NTD utilizes a side-hole needle with a modified tip to improve the sealing between the NTD and narrow neck liner of the GC injector, thereby increasing the desorption efficiency. The slurry packing method was applied, evaluated, and NTDs prepared by this method were compared to NTDs prepared using the vacuum aspiration method. NTD geometries

including blunt tip with a side-hole needle, tapered tip with side-hole needle, dome tapered tip with side-hole, sliding tip with side-hole and blunt tip with no side-hole needle (expanded desorptive flow) were prepared and evaluated. Sampling performance and desorption efficiency were investigated using automated headspace extraction of benzene, toluene, ethylbenzene, p-xylene (BTEX), anthracene and pyrene. The tapered tip and sliding tip NTDs were found to have increased desorption efficiency. SPME and NTDs are valuable sample preparation tools for on-site analysis. Combining both extraction techniques allows for the differentiation of free and particle-bound compounds in a sample matrix. Portable GC/MS instrumentation can achieve fast separation, identification, and quantitation of samples prepared by the above techniques on-site without the need for transport to the laboratory. This minimizes the effects of volatiles lost and sample degradation during storage time. Here, SPME and tapered tip NTDs combined with portable GC/MS are used to investigate free and total emissions of BTEX and select PAHs from gasoline and diesel exhaust. Using the above optimized technologies, cigarette smoke in a smoking area where people were actively smoking and inside a smoker's car were also investigated. Target contaminants were found in the investigated matrices at ng/mL levels.

Some Industrial Chemicals CRC Press

This volume of the IARC Monographs series provides an evaluation of the carcinogenicity of outdoor air pollution. Outdoor air pollution is a complex mixture of pollutants originating from natural and anthropogenic sources, including transportation, power generation, industrial activity, biomass burning, and domestic heating and cooking. The mix of pollutants in outdoor air varies widely in space and time, reflecting the diversity of sources and the influence of atmospheric processes. Commonly measured air pollutants include particulate matter (PM2.5, PM10), nitrogen dioxide, and sulfur dioxide; the concentration of particulate matter is often used as an indicator of pollution levels. Millions of people worldwide are exposed to outdoor air pollution at levels that substantially exceed existing health-based guidelines. This evaluation is the culmination of a series that has examined individual pollutants that are contained in the mixture of outdoor air. Related previous evaluations have been published in IARC Monographs Volumes 92, 93, 95, 100C, 100E, 103, and 105. An IARC Monographs Working Group reviewed epidemiological studies, animal cancer bioassays, and mechanistic data to assess the carcinogenic hazards of exposure to outdoor air pollution and particulate air pollution.

Reproductive and Developmental Toxicology CRC Press

Bioavailability refers to the extent to which humans and ecological receptors are exposed to contaminants in soil or sediment. The concept of bioavailability has recently piqued the interest of the hazardous waste industry as an important consideration in deciding how much waste to clean up. The rationale is that if contaminants in soil and sediment are not bioavailable, then more contaminant mass can be left in place without creating additional risk. A new NRC report notes that the potential for the consideration of bioavailability to influence decision-making is greatest where certain chemical, environmental, and regulatory factors align. The current use of bioavailability in risk assessment and hazardous waste cleanup

regulations is demystified, and acceptable tools and models for bioavailability assessment are discussed and ranked according to seven criteria. Finally, the intimate link between bioavailability and bioremediation is explored. The report concludes with suggestions for moving bioavailability forward in the regulatory arena for both soil and sediment cleanup.

Organic Trace Analysis Woodhead Publishing

The term “total petroleum hydrocarbons” (TPHs) is used for any mixture of several hundred hydrocarbons found in crude oil, and they represent the sum of volatile petroleum hydrocarbons and extractable petroleum hydrocarbons. The petrol-range organics include hydrocarbons from C6 to C10, while diesel-range organics are C10-C28 hydrocarbons. Environmental pollution by petroleum hydrocarbons is one of the major global concerns, particularly in oil-yielding countries. In fact, there are more than five million potentially contaminated areas worldwide that represent, in general, a lost economic opportunity and a threat to the health and well-being of humans and the environment. Petroleum-contaminated sites constitute almost one-third of the total sites polluted with chemicals around the globe. The land contamination caused by industrialization was recognized as early as the 1960s, but less than a tenth of potentially contaminated lands have been remediated due to the nature of the contamination, cost, technical impracticability, and insufficient land legislation and enforcement. This book is the first single source that provides comprehensive information on the different aspects of TPHs, such as sources and range of products, methods of analysis, fate and bioavailability, ecological implications including impact on human health, potential approaches for bioremediation such as risk-based remediation, and regulatory assessment procedures for TPH-contaminated sites. As such, it is a valuable resource for researchers, graduate students, technicians in the oil industry and remediation practitioners, as well as policy makers.

