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Mine Safety and Health Administration
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Arlington, Virginia 22209-3939

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PROGRAM INFORMATION BULLETIN NO. P02-7

FROM: *for* RAY McKINNEY
Administrator for
Coal Mine Safety and Health

MARK E. SKILES
Director of Technical Support

SUBJECT: Compliance with Diesel Particulate Matter Standard in Underground Coal Mines

Scope

This Program Information Bulletin affects underground coal mine operators using diesel-powered equipment and manufacturers of diesel-powered underground mining equipment (including manufacturer's exhaust devices and systems), and Mine Safety and Health Administration (MSHA) enforcement personnel.

Purpose

The purpose of this bulletin is to inform underground coal mine operators and Coal Mine Safety and Health Administration enforcement personnel about compliance requirements with 30 CFR Section 72.500(b) (effective July 19, 2002), sections 72.501(a), 72.502(a), and 72.503.

Information

MSHA published a final rule on diesel particulate matter (dpm) emissions in underground coal mines in the Federal Register on January 19, 2001 (66 FR 5526). This bulletin describes the compliance requirements for mine operators who intend to operate permissible and newly introduced diesel-powered equipment after July 19, 2002, with the exception of those engines as specified in Table 72.502-1.

1. Aftertreatment devices must be installed on newly introduced diesel-powered equipment, and as required on all permissible diesel-powered equipment. Mine operators who have installed diesel aftertreatment devices must maintain those units in accordance to the requirements of 30 CFR Section 72.503(d). Mine operators

comply will be cited for failure to implement or maintain dpm controls.

2. The Program Information Bulletin issued on May 31, 2002 (PIB-P02-04) on the "Potential Health Platinum-Based Catalyzed Diesel Particulate Matter Exhaust Filters" identified platinum-based part source for generation of increased concentrations of Nitrogen Dioxide (NO₂). Platinum-based catal currently installed on diesel-powered equipment must be used in accordance with the conditions ou However, particulate filters introduced into the underground mine after the date of this PIB must nc in NO₂ concentrations in the raw exhaust. MSHA can assist the mine operator in choosing a filter tl increase NO₂.

3. If a mine operator is unable to meet the requirements of 30 CFR 72.500, 72.501(a), and 72.503, t the District Manager. The District Manager will review the mine operator's compliance on a mine-t MSHA's intent to provide assistance to operators to help them achieve compliance with the dpm sta

4. If a platinum-based catalyzed filter has been installed and is designated by MSHA as having the generate NO₂ in excess of the TLV, the mine operator must collect tailpipe NO₂ emission data (as attached appendix), determine air quantities to dilute NO₂ generated from platinum-based catalyzed the following information to the District Manager for approval:

- a) Air quantities necessary to dilute NO₂ emissions to safe concentrations;
- b) Necessary modifications to the mine's ventilation plan; and,
- c) The time period it will take the mine operator to obtain and install a replacement aftertreat

5. If the mine operator does not have an aftertreatment device installed on or after July 19, 2002, M citation. To abate the citation, the mine operator shall submit to the District Manager a compliance schedule. In establishing or extending an abatement period, the District Manager will consider whe install an aftertreatment device was due to non-availability from the engine manufacturer, retrofit c manufacturer, or a documented design incompatibility. The District Manager also will consider the good faith efforts to install an effective aftertreatment device to meet the dpm emission requirement orders, with delivery dates, or active involvement in testing of feasibility and modifications of after

Background

This bulletin clarifies the compliance responsibilities of underground coal mine operators with 30 C 72.500, 72.501(a), 72.502(a), and 72.503. MSHA's final coal diesel particulate rule established new the emission limits for permissible and non-permissible diesel-powered equipment over a phased-in

Authority

30 CFR Part 72 Subpart D and 30 CFR Part 75 Subpart T

Issuing Offices and Contact Persons

Technical Support, Approval and Certification Center

John Faini, (304) 547-2042

Bob Setren, (304) 547-2070

George Saseen, (304) 547-2072

Coal Mine Safety and Health, Health Division

Melinda Pon, (202) 693-9516

Robert Thaxton, (202) 693-9515

Attachment

Appendix: [Tailpipe Test Protocol](#)

Internet Availability

This information bulletin may be viewed on the Internet by accessing MSHA's home page at <http://>

choosing "Statutory and Regulatory Information" and "Compliance Assistance Information."

