

*Generous applications of rock dust can prevent the propagation of coal dust explosions. The law requires that all areas of a coal mine that can be safely traveled must be kept adequately rock dusted to within 40 feet of all working faces.*

**Refer to 30 CFR 75, Subpart E for rock dusting requirements.**

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# Rock Dusting Awareness

Mine Safety and Health Administration



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*The risk of widespread explosion disasters in bituminous coal mines can be eliminated when rock dust is applied in sufficient quantity and adequately maintained.*

Rock dusting is the primary means of defense against coal dust explosions.

Recent studies have shown that rock dust must be applied to maintain the incombustible content of dust in all entries to no less than 80 percent. MSHA has promulgated an Emergency Temporary Standard (ETS) that requires no less than 80 percent incombustible content of dust in all accessible areas of underground bituminous coal mines. In addition, where methane is present, the ETS requires a 0.4 percent increase in the incombustible content for each 0.1 percent of methane.

Float coal dust is a serious explosion hazard if it accumulates on top of the rock dust and the area is not inerted by the application of additional rock dust.

The explosion hazards of float coal dust have been studied over many decades by the former U.S. Bureau of Mines and NIOSH.

- Float coal dust on the ribs, roof, and other elevated surfaces (overhead dust) can be dispersed much more readily by an explosion than dust on the floor.
- If the overhead dust is mainly float coal dust, the explosion hazard is increased. If the overhead dust is primarily rock dust, the explosion hazard is reduced.
- Thick layers of rock dust on the floor cannot compensate for float coal dust on overhead surfaces.
- Studies have shown that initially, for a float coal dust explosion, only the top 3/32 to 5/32 inches of the floor dust layer is stripped off or entrained in the air.
- Studies also show that a layer of pulverized float coal dust as little as 5/1000 inch thick (about the thickness of a sheet of paper) deposited on top of a rock dusted surface can propagate an explosion.
- An increase in the thickness of the float coal dust layer increases the violence of the explosion.
- Float coal dust deposits can be inerted by new applications of rock dust (such as trickle rock dusting or bulk rock dusting) and by mixing the float coal dust with the underlying rock dust.