Fundamentals and Applications CRC Press

Background: Hydraulic fracturing (fracking) as a process for natural gas extraction has potential to expose nearby residents to environmental hazards, but the extent of the hazard remains poorly understood. Some studies have suggested that animals can function as sentinels for human exposures. We evaluated urinary biomarkers of volatile organic compounds (VOCs) of humans and their canine pets in households in southwestern Pennsylvania as a follow-up from a pilot study that had found an association between proximity to drilling well pads and reported health symptoms, including respiratory symptoms and dermal issues. Methods: Participants consented to a questionnaire survey and provided urine samples for one human and one dog (if present) for each household. This data set includes 109 human subjects and 34 dogs, using information on potential VOC exposures in the past 48 hours of sample collection. Covariates such as burning fuels, using gas-powered equipment, or smoking are some of the factors considered in performing multivariate stepwise regression models. We developed a Z-score Index as a normalizing tool to standardize the wide range of varying metabolite concentration levels analyzed from the urine samples. We also examined the 31 households that shared both a human and a dog subject using Pearson’s correlation method to better understand the relationship between metabolites, with the

suggested hypothesis that animals are at a greater susceptibility given higher and more frequent contact to environmental mediums. The primary software used is in R programming for statistical analysis. Results: Our findings indicate that smoking has a significant effect on most metabolite levels in the study. Correlation matrices between dog and human metabolites did not show direct same-metabolite associations, but offered other possible correlations to similarly grouped metabolites of VOC compounds, such as the BTEX group (Benzene, Toluene, Ethylbenzene, Xylene). Additionally, our stepwise regression models generated significant exposures to VOCs that are greater contributors to metabolite concentration levels than our hypothesized distance from the nearest gas well. By stratifying each metabolite, we modeled all covariates to the metabolites and identified the most significant covariates to each species group. Certain metabolites are shown to have higher presence in the dogs than compared to the humans in this examination.

Energy Research Abstracts Routledge

The relatively new technique of solid phase microextraction (SPME) is an important tool to prepare samples both in the lab and on-site. SPME is a "green" technology because it eliminates organic solvents from analytical laboratory and can be used in environmental, food and fragrance, and forensic and drug analysis. This handbook offers a thorough background of the theory and practical implementation of SPME. SPME protocols are presented outlining each stage of the method and providing useful tips and potential pitfalls. In addition, devices and fiber coatings, automated SPME systems, SPME method development, and In Vivo applications are discussed. This handbook is essential for its discussion of the latest SPME developments as well as its in depth information on the history, theory, and practical application of the method. Practical application of Solid Phase Microextraction methods including detailed steps Provides history of extraction methods to better understand the process Suitable for all levels, from beginning student to experienced practitioner

Drinking Water Quality and Contaminants Guidebook John Wiley & Sons

Semiconductor Gas Sensors, Second Edition, summarizes recent research on basic principles, new materials and emerging technologies in this essential field. Chapters cover the foundation of the underlying principles and sensing mechanisms of gas sensors, include expanded content on gas sensing characteristics, such as response, sensitivity and cross-sensitivity, present an overview of the nanomaterials utilized for gas sensing, and review the latest applications for semiconductor gas sensors, including environmental monitoring, indoor monitoring, medical applications, CMOS integration and chemical warfare agents. This second edition has been completely updated, thus ensuring it reflects current literature and the latest materials systems and applications. Includes an overview of key applications, with new chapters on indoor monitoring and medical applications Reviews developments in gas sensors and sensing methods, including an expanded section on gas sensor theory Discusses the use of nanomaterials in gas sensing, with new chapters on single-layer graphene sensors, graphene oxide sensors, printed sensors, and much more

