### TECHNICAL

**Contact us:**

chemwatch@chemwatch.net  
tel +61 3 9572 4700  
fax +61 3 9572 4777  

Emergency +61 3 9573 3112  

70 Bambra Rd Caulfield North  
Victoria 3161 Australia

---

*While Chemwatch has taken all efforts to ensure the accuracy of information in this publication, it is not intended to be comprehensive or to render advice. Websites rendered are subject to change.*

---

### ENVIRONMENTAL

- Removal of ammonium from effluent of Isfahan Steel Company (ESCO) by activated sludge and compost  
- Transport and fate of cyanide in soil: case study of Mooteh Valley

### MEDICAL

- Human exposure to wood preservatives
- Benchmark dose for cadmium-induced renal effects in humans
- Occupational allergic contact dermatitis from N,N-methylene-bis-5-methyl-oxazolidine in coolant oils
- Changes in gene expression in human renal proximal tubule cells exposed to low concentrations of S-(1,2-dichlorovinyl)-L-cysteine, a metabolite of trichloroethylene

### OCCUPATIONAL

- Analysis on exposure levels of free formaldehyde in indoor environment in furniture markets
- Direct assay of blood aluminum in contact workers by Zeeman graphite furnace atomic absorption spectrometry
- Aspergillus fumigatus challenge increases cytokine levels in nasal lavage fluid
- Biological monitoring for trimethylbenzene exposure: a human volunteer study and a practical example in the workplace
- Health effects associated with organic dust exposure during the handling of municipal solid waste

### PUBLIC HEALTH

- Current dietary exposure to polychlorodibenzop-dioxins, polychlorodibenzofurans, and dioxin-like polychlorobiphenyls in Italy

---

(click on page numbers for links)
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public health impacts of organophosphates and carbamates</td>
<td>9</td>
</tr>
<tr>
<td>Polycyclic aromatic hydrocarbons in dust from computers: one possible indoor source of human exposure</td>
<td>9</td>
</tr>
<tr>
<td>Assessment of personal exposure to nitrogen dioxide in primary schoolchildren</td>
<td>10</td>
</tr>
<tr>
<td>DDE-induced apoptosis in children exposed to the DDT metabolite</td>
<td>10</td>
</tr>
<tr>
<td>SAFETY</td>
<td></td>
</tr>
<tr>
<td>Enclosure-type array controller for preventing gas explosion in coal mines</td>
<td>12</td>
</tr>
<tr>
<td>The development of ‘feeder’ cells for the preparation of clinical grade hES cell lines: Challenges and solutions</td>
<td>12</td>
</tr>
<tr>
<td>Exposure monitoring guidance for compliance with the OSHA standard for hexavalent chromium</td>
<td>12</td>
</tr>
</tbody>
</table>
Removal of ammonium from effluent of Isfahan Steel Company (ESCO) by activated sludge and compost

2007-02-15

ESCO wastewater contains high concentrations of phenol (max. 3000 mg/l) and ammonium (max. 2000 mg/l). In this study activated sludge and compost were used to remove ammonium from effluent of ESCO and, for comparison, synthetic wastewater. The results showed the maximum removal of ammonium by using activated sludge and compost in combination with mineral salts and glucose and CaCl2 in the ESCO effluent and synthetic wastewater were 38.7% and 75.7% respectively. Because of high efficiency and low costs this process could be used to remove ammonium from industrial wastewater.

Authors: Ghanavati, Hossein; Emtiazi, Giti
Full Source: Water & Wastewater 2006, 56, 40-48 (Persian)

Transport and fate of cyanide in soil: case study of Mooteh Valley

2007-02-15

Cyanide, a generic term referring to all compounds containing the cyanide group-CN, is a highly potent and fast acting poison to humans and other living organisms when exposed to high levels. Cyanide is used in mining and minerals processing industries and many other industries such as metal processing and production of organic chemicals. While some industrial cyanide-containing wastes are treated or recovered, there are cases such as certain gold extraction plants where wastes are released in the environment. The objective is to study the transport and fate of cyanide in soil in vicinity of a specific pollution source. For the purpose of this study, Mooteh valley, in the vicinity of Mooteh gold mine and factory, in the north of Isfahan province, Iran, was investigated. In Mooteh’s Plant, the cyanide-containing waste (slurry tailings) is discharged to tailings ponds and there is potential for cyanide to migrate from them. Eight boreholes with 6m depth were dug and from every 0.5 m a soil sample was taken. Statistical analysis of the results show that soil cyanide concentration decreases with distance from the tailings ponds (as a pollution source) and increases with depth. A regression model consisting of a power term for distance and an exponential term for soil depth can appropriately predict the soil cyanide concentration in the vicinity of a pollution source. As soil depth decreases, the rate of natural cyanide fate processes considerably increases. Soil turn over practice is recommended to improve remediation of polluted sites.

