

the practical condition.

(4) The way and target for accuracy provided.

(5) The stability of sample was generally 2 weeks.

(6) The methods must be examined by other lab. and must be used in field.

This criteria guaranteed the quality of this set of biological monitoring methods.

The set of biological monitoring methods will be recommended as the National Standard Methods. Also it will be compiled as a handbook and will be published at the end of 1991.

II. Studies on the production of lyophilized human urine (Trace Metals) certified reference material

The preparation of the lyophilized human

urine certified reference material (CRM) was established on the basis of literatures in other countries and domestic conditions. The homogeneity and stability of the CRM in accordance with the stipulations. The certified values are determined by 14 high level laboratories in China using 9 methods with different principles and have been examined by NIOSH using ICP-MS. This CRM has been approved as first grade national reference material, which has serial numbers of GBW 09102 and GBW 09103. It can be used in quality control of routine analysis, test of new methods, and used as standard material for calibration of analytical instruments and certified reference material for quantity transmission and analysis arbitration.

某矽石砖厂尘肺发病调查

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有关矽石砖尘肺报道甚少。我们对江西萍乡某矽石砖厂粉尘作业的接尘工人进行了观察与分析。用回顾性队列研究方法,截止1988年底,全部接尘一年以上的工人列为调查对象。对其他粉尘接触史的工人一律删除。共观察 264人年。

生产工序流程:矽石初破碎→烘矽→球磨→制砖→遂道窑→出砖。矽石砖作业粉尘,最高浓度 $717.6\text{mg}/\text{m}^3$,最低 $7\text{mg}/\text{m}^3$ 。各工序粉尘浓度:球磨车间 $\bar{X}239.88\text{mg}/\text{m}^3$,烘矽车间 $\bar{X}85.11\text{mg}/\text{m}^3$,制砖车间 $\bar{X}10.72\text{mg}/\text{m}^3$,破碎机房 $7.76\text{mg}/\text{m}^3$ 。原料主要是页岩, SiO_2 含量平均为36.26%,其次为砂岩, SiO_2 含量平均为84.66%。

矽石砖接尘人员X线胸片检出 $0+71$ (26.89%),I期13例、I+2例,共 15例 (5.68%)。按工种分打粉工检出矽石砖尘肺 13 例,制砖工、破碎工各检出 1 例。

对照不同车间工种的接尘工人,矽石砖尘肺患病情况,用 χ^2 检验, $\chi^2=14.22$,得 $P<0.005$,工种别患病率有非常显著性意义。

矽石砖尘肺发病工龄最短2年,最长15年,平均9.19年。根据不同接尘工龄与患病的情况, $\chi^2=23.20$, $P<0.005$,故不同接尘工龄与患病有非常显著性意义。

观察期间死亡2例。1例死于肺癌,另1例死于心肺功能衰竭。

矽石砖粉尘可引起尘肺,而且发病与粉尘浓度成正相关。发病工龄经OR比值比分析在 ≤ 10 年之间。矽石砖尘肺且比煤工尘肺发病工龄短、患病率高。同时也不低于冶金矿山矽肺患病率。其X线胸片改变类似煤矿纯掘进工的肺野改变。

由于矽石砖所采用的原料是煤矿井下掘进运出的矽石,因而矽石砖尘肺实质上就是矽肺。

利用矿井矽石打粉制砖,不能忽视“二次污染”。防护的重点在于控制尘源的产生,或在尘源产生粉尘的瞬间,采取有效的措施,较理想的防尘办法是将初破碎→烘矽→球磨,改为全密封式水雾降尘,将干式打粉改为水磨浆,这样可以防止尘源的产生和飞扬。既保护了生产工人的身体健康,又消除了对环境的污染。生产工人必须佩戴防尘口罩。

通过对264名矽石砖作业粉尘的接尘工人的调查,矽石砖尘肺发病高,进展快,预后差。因此,必须对矽石砖作业粉尘车间做好劳动卫生监督和监测,搞好综合防尘。对接尘的矽石制砖工人,定期做好健康监护。已确诊的矽石砖尘肺患者必须搞好“三级管理”。

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