Vanadium Health Research Programme: Published Literature


June 2010

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Introduction

This report presents the bibliographic details of papers identified as being published during the period January 2005 - December 2007.

The papers were selected because they address research areas that are considered of direct relevance to the health and environmental effects of Vanadium. In order to aid review, the papers are presented under the following categories; it should be noted however, that when considered appropriate, some papers may appear in more than one section.

Section 1 – HUMAN EXPOSURE MEASUREMENT AND MODELLING: Papers relating to the measurement or modelling of environmental and occupational Vanadium exposure; the development of human biomarkers of exposure or effect.

Section 2 - HEALTH EFFECTS: Papers on the influence of Vanadium on health, disease and dysfunction; assessment of the influence of genetic and epigenetic factors on human susceptibility to the effects of Vanadium; development and implementation of new medical approaches to the treatment of excessive Vanadium exposure.

Section 3 – BIOLOGICAL MECHANISMS: Papers on the biochemical and toxicological mechanisms underlying the effects of Vanadium.

Section 4 – USES OF VANADIUM: Papers relating to the use of Vanadium in medical and dental devices, dietary supplements and as therapeutic agents.

Section 5 – ENVIRONMENTAL EFFECTS in PLANTS and SOIL: Papers relating to the effects following environmental exposure to Vanadium that are specific to plants and soil.

Section 6 – ENVIRONMENTAL EFFECTS in TERRESTRIAL ORGANISMS: Papers relating to the effects following environmental exposure to Vanadium that are specific to terrestrial organisms.

Section 7 – ENVIRONMENTAL EFFECTS in AQUATIC ORGANISMS: Papers relating to the effects following environmental exposure to Vanadium that are specific to aquatic organisms.

Section 8 – MISCELLANEOUS: Other papers considered of general interest or potential relevance to the study of the health effects of Vanadium that do not relate to the above categories.

The papers presented herein were identified using a series of structured searches of the following on-line databases: Medline, Toxline, Biological Sciences and Scopus. The paper abstracts were reviewed and categorised by an experienced Institute Scientist to confirm their relevance before inclusion in this report.
1. HUMAN EXPOSURE MEASUREMENT AND MODELLING


Heal, M.R., Hibbs, L.R., Agius, R.M., et al. (2005) Total and Water-Soluble Trace Metal Content of Urban Background PM Sub(10), PM Sub(2.5) and Black Smoke in Edinburgh, UK. *Atmospheric Environment*, 39(8), 1417.


Poeykioe, R., Maenepaeae, A., Peraemaeki, P., et al. (2005) Heavy Metals (Cr, Zn, Ni, V, Pb, Cd) in Lingonberries (Vaccinium Vitis-Idaea L.) and Assessment of Human Exposure in Two Industrial Areas in the Kemi-Tornio Region, Northern Finland. *Archives of Environmental Contamination and Toxicology*, 48(3), 338-343.


2. HEALTH EFFECTS


Attia, S.M., Badary, O.A., Hamada, F.M., et al. (2005) Orthovanadate Increased the Frequency of Aneuploid Mouse Sperm without Micronucleus Induction in Mouse Bone Marrow Erythrocytes at the Same Dose Level. Mutation Research - Genetic Toxicology and Environmental Mutagenesis, 583(2), 158-167.


3. BIOLOGICAL MECHANISMS


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Li, J., Tong, Q., Shi, X., et al. (2005) ERKs Activation and Calcium Signaling are both Required for VEGF Induction by Vanadium in Mouse Epidermal Cl41 Cells. *Molecular and Cellular Biochemistry, 279*(1-2), 25-33.


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4. USES OF VANADIUM


Chakraborty, T., Chatterjee, A., Dhachinamoorthi, D., et al. (2006) Vanadium Limits the Expression of Proliferating Cell Nuclear Antigen and Inhibits Early DNA Damage during Diethylnitrosamine-Induced Hepatocellular Preneoplasia in Rats. Environmental and Molecular Mutagenesis, 47(8), 603-615.


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5. ENVIRONMENTAL EFFECTS in PLANTS and SOIL


6. ENVIRONMENTAL EFFECTS in TERRESTRIAL ORGANISMS


7. ENVIRONMENTAL EFFECTS in AQUATIC ORGANISMS


8. MISCELLANEOUS


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