Distribution

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Mine Safety and Health Administration (MSHA)
1100 Wilson Boulevard, 21st Floor
Arlington, VA 22209-3939

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Technical (web) questic

Diesel Particulate Matter (DPM) Control Technologies

Last updated 8/12/03

Table I: Paper/Synthetic Filters

Table II: Non-Catalyzed Particulate Filters, Base Metal Particulate Filters, and Specially Catalyzed Particulate Filters

Table III: Catalyzed (Platinum Based) Diesel Particulate Filters

Note: These tables are not all-inclusive and only contain manufacturers who have contacted MSHA in order to list their control technologies.

Table I: Paper/Synthetic Filters

The filters listed below have been evaluated by MSHA and are deemed to be essentially identical (under section 72.503(c)) to the standard paper filter that was previously tested by an independent laboratory for MSHA. MSHA will accept use of these filters as evidence of compliance with the applicable emission limits in sections 72.500 - *Emission limits for permissible diesel-powered equipment*, 72.501 - *Emission limits for nonpermissible heavy-duty diesel-powered equipment, generators and compressors*, or 72.502 - *Requirements for nonpermissible light-duty diesel-powered equipment other than generators and compressors* when properly installed on diesel powered equipment.

The control device shall be installed and maintained in accordance with the filter supplier's specifications. This includes use at the supplier's specified exhaust gas temperature limit. The limits specified in this table are either 185°F or 302°F to correspond with the Part 36 temperature limits for machines using either water bath scrubbers or dry heat exchangers, respectively, to cool the exhaust gas. Where the filter supplier has not provided information to MSHA on the exhaust gas temperature limit (either 185°F or 302°F), the purchaser needs to contact the filter supplier for this information.

In choosing filters intended for use on permissible machines, contact the machine manufacturer to ensure the filter is compatible with the machine and that the filter meets any specific MSHA approval requirements for filters used on that machine.

In choosing filters intended for use on nonpermissible machines, the filters must be used with exhaust gas cooling systems that limit the exhaust gas temperature to either the filter supplier's specified limit or 302°F, whichever is lower. The efficiency of the filters in Table I is not accepted as meeting the emission limits in sections 72.501 or 72.502 at exhaust gas temperatures above 302°F. Refer to Table II for filters that can be used at higher exhaust gas temperatures and their DPM filtration efficiencies.

The testing results below are preliminary and MSHA reserves the right to make additions or deletions to this list as new information becomes available.

Filter Supplier	Filter Manufacturer	Filter Model	Exhaust Temperature Limitation, °F
Atlas Copco Wagner 303-217-2823	Atlas Copco Wagner	5540051000, 5540248100, 5575074800	Contact Filter Supplier
Baron Filtration Co. 1-800-760-3105	Baron Filtration Co.	Media Spunbond	185
Champion 501-525-6867	Luber-Finer	LAF3931, LAF3931 with fire retardant	Contact Filter Supplier
DBT America, Inc 614-337-7600	DBT	516372, 518404	Contact Filter Supplier
Donaldson Corporation 952-887-3131	Donaldson	P530866, P539366, P549541	Contact Filter Supplier
Donaldson Corporation 952-887-3131	Donaldson	P604516	302
Dry Systems Technologies® (Formerly Paas Technologies) 630-427-2051	Dry Systems Technologies®	M30-090-0, M30-115-PA, M30-168-0, M30-201-CA, M30-241-PA, M30-245-PA, M30-250-0, M30-250-PA, M30-251-PA, M30-152-0, M30-265-0, M30-271-0, M30-277-0, M30-292-0, M30-411-0, M40-038-0, M40-050-0, M40-141-PA, M40-150-0, M40-272-0, M40-416-0, M50-244-0, M70-276-PA, M70-417-0	302
Ed Molish 205-223-0299	ECO Environmental	ENK13-19280, ENK19-29160, ENK20-29270, ENK24-29200, ENK25-19175, ENK26-19175, ENK26-29150, ENK28-19145, ENK28-19175	Contact Filter Supplier
Endustra Filter Manufacturers 205-553-5974	Endustra	R020001, R030042	Contact Filter Supplier
Getman Corporation 269-427-5611	Getman	605803, 605803 with 605807 pre-filter, 605810, 605811	Contact Filter Supplier
Industrial Environmental Health Consultant, LTD 304-598-3465	Microfresh	DA101	Contact Filter Supplier

Table II: Non-Catalyzed Particulate Filters, Base Metal Particulate Filters, and Specially Catalyzed Particulate Filters

The control device shall be installed and maintained in accordance with the manufacturer's specifications.

