ISSUE DATE: 06/20/2011
LAST VALIDATED: 3/26/2026

PROGRAM INFORMATION BULLETIN NO. P11-43

FROM: KEVIN G. STRICKLIN
Administrator for
Coal Mine Safety and Health

LINDA F. ZEILER
Acting Director of Technical Support

SUBJECT: Reissue of P05-20 - Evaluation of Diesel Particulate Matter After-Treatment Devices on Non-Permissible, Heavy-Duty, Diesel-Powered Equipment, Compressors and Generators

Who needs this information?
This Program Information Bulletin (PIB) affects underground coal mine operators using diesel-powered equipment, manufacturers of diesel-powered underground mining equipment (including manufacturers of exhaust after-treatment control devices and systems), miners' representatives, and Mine Safety and Health Administration (MSHA) personnel.

Why is MSHA issuing this bulletin?
This bulletin explains how MSHA:

1. Evaluates diesel particulate matter (DPM) aftertreatment devices on non-permissible, heavy-duty, diesel-powered equipment, compressors and generators after January 1, 2006; and
2. Reviews information available on high temperature disposable particulate filters (HTDPFs) and Paper/Synthetic filters accepted by MSHA as DPM aftertreatment devices.

How will MSHA determine if a DPM control is effective
After January 1, 2006, MSHA will:

1. Review information contained in the mine operator's diesel inventory (inventory), as required to be maintained by 30 C.F.R. 72.520;

2. Assess whether the DPM control's collection efficiency selected for the diesel engine reduces the amount of DPM emitted to compliance levels;
3. Evaluate the conditions under which the DPM device is being used; and
4. Determine if those conditions are in accordance with the manufacturer's specifications established for acceptance of the device as a DPM control.

MSHA will evaluate whether a DPM filter is being used within the manufacturer's temperature limitations by determining the exhaust gas temperature using the following test procedure:

1) Conduct the test when the engine is producing the maximum exhaust gas temperature. This test condition should be the same as that established by the mine operator to conduct the undiluted exhaust emissions weekly test required under 30 C.F.R. 75.1914(g). This test condition is normally produced using torque converter stall or hydrostatic transmission load.

2) Measure the peak exhaust gas temperature in the undiluted exhaust using an electronic hand-held thermocouple instrument with a maximum 6 inch, J type thermocouple attached.

3) Place the thermocouple into the undiluted exhaust stream using an exhaust port near the inlet of the DPM exhaust filter and after any exhaust cooling device. The exhaust port must be located to permit measurement of the exhaust gas temperature before entering the DPM aftertreatment device but after any exhaust cooling device. This may be the same port that the mine operator uses to determine the exhaust gas emissions concentrations for 30 C.F.R. 75.1914(g). (Note: the thermocouple must not touch the wall of the exhaust pipe and should be as close as possible to the center of the exhaust pipe.)

4) Run the test for a minimum of 60 seconds to a maximum of 120 seconds or until the exhaust gas temperature is reasonably stable, whichever is less.

5) Record the identification of the machine being tested, the engine's serial number and the peak exhaust gas temperature measured.

What information is available on the filter efficiency and manufacturers' specifications for use of filters accepted by MSHA?

30 C.F.R. Section 72.501(c) establishes the DPM emissions limit for this group of diesel-powered equipment. Proper selection of the DPM control ensures DPM emissions are reduced to or below the established limit. The manufacturers' specifications for the HTDPF and Paper/Synthetic filters accepted by MSHA provide data on the efficiency of the filter unit and the conditions under which the filter must be operated to attain the stated efficiency.

For example, one manufacturer's specifications for use of their currently accepted HTDPF states that 80 percent efficiency is obtained when the maximum exhaust gas temperature is maintained at or below 650˚F. The requirements of 30 C.F.R. Section 72.503(d) would not be met if this HTDPF is used on machines that produce exhaust gas temperatures above 650˚F or are not maintained in accordance with the manufacturer's specifications. Copies of the specification sheets for the two currently accepted HTDPFs are attached.

What can be done if the exhaust temperature exceeds the DPM filter specifications?
The mine operator has several options. These include reducing the diesel exhaust gas temperature through a device such as a scrubber or heat exchanger to maintain the exhaust gas temperature within the established limits, or installing and maintaining other types of controls such as ceramic diesel particulate traps.

Where can I find more information?
More information on diesel exhaust filters can be obtained from MSHA's Diesel Particulate Rules Single Source Page (http://www.msha.gov/01-995/dieselpart.HTM) and National Institute for Occupational Safety and Health's (NIOSH's) Mining Safety and Health Research Topics (http://www.cdc.gov/niosh/mining).

What is the background for this bulletin?
MSHA's diesel particulate matter rules for underground coal mines established new emission limits for DPM over a phased-in schedule. Aftertreatment devices must reduce DPM levels to those specified in 30 C.F.R. Part 72. MSHA provides information to assist mine operators in choosing the correct diesel particulate filter for their specific machine application. Equipment manufacturers and MSHA provide information concerning the limitations of DPM controls to reduce diesel particulate based on test data. Information concerning MSHA's testing of DPM filters related to potential fire hazards is covered in PIB No. P11-43.

Who are the contact persons for this bulletin?
Mine Safety and Health Enforcement, Health Division
Greg Meikle, (202) 693-9523
E-mail: Meikle.gregory@dol.gov

Technical Support, Approval and Certification Center
Jeffrey Moninger, (304) 547-2324
E-mail: moninger.jeffrey@dol.gov

What is the authority for this bulletin?
30 C.F.R. Part 72 Subpart D and 30 C.F.R. Part 75 Subpart T.

Who will receive this bulletin?
Program Policy Manual Holders
Miners' Representatives
Underground Coal Mine Operators
Special Interest Groups

Attachment