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论文

工作面采煤期间PM2.5粉尘的分布规律

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摘要：

为掌握煤矿工作面PM2.5粉尘的浓度分布规律，利用粉尘浓度测量仪在山西晋城某煤矿91324综采工作面采煤期间对进风巷、辅助回风巷、主回风巷3条巷道和工作面的全尘、PM10粉尘及PM2.5粉尘浓度进行测试，分析PM2.5粉尘及PM10粉尘占全尘的比例。结果表明：工作面全尘浓度在采煤机下风侧5 m处达到最高，PM10粉尘、PM2.5粉尘在工作面比例波动较大；在辅助回风巷中全尘、PM10粉尘和PM2.5粉尘浓度逐渐增加，至330 m处达到极大值，随后缓慢下降，在主回风巷中由于采取了降尘措施，这3种粉尘在较低浓度范围内呈波动变化；在主回风巷中，PM2.5粉尘的质量浓度最大值为56.087 mg/m 3 ，在辅助回风巷内最大值为180.390 mg/m 3 ，超过了地面环境标准的限值。

关键词： PM2.5粉尘；分布规律；PM10粉尘；工作面；巷道

Distribution of PM2.5 dust during mining operation in coal workface

Abstract:

In order to study the distribution of dust particle matter (including PM2.5) in coal workface，the concentration of total dust，PM10 dust and PM2.5 dust were measured with the dust concentration tester during the mining process in all roadways of Coalface 91324 that is the comprehensive mechanized coal face at a coal mine in Jincheng city.The results were analyzed and show that the total dust concentration is at its maximum 5 m downwind of the coal cutter while PM10 and PM2.5 dust fluctuates heavily in the coalface；the concentrations of three kinds of dust (the total dust，PM10 dust and PM2.5 dust) increase gradually and reach their maximum values at 330 m，then decrease slowly in the auxiliary return roadway.The concentration of these three kinds of dust fluctuates within the low concentration range in the main return roadway.In the main return roadway and auxiliary roadway the maximum levels of PM2.5 dust are 56.087 mg/m3 and 180.39 mg/m3 respectively.The PM2.5 dust is above the limit of ambient air quality.These findings provide the parameters for modifying the standard of dust testing and prevention.

Keywords: PM2.5 dust；distribution law；PM10 dust；coal working face；roadway

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