Authors: Taebi, Amir; Bafqi, Ali Reza Zade; Sartaj, Majid
Full Source: Water & Wastewater 2006, 56, 21-29 (Persian)
Human exposure to wood preservatives

2007-02-15

Dermal and inhalative exposure to wood preservatives was studied. Water and solvent-based formulations of propiconazole and a solvent-based formulation of tolylfluanid were used. A factorial statistical design was applied to ensure high percentile values. Under worst-case conditions, the potential dermal exposure (body without hands) was approx. 50 times higher than under optimal conditions.

Authors: Lingk, W.; Reifenstein, H.; Westphal, D.; Plattner, E.
Full Source: BfR Wissenschaft 2006, (3), 1-68 (German)

Benchmark dose for cadmium-induced renal effects in humans

2007-02-15

The study was to explore the use of a hybrid approach to calculated benchmark doses (BMDs) and their 95% lower confidence bounds (BMDLs) for renal effects of cadmium in a population with low environmental exposure. Morning urine and blood samples were collected from 820 Swedish women 53-64 years of age. Urinary cadmium (U-Cd) and tubular effect markers [N-acetyl-D-glucosaminidase (NAG) and human complex-forming protein (protein HC)] were measured in 790 women and estimated glomerular filtration rate (GFR; based on serum cystatin C) in 700 women. Age, body mass index, use of nonsteroidal anti-inflammatory drugs, and blood lead levels were used as covariates for estimated GFR. BMDs/BMDLs corresponding to an additional risk (benchmark response) of 5 or 10% were calculated (the background risk at zero exposure was set to 5%). The results were compared with the estimated critical concentrations obtained by applying logistic models used in previous studies on the present data. The obtained benchmark doses of U-Cd were lower than the critical concentrations previously reported. The critical dose level for glomerular effects was only slightly higher than that for tubular effects. The hybrid approach is more appropriate for estimation of the critical U-Cd concentration, because the choice of cut-off values in logistic models largely influenced the obtained critical U-Cd.

Authors: Suwazono, Yasushi; Sand, Salomon; Vahter, Marie; Filipsson, Agneta Falk; Skerfving, Staffan; Lidfeldt, Jonas; Aakesson, Agneta
Full Source: Environmental Health Perspectives 2006, 114(7), 1072-1076 (Eng)

Occupational allergic contact dermatitis from N,N-methylene-bis-5-methyl-oxazolidine in coolant oils

2007-02-15

Contact with metal working fluids (MWF) is an important factor in the development of occupational hand dermatitis in patients working in the metal processing industry. Biocides are added to MWF as preservatives and are known sensitisers. 318 patch test reactions to N,N-methylene-bis-5-methyl-oxazolidine 1% in petrolatum (5-methylazoxazoline, Grotan OX, CAS no. 66204-44-2, a formaldehyde releasing biocide) present in coolant oils were analysed in patients exposed to MWF and with suspected occupational dermatitis (OD). Positive allergic reactions were noted in 15 (4.7%) cases. In 7 (47%) cases relevance was confirmed by examining the material safety data sheets and these showed that N,N-methylene-bis-5-methyl-oxazolidine was present in the oils used by the patients. No certain relevance could be proved in 8 cases, but in these instances, further information on the biocides used in the oils could not be obtained. Positive reactions to formaldehyde
were seen in 11 (73%) patients. Sensitisation either to this biocide and/or formaldehyde allergy was considered to have been likely to have made a contribution to the workers’ dermatitis.
Authors: Madan, Vishal; Beck, Mike H.
Full Source: Contact Dermatitis 2006, 55(1), 39-41 (Eng)