Guidelines for Drinking-water Quality BoD – Books on Demand

K347191 BCC Drinking water quality is a sensitive issue, and the

public is constantly barraged by contaminant reports now routinely at parts-per-trillion. Protection from microbial disease risks from drinking water must always be predominant; trace chemicals usually fall farther down the scale of possible health risks, but even negligible detections raise public concerns. Drinking Water Quality and Contaminants Guidebook presents information and guidance on drinking water quality and regulatory issues reflecting experiences and judgments from the author's more than 43 years of extensive experience. It contains digested comprehensive information on important chemical, microbial, and radionuclide water contaminants, and discussions of several drinking water-related policy issues. Information is presented for long-standing regulated contaminants and chemicals of emerging concern in understandable terms for professionals and non-experts alike. Dossiers contain readily accessed information on sources, physical and chemical properties, toxicity, analytical methodology, water treatment technology, regulations and health advisories, and also include World Health Organization Guidelines. Aesthetic and acceptance factors such as water hardness and salinity that influence public perceptions of drinking water quality are also addressed. Features: Compiles and interprets essential information on numerous key chemical, microbial, and radionuclide water contaminants Provides standardized entries for each contaminant, including occurrence, health, analytical, water treatment, regulations, and World Health Organization guidance and recommendations with source citations Examines many water-related topics including fracking, potable water reuse, desalination, boil water notices, bottled water, foodborne and waterborne disease, and public perceptions about public drinking water quality Provides essential information and the basis for management of many long-standing contaminants such as lead, mercury, disinfection by-products, E. coli, and also emerging issues such as legionella, glyphosate, BPA, and more

Air Quality in Airplane Cabins and Similar Enclosed Spaces

IWA Publishing

In the last decade and a half, great progress has been made in the development of concepts and models for mixture toxicity, both in human and environmental toxicology. However, due to their different protection goals, developments have often progressed in parallel but with little integration. Arguably the first book to clearly link ecotoxicology and classic human toxicology, Mixture Toxicity: Linking Approaches from Ecological and Human Toxicology incorporates extensive reviews of exposure to toxicants, toxicokinetics and toxicodynamics, toxicity of mixtures, and risk assessment. The book examines developments in both fields, compares and contrasts their current state of the art, and identifies where one field can learn from the other. Each chapter provides an essential overview of the state of the art in both human and ecotoxicological mixture risk assessment, focusing on the work published in the last fifteen years. The coverage progresses from exposure to risk assessment, at each step identifying the special complications typically raised by mixtures. Based on in-depth discussions among specialists representing different disciplines and approaches, the chapters each address: Exposure — how to quantify the amounts of chemicals that may enter the living organism Kinetics, dynamics, and metabolism — how the chemicals enter an organism, travel within the organism,

how they are metabolized and reach the target site, and explain development of toxicity with time Toxicity — what are the chemicals' detrimental effects on the organism Test design and complex mixture characterization — how chemicals interact, how to measure effects of mixtures, and how to identify responsible chemicals Risk assessment — how to assess for risks in humans and the environment An unusual combination of different points of view on exposure to and risk assessment of chemical mixtures, this book summarizes current knowledge on combined effects of toxicant mixtures, information that is generally only available in a very fragmented form as individual journal papers. It identifies possible crosslinks and includes recommendations for mutual developments that can improve the state of knowledge on mixture toxicity and ultimately lead to better and more integrated risk assessment.

Global Assessment of Soil Pollution National Academies Press

Covering the fundamentals of air-borne particles and settled dust in the indoor environment, this handy reference investigates: * relevant definitions and terminology, * characteristics, * sources, * sampling techniques and instrumentation, * exposure assessment, * monitoring methods. The result is a useful and comprehensive overview for chemists, physicists and biologists, postgraduate students, medical practitioners, occupational health professionals, building owners and managers, building, construction and air-conditioning engineers, architects, environmental lawyers, government and regulatory professionals.

Modern Environmental Analysis Techniques for Pollutants John Wiley & Sons

"Organic Trace Analysis" presents the basics of trace analysis, from sample preparation to the measurement: Students are introduced to statistical evaluation, quality control technologies, sampling and preparation of organic traces, as well as to enrichment and separation of samples. Spectroscopic techniques as chromatography, capillary electrophoresis, mass spectrometry, and receptor-based bioanalysis are presented in detail.

