

(c) § 57.5060(f) prohibiting the use of administrative controls to comply with the concentration limits; and

(d) § 57.5062, DPM control plan.

Finally, the notice outlined the terms of the DPM settlement agreement and announced MSHA's intent to propose specific changes to the rule, as discussed below.

On September 25, 2002, MSHA published an Advance Notice of Proposed Rulemaking (67 FR 60199) to revise the DPM rule. The comment period closed on November 25, 2002. MSHA received comments from underground metal and nonmetal mine operators, trade associations, organized labor, individual mine operators, public interest groups and individuals. A number of commenters from industry and labor requested that MSHA propose the final DPM limit at a later date to allow MSHA to obtain more data. Commenters suggested that the Agency needs to determine the efficiency of different filtration devices, the relationship between elemental carbon and total carbon, and the feasibility of a DPM exposure limit.

This proposed rule would revise existing § 57.5060(a), addressing the interim concentration limit for DPM and the surrogate for measuring DPM limit; § 57.5060(c), addressing application and approval requirements for an extension of time in which to reduce the concentration of DPM; § 57.5060(d), addressing certain exceptions to the concentration limit; § 57.5060(e), prohibiting use of personal protective equipment to comply with the concentration limits; § 57.5060(f) prohibiting use of administrative controls to comply with the concentration limits, and § 57.5062, addressing the diesel particulate control plan. MSHA is also proposing conforming changes to existing § 57.5061, addressing compliance determinations; § 57.5071, addressing exposure monitoring; and § 57.5075, addressing recordkeeping requirements.

MSHA solicits comments on these provisions, as well as on experiences with controlling miners' exposures to DPM. MSHA also encourages commenters to submit additional evidence or new scientific data related to the health risk of DPM exposure in underground metal and nonmetal mines.

III. The Final PEL

MSHA intends to propose a revision to the final DPM limit in § 57.5060(b) that would reflect an appropriate permissible exposure limit rather than a concentration limit and would change the surrogate from total carbon to

elemental carbon. Although the final limit is not a part of this proposed rule, MSHA solicits comments on an appropriate final DPM limit.

IV. Executive Summary of the 31-Mine Study

The following is the executive summary from "MSHA's Report on Data Collected During a Joint MSHA/Industry Study of DPM Levels in Underground Metal And Nonmetal Mines" (31-Mine Study) signed by MSHA on January 6, 2003. The Preliminary Regulatory Economic Analysis (PREA) for this proposed rule is not based on the 31-Mine Study.

On January 19, 2001, MSHA published a final standard on exposure of underground metal and nonmetal miners to diesel particulate matter (DPM). The rule was to become effective 60 days later, however, prior to the effective date, the rule was challenged by industry trade associations and mining companies. The United Steelworkers of America (USWA) also intervened in the litigation. In June 2001, agreement was reached on some of the issues in dispute. The parties further agreed to conduct a study involving joint in-mine DPM sampling to determine existing concentration levels of DPM in operating mines and to measure DPM levels in the presence of known or suspected interferences. The goals of the study were to use the sampling results and related information to assess:

- The validity, precision and feasibility of the sampling and analysis method specified by the diesel standard (NIOSH Method 5040);
- The magnitude of interferences that occur when conducting enforcement sampling for total carbon as a surrogate for diesel particulate matter (DPM) in mining environments; and
- The technological and economic feasibility of the underground metal and nonmetal (MNM) mine operators to achieve compliance with the interim and final DPM concentration limits.

The parties developed a joint MSHA/Industry study protocol to guide sampling and analysis of DPM levels in 31 mines. The parties also developed four subprotocols to guide investigations of the known or suspected interferences, which included mineral dust, drill oil mist, oil mist generated during ammonium nitrate/fuel oil (ANFO) loading operations, and environmental tobacco smoke (ETS). The parties also agreed to study other potential sampling problems, including any manufacturing defects of the DPM sampling cassette.

Major conclusions drawn from the study are as follows:

- The analytical method specified by the diesel standard gives an accurate measure of the TC content of a filter sample and the analytical method is appropriate for making compliance determinations of DPM exposures of underground metal and nonmetal miners.
- SKC satisfactorily addressed concerns over defects in the DPM sampling cassettes and

availability of cassettes to both MSHA and mine operators.

- Compliance with both the interim and final concentration limits may be both technologically and economically feasible for metal and nonmetal underground mines in the study. MSHA, however, has limited in-mine documentation on DPM control technology. As a result, MSHA's position on feasibility does not reflect consideration of current complications with respect to implementation of controls, such as retrofitting and regeneration of filters. MSHA acknowledges that these issues may influence the extent to which controls are feasible. The Agency is continuing to consult with the National Institute of Occupational Safety and Health, industry and labor representatives on the availability of practical mine worthy filter technology.
- The submicron impactor was effective in removing the mineral dust, and therefore its potential interference, from DPM samples. Remaining interference from carbonate interference is removed by subtracting the 4th organic peak from the analysis. No reasonable method of sampling was found to eliminate interferences from oil mist or that would effectively measure DPM levels in the presence of ETS with TC as the surrogate. Results and findings of the study are summarized below.

Sampling at 31 Mines

There are a number of methods that can measure DPM concentrations with reasonable accuracy when it is at high concentrations and the purpose is exposure assessment. These methods do not at this time provide the accuracy required to support compliance determinations at the concentration levels required to be achieved under the DPM rule. The NIOSH Method 5040 provides an accurate method of determining the total carbon content of a sample collected in any underground metal or nonmetal mine when the submicron impactor is used. MSHA's January 2001 regulation requires using total carbon (TC) as a surrogate for DPM because a consistent quantitative relationship has been established between total carbon concentrations and the concentration of DPM as a whole. TC concentrations measured during the study ranged from 13 to 2065 μm^3 , with a mean of 345 μm^3 . To put these sampling results into context, the interim concentration limit specified in the final rule, effective after July 19, 2002, is 400 micrograms of TC per cubic meter of air (μm^3). The final concentration limit is 160 micrograms of TC per cubic meter of air (μm^3), effective after January 19, 2006.

TC concentrations at the non-trona mines were four to five times higher than at the trona mines. TC concentrations measured using area samples were found to be 38 to 62 percent of the levels found using occupational or personal samples.

Interferences

The submicron impactor removes 94% of the mineral dust from DPM samples. Remaining carbonate interference, if any, is removed by subtracting the 4th organic peak