Changes in gene expression in human renal proximal tubule cells exposed to low concentrations of S-(1,2-dichlorovinyl)-L-cysteine, a metabolite of trichloroethylene
2007-02-15
Epidemiology studies suggest that there may be a weak association between high-level exposure to trichloroethylene (TCE) and renal tubule cell carcinoma. Animal studies have shown an increased incidence of renal tubule carcinoma in male rats but not mice. TCE can undergo metabolism via glutathione (GSH) conjugation to form metabolites that are known to be nephrotoxic. The GSH conjugate, S-(1,2-dichlorovinyl) glutathione (DCVG), is processed further to the cysteine conjugate, S-(1,2-dichlorovinyl)-L-cysteine (DCVC), which is the penultimate nephrotoxic species. Human renal tubule cells (HRPTC) have been cultured in serum-free medium under a variety of different culture conditions and growth, respiratory control and glucose transport have been observed over a 20 day period in medium containing low glucose. Cell death was time and concentration dependent, with the EC50 for DCVG being about 3 µM and for DCVC about 7.5 µM over 10 days. Exposure of HRPTC to sub-cytotoxic doses of DCVC led to a small number of changes in gene expression, as determined by transcript profiling with Affymetrix human genome chips. Using the criterion of a mean 2-fold change over control for the four samples examined, 3 genes at 0.1 µM DCVC increased, namely, adenosine kinase, zinc finger protein X-linked and an enzyme with lyase activity. At 1 µM DCVC, two genes showed a >2-fold decrease, N-acetyltransferase 8 and complement factor H. At a lower stringency (1.5-fold change), a total of 63 probe sets were altered at 0.1 µM DCVC and 45 at 1 µM DCVC. Genes associated with stress, apoptosis, cell proliferation and repair and DCVC metabolism were altered, as were a small number of genes that did not appear to be associated with the known mode of action of DCVC. Some of these genes may serve as molecular markers of TCE exposure and effects in the human kidney.
Authors: Lock, Edward A.; Barth, Jeremy L.; Argraves, Scott W.; Schnellmann, Rick G.
Full Source: Toxicology and Applied Pharmacology 2006, 216(2), 319-330 (Eng)
Analysis on exposure levels of free formaldehyde in indoor environment in furniture markets
2007-02-19
This study investigated the exposure levels of free formaldehyde in indoor environment in furniture markets. In addition, the knowledge of indoor decoration pollution, the subjective sensations, the prevalence rates of symptoms of respiratory system of employees and customers in furniture markets were investigated in Dali city. It was found that the average concentration of free formaldehyde in indoor environment in furniture markets exceeded the sanitary standard. 31.25% of the samples tested exceeded the standard rate. The authors observed that exposure levels differed between the sampling points. 183 employees and customers had deviation in knowledge of indoor decoration pollution and some of them even had misunderstanding. No significant difference in respiratory symptoms was detected between the employees and customers. The authors concluded that the sanitary supervision and monitoring of indoor air in furniture markets needs to be enhanced. Indoor air pollution of free formaldehyde needs to be reduced by increasing the ventilation in the furniture markets. In addition, improvements in plywood technology process are required in order to decrease the formaldehyde pollution. Further occupational and environmental health work is required to bring about a consciousness of indoor decoration pollution.
Authors: He, Zuoshun; Song, Zhengrui; Zhang, Tai; Li, Yuncheng; Zhang, Lijuan; Chen, Hongyun
Full Source: Xiandai Yufang Yixue 2006, 33(4), 589-590, 592 (Ch)

Direct assay of blood aluminum in contact workers by Zeeman graphite furnace atomic absorption spectrometry
2007-02-19
In this study, atomic absorption spectrometry in graphite furnace was used to determine the content of aluminum in the blood of contact workers. On proper drying, ashing and atomizing conditions, the aluminum content was directly detected with Triton X-100 served as a blood dilution agent and K2Cr2O7 was used as a matrix modifier. The results showed that when the concentration of aluminum in the blood was 120 µg/L, the linear relation was fine and the correlation coefficient r ) 0.9993. The detection limit was found to be 0.95 µg/L, with the additional sample recovery rate of 93.0%-103.2% and the relative standard deviation (RSD) of 3.5%-7.1%. The authors concluded that this method is simple, highly sensitivity, highly accuracy and is a suitable method to detect the aluminum content in the blood of the contact workers.
Authors: Wang, Junming; Song, Liwei; Shi, Lixin; Ma, Hong
Full Source: Zhongguo Weisheng Jianyan Zazhi 2006, 16(2), 210-211 (Ch)