N-nitroso Compounds Analysis and Formation Springer Science & Business Media

This book presents WHO guidelines for the protection of public health from risks due to a number of chemicals commonly present in indoor air. The substances considered in this review, i.e. benzene, carbon monoxide, formaldehyde, naphthalene, nitrogen dioxide, polycyclic aromatic hydrocarbons (especially benzo[a]pyrene), radon, trichloroethylene and tetrachloroethylene, have indoor sources, are known in respect of their hazardousness to health and are often found indoors in concentrations of health concern. The guidelines are targeted at public health professionals involved in preventing health risks of environmental exposures, as well as specialists and authorities involved in the design and use of buildings, indoor materials and products. They provide a scientific basis for legally enforceable standards.

Draft Toxicological Profile for Ethylbenzene Academic Press

Aquatic Chemistry Concepts fills the need for a true, easy-to-use aquatic chemistry book that goes into the details behind some of the complicated equations and principles of aquatic chemistry. It places established science into a text that allows you to learn and

to solve important practical environmental problems. Environmental consultants in all fields, regulators, and libraries will consider this text an excellent reference for its clear explanation of aquatic chemistry principles.

Chromatographic Analysis of the Environment Elsevier

Reproductive and Developmental Toxicology, Second Edition, is a comprehensive and authoritative resource that provides the latest literature on this complex subject with a primary focus on three core components—parent, placenta, and fetus—and the continuous changes that occur in each. Enriched with relevant references describing every aspect of reproductive toxicology, this revised and updated resource addresses the totality of the subject, discussing a broad range of topics, including nanoparticles and radiation, gases and solvents, smoking, alcohol and drug abuse, and metals, amongst others. With a special focus on placental toxicity, this book is the only available reference to connect the three key risk stages, also including discussions on reproductive and developmental toxicity in domestic animals, fish, and wildlife. Completely revised and updated to include the most recent developments in the field, the book is an essential resource for advanced students and researchers in toxicology, as well as biologists, pharmacologists, and teratologists from academia, industry, and regulatory agencies. Provides a complete, up-to-date, integrated source of information on the key risk stages during reproduction and development Includes new chapters covering significant developments, such as dose-response assessment for developmental toxicity, juvenile toxicity, and neural tube defects, as well as emerging science, such as stem cell application, toxicoproteomics, metabolomics, endocrine disruption, surveillance and regulatory considerations, and risk assessment Offers diverse and unique in vitro and in vivo toxicity models for reproductive and developmental toxicity testing in a user-friendly format that assists in comparative analysis

WHO

Since the first edition in 1948, Patty’s Industrial Hygiene and Toxicology has become a flagship publication for Wiley. During its nearly seven decades in print, it has become a standard reference for the fields of occupational health and toxicology. The volumes on industrial hygiene are cornerstone reference works for not only industrial hygienists but also chemists, engineers, toxicologists, lawyers, and occupational safety personnel. Volume 2 covers Chemical Exposure Evaluation and Control. Along with the updated and revised chapters from the prior edition, this volume has two new chapters: Sensor Technology and Control Banding.

Bioavailability of Contaminants in Soils and Sediments Springer

Does exposure to environmental toxicants inhibit our ability to have healthy children who develop normally? Biologic markersâ€"indicators that can tell us when environmental factors have caused a change at the cellular or biochemical level that might affect reproductive abilityâ€"are a promising tool for research aimed at answering that important question. Biologic Markers in Reproductive Toxicology examines the potential of these markers in environmental health studies; clarifies definitions, underlying concepts, and possible applications; and shows the benefits to be gained from their use in reproductive and neurodevelopmental research.

Processes, Tools, and Applications John Wiley & Sons
This Special Issue aims to make a concrete technical contribution to the solution of the various problems related to indoor air pollution. In 11 papers, international scientists report the last findings in this field from different points of view including topics such as the IAQ legislation, the role of IAQ in schools, hospitals and (micro)environments in general, the performance of an olfactometer system or the impact of an indoor malodor, BTEX measures in a Fire Station, and a chemical characterization of e-cigarette (e-cig) refill liquids (e-liq). It seems appropriate to encourage the development of reference values or specific action values in order to better manage particularly problematic situations in these environments. In the absence of national references to be used for a comparison, it is possible to use those reported in the legislation of other European countries or, by ad hoc working groups or by analogy, to use other standards such as those relating to ambient air.
Biologic Markers in Reproductive Toxicology World Health Organization
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