Non-Catalyzed Particulate Filters Base Metal Particulate Filters, and Specially Catalyzed Particulate Filters	Manufacturer	DPM Filtration Efficiency*
Non-Catalyzed Diesel Particulate Filters, Cordierite, Series FN	CleanAir Systems, Santa Fe, New Mexico 800-355-5513	85 %
Non-Catalyzed Diesel Particulate Filter, Cordierite, Part Nos. 2000EC, 1800EC, 1500EC, 1100EC, 1050EC, 1000EC, 900EC, 700EC, 500EC	Nett Technologies Toronto, Canada 800-361-6388	85%
Non-Catalyzed Diesel Particulate Filter, Silicon Carbide, Series 3000ES, 2500ES, 2000ES, 1500ES	Nett Technologies Toronto, Canada 800-361-6388	87%
Titan™ and Blue Sky™ (non-catalyzed) Sootfilter System, Silicon Carbide	DCL International Inc. Concord, Canada 800-872-1968	87%
Catrap™ Diesel Particulate Filter (passively regenerated, base metal catalyst) Cordierite	Engine Control Systems Newmarket, Canada 800-661-9963	85%
Unikat Combifilter™ (actively regenerated), on board regeneration, Cordierite	Engine Control Systems Newmarket, Canada 800-661-9963	85%
Unikat Combifilter™ (actively regenerated), on board regeneration, Silicon Carbide	Engine Control Systems Newmarket, Canada 800-661-9963	87%
Unikat Combifilter™ (actively regenerated), off board regeneration, Cordierite	Engine Control Systems Newmarket, Canada 800-661-9963	85%
Diesel Particulate Filter (noncatalyzed with fuel additive), Cordierite, Model Numbers. SXS-B, SXS-B/F A, and SXS-E	Catalytic Exhaust Products, LTD 800-551-5525	85%
PERMIT™ FBC Filter System (specially catalyzed with fuel borne catalyst), Cordierite	CleanAir Systems, Santa Fe, New Mexico 800-355-5513	85%

*Manufacturer's laboratory based efficiency (Not determined under in-mine test)

Table III: Catalyzed (Platinum Based) Diesel Particulate Filters

Caution: MSHA has identified the platinum based catalyzed particulate filters in listed in Table III as a source for generation of increased concentrations of Nitrogen Dioxide (NO₂) in the mine atmosphere. Actual in-mine NO₂ concentrations will be dependent on the mine's ventilation system. Refer to MSHA's Program Information Bulletin No. P02-4 (<http://www.msha.gov/regs/complian/PIB/2002/pib02-04.htm>) for additional information.

For coal mine operators, MSHA's Program Information Bulletin No. P02- 7 (<http://www.msha.gov/regs/complian/PIB/2002/pib02-07.htm>) details the steps that must be taken to ensure that platinum based catalyzed filters installed prior to July 16, 2002 do not increase in-mine NO₂ concentrations. After July 16, 2002, coal mine operators should not install filters listed in Table III.

The control device shall be installed and maintained in accordance with the manufacturer's specifications.

Catalyzed (Platinum Based) Diesel Particulate Filters	Manufacturer	DPM Filtration Efficiency*
Catalyzed Diesel Particulate Filters, Cordierite, FC, FD	CleanAir Systems, Santa Fe, New Mexico 800-355-5513	85 %
DPX™ and DPX II™ Catalyzed Soot Filter System, Cordierite	Engelhard, Iselin, New Jersey 800-523-3599	85 %
Catalyzed Diesel Particulate Filter, Cordierite, Part Nos. 2000SF/SE, 1800SF/SE, 1500SF/SE, 1100SF/SE, 1050SF/SE, 1000SF/SE/, 900SF/SE, 700SF/SE, 500SF/SE	Nett Technologies Toronto, Canada 800-361-6388	85%
Catalyzed Diesel Particulate Filter, Silicon Carbide, Series 3000SC/SS, 2500SC/SS, 2000SC/SS, 1500SC/SS	Nett Technologies Toronto, Canada 800-361-6388	87%
Titan™ and BlueSky™ Sootfilter System, Silicon Carbide	DCL International Inc. Concord, Canada 800-872-1968	87%
MINE-X® Catalyzed Sootfilter, Cordierite	DCL International Inc. Concord, Canada 800-