Aspergillus fumigatus challenge increases cytokine levels in nasal lavage fluid
2007-02-19
Previous studies have demonstrated an association between exposure to moisture-damaged buildings and adverse health effects. Several microbial indicators of moisture damage have been identified, with Aspergillus fumigatus being the best-documented molds provoking health problems in different occupational conditions. This study assessed the affect on cytokine levels(tumor necrosis factor [TNF]-R, interleukin [IL]-1, IL-4, IL-6, interferon [IFN]-a) by the inhalation of a common A. fumigatus solution in nasal lavage fluid (NAL) compared with that evoked by placebo challenge. Twenty-
seven subjects were recruited for the study: 13 had occupational exposure in a moisture-damaged building, 4 were atopic, and 10 were considered as controls. The results demonstrated that all subjects had significantly increased levels of IL-1, at 6 and 24 hours after the A. fumigatus challenge compared to placebo. The authors observed that in those subjects with previous occupational exposure in a moisture damaged building, IL-4 concentrations were increased significantly both at 6 and 24 h after the A. fumigatus challenge compared with placebo. In addition, the control group has significantly increased levels of TNF-R at 6 h after the A. fumigatus challenge compared to placebo. The authors concluded that these findings provide evidence of a link between markers of inflammation in NAL and experimental A. fumigatus challenge.

Authors: Stark, H.; Roponen, M.; Purokivi, M.; Randell, J.; Tukiainen, H.; Hirvonen, M.-R.
Full Source: Inhalation Toxicology 2006, 18(13), 1035-1041 (Eng)

**Biological monitoring for trimethylbenzene exposure: a human volunteer study and a practical example in the workplace.**

2007-02-19

This study examines data provided by a human volunteer study looking at exposure to 1,3,5-trimethylbenzene (TMB) and an occupational hygiene study of a printing firm using screen wash containing technical grade TMB. The biomarkers measured were TMB in blood and breath, and urinary dimethylbenzoic acids (DMBAs). The results showed that TMB was rapidly absorbed into the bloodstream reaching a mean level of 0.85µmol l-1 during a 4 h exposure to 25 p.p.m. TMB. Little decline was observed 1 h post-exposure possibly indicating storage of TMB in adipose tissue. Breath TMB levels peaked within an hour of exposure commencing and averaged 137 nmol l-1 during exposure. Elimination of TMB in breath was biphasic with an initial half-life of 60 min. Peak excretion of urinary DMBA occurred 4-8 h after the end of exposure and averaged 40 mmol mol-1 creatinine. Elimination of DMBA in urine was biphasic with half-lives of 13 and 60 h indicating that accumulation of body burden throughout the working week is likely if exposure is repeated. The occupational hygiene study demonstrated a strong correlation between personal air TMB levels and post-shift urinary DMBA levels collected on the third working day. The regression equation from this study indicates that 8 h exposure to 25 p.p.m. TMB would result in a urinary DMBA level of 206 mmol mol-1 creatinine. All workers showed pre-shift levels of DMBA from exposure to TMB on previous days. The authors concluded that both urinary DMBA and breath TMB levels can be used as biomarkers of TMB exposure. Urine samples should be taken post-shift towards the end of the working week as significant body burden accumulation throughout the working week can be expected. Breath sampling is more suited to task or single-shift monitoring.

Authors: Jones, K.; Meldrum, M.; Baird, E.; Cottrell, S.; Kaur, P.; Plant, N.; Dyne, D.; Cocker, J.
Full Source: Annals of Occupational Hygiene 2006, 50(6), 593-598 (Eng)

**Health effects associated with organic dust exposure during the handling of municipal solid waste**

2007-02-19

Municipal solid waste is a collection of discarded liquid and solid materials that serves as a breeding ground for bacteria and fungi. Individuals involved in the collection, transport, transfer and management of this waste may be
exposed to elevated concentrations of biological aerosols. Based on the nature of the work environment and the knowledge of bioaerosol related health effects in other occupations, the handling of municipal solid waste can be expected to result in adverse health outcomes. Research into this area is currently limited, with most studies focusing on the relationship between organic dust exposure and adverse health effects in these workers. The previous research suggests that there is an association between the performance of job tasks involving the handling of municipal solid waste and various respiratory, dermatological and gastrointestinal health effects. While increased incidences of specific adverse health outcomes have been documented in this group of workers, the limited nature of exposure assessment does not allow for strong evidence based conclusions to be drawn regarding exposure levels and associated health effects. The author concludes that the detailed characterization of organic dust exposure experienced by municipal solid waste workers is necessary in order to both improve understanding of resultant health effects and develop strategies to improve occupational health.

Authors: Perez, Hernando R.; Frank, Arthur L.; Zimmerman, Neil J.
Full Source: Indoor and Built Environment 2006, 15(3), 207-212 (Eng)
Current dietary exposure to polychlorodibenzo-pdioxins, polychlorodibenzofurans, and dioxin-like polychlorobiphenyls in Italy

This study assessed the dietary exposure to polychlorodibenzopdioxins (PCDDs), polychlorodibenzofurans (PCDFs), and dioxin-like polychlorobiphenyls (DL-PCBs) for the Italian general population. The data was obtained by combining from a national food consumption survey with contamination concentrations of European foodstuffs available on the market. The distribution of PCDD, PCDF, and DL-PCB dietary intake(s) in the Italian population was investigated to determine to what extent the variability in dietary habits may cause higher exposures to the contaminants. The results indicated that the main contributions to total PCDD, PCDF, and DL-PCB intake are due to fish and fish products and to milk and dairy products. The mean PCDD, PCDF, and DL-PCB intake (total toxic equivalent) via food was estimated 5.34, 3.37, and 2.28 pg World Health Organization (WHO)-TE/kg of body weight (kg-bw) per day for the 3 age groups 0-6 (breastfeeding excluded), 7-12, and 13-94 years old, respectively. The highest exposures due to variation in dietary habits are in general within a factor of 2-3. The authors concluded that the estimated mean exposure concentrations for the general population (adults), suggests that a consistent part of it would exceed the tolerable daily intake of 2 pg WHO-TE/kgbw adopted by the Scientific Committee on Food of the European Commission in 2001.

Authors: Fattore, Elena; Fanelli, Roberto; Turrini, Aida; di Domenico, Alessandro

Full Source: Molecular Nutrition & Food Research 2006, 50(10), 915-921 (Eng)

Public health impacts of organophosphates and carbamates

This literature examined the positive and negative impacts of organophosphate (OP) and carbamate (CM) pesticides on public health. The application of these pesticides is useful for the control of vector-borne diseases, but on the other hand can lead to severe illnesses and acute poisoning. A vector-borne disease is a disease transmitted by insects or other arthropods. The use of OPs and CMs can lead to the eradication of vector-borne diseases, like malaria, dengue, yellow fever, West-Nile virus, and leishmaniasis. Unfortunately, the vectors become resistant against the OP and CM pesticides in quite a short time. In addition, accidental poisoning and dietary exposures of OPs and CMs can occur and can lead to considerable health risks for children. Further health risks come from indoor spraying of these pesticides. The study further discusses these topics taking into account the food quality and protection act (FQPA) from 1996.

Author: Moffett, Daphne B.

Full Source: Toxicology of Organophosphate and Carbamate Compounds 2006, 599-606 (Eng)

Polycyclic aromatic hydrocarbons in dust from computers: one possible indoor source of human exposure

This study investigated the levels and sources of EPA 16 priority polycyclic aromatic hydrocarbons (PAHs) in dust samples collected from components
and internal walls of computers’ boxes (in-computers) in Shanghai, China. During the study, dust samples were collected from 27 computers in different indoor environment: offices, labs., and one net bar. The levels of PAHs in dust samples were found to be 8.22-42.04 µg g⁻¹. BbF, BgP, DbA, Chry, and BaP were the most abundant PAHs. The levels of PAHs in computers in smoking rooms (mainly in the net bar) were usually 1.35-2.87 times higher than those in non-smoking rooms, indicating that the indoor environment of different rooms significantly affected the loading of dust PAHs. To study the source of PAHs in computers, 6 dust samples were collected from windowsills (outcomputers) in the corresponding rooms. The results demonstrated that most of the PAHs from in-computers were greater than those from out-computers, which suggests that parts of PAHs in computers may be emitted from the heated plastic material out of chips in computers when they are running, and be adsorbed on dust deposited on these components. The authors concluded that there was significant potential for exposure to PAHs from computers, with the findings showing that people may be exposed to 2.99 ng m⁻³ particle-phase PAHs, which are just sprayed out with dust from computers.

Authors: Ren, Yu; Cheng, Tiantao; Chen, Jianmin
Full Source: Atmospheric Environment 2006, 40(36), 6956-6965 (Eng)

Assessment of personal exposure to nitrogen dioxide in primary schoolchildren
2007-02-19
The aim of this study was to assess the level of nitrogen dioxide from several microenvironments including inside the home, outdoors near the home, inside the school, outdoors near the school, and on the road for 42 primary schoolchildren during the month of December 2002 in Seoul, Korea. The results showed that the indoor NO₂ concentrations were significantly associated with the presence of a smoker with a gas stove. The estimated personal NO₂ exposure using time-weighted average equation was significantly lower than the measured personal exposure. The authors conclude that these results indicate that indoor NO₂ levels were associated with the presence of a smoker and a gas stove. Moreover, personal NO₂ exposure with a gas stove in the house was significantly higher than those without a gas stove.

Authors: Cho, Yong-Sung; Lee, Jong-Tae; Kim, Yoon-Shin
Full Source: Hangug Hwangyeong Bogeon Haghoeji 2006, 32(3), 207-214 (Eng)

DDE-induced apoptosis in children exposed to the DDT metabolite
2007-02-19
A previous study of children detected a weak positive association between the frequency of apoptosis and the exposure to DDT and DDE (a DDT metabolite). In order to verify these findings, the authors needed to perform more studies with an increased number of children. This study investigated if DDT and its metabolites were able to induce apoptosis of PBMC in exposed children. In 2003, 61 children living in 3 communities located in southern Mexico were recruited for the study. In 2004, another 57 and during the year from the same communities were assessed. Apoptosis frequencies in PBMC in these children ranged from 0.10% to 8.30% during 2003 and from 0.12% to 16.20% during 2004, and although exposure to DDT, DDD and DDE was detected, significant association with apoptosis frequencies was found only
with DDE blood levels 0.010 for 2003 and 0.040 2004. DNA damage and oxidative DNA damage were also studied in 2004 using the comet assay. The association between exposure to DDT or DDE and DNA damage was found to be significant, but the association between DDT or DDE and oxidative DNA damage and that of oxidative damage and apoptosis were not significant. The authors concluded that taking into account that DDE is the most persistent metabolite, it would be important to assess the effects of this DDE-induced apoptosis of PBCM in children living in areas where DDT was sprayed.

Authors: Perez-Maldonado, Ivan N.; Athanasiadou, Maria; Yanez, Leticia; Gonzalez-Amaro, Roberto; Bergman, Ake; Diaz-Barriga, Fernando

Full Source: Science of the Total Environment 2006, 370(2-3), 343-351 (Eng)
Enclosure-type array controller for preventing gas explosion in coal mines

2007-02-15

The controller comprises 5-100 connected control units, each having six relays and input and output signal wires connected between their positive and negative poles. The output signal wire of the control unit is connected with the output and input signal wires of an adjacent control unit. When a gas probe in a section detects a gas concentration exceeding predetermined value, in addition to triggering its gas discharging and water spray units, the control unit in the section connects its neighboring units so that their gas discharging and water spraying units operate simultaneously to provide enclosure-type control.

Authors: Ji, Hansheng; Zhang, Xinyuan

The development of ‘feeder’ cells for the preparation of clinical grade hES cell lines: Challenges and solutions

2007-02-15

The development of human embryonic stem cell (hESC) lines for research and therapy is hampered by the need to improve the basic methodologies for cell culture expansion. In most current methods hESC lines are cultured on a mouse or human feeder cell layer which appears to be the most reliable way to maintain cells stably in the undifferentiated state. However, co-culture introduces complications for studying stem cell biology and the delivery of safe therapies for the future. This article reviews the specific risks associated with any proposed clinical use of feeder cells of mouse origin and compares these with the benefits and risks of using human feeder cells. The further work required to establish clinical grade feeder cell lines for hESC line culture is significant and costly. Much work is being done to find feeder-free culture systems but these are at an early stage of development and there may be consequences that affect the value of the hESCs for research and development. These challenges should be viewed in the context of the huge amount of work that will be required over many years to develop robust differentiation protocols and establish fully defined procedures and adequate safety data for embryonic stem cell products.

Authors: Stacey, Glyn N.; Cobo, Fernando; Nieto, Ana; Talavera, Paloma; Healy, Lyn; Concha, Angel
Full Source: Journal of Biotechnology 2006, 125(4), 583-588 (Eng)

Exposure monitoring guidance for compliance with the OSHA standard for hexavalent chromium

2007-02-15

On 28 February 2006, the USA Occupational Safety and Health Administration (OSHA) issued a standard that significantly lowered the limit on workers exposure to hexavalent chromium. This new standard greatly increases the monitoring, training and hygiene requirements for facilities with industrial processes that use Cr(VI), even in small quantities and/or concentrations. OSHA’s new standard requires that facilities with Cr(VI) monitor employee exposures. During the initial compliance assessment period, all job tasks that have potential exposures are evaluated.

Author: Zak, Joelie
Full Source: Plating and Surface Finishing 2006, 93(5), 18-19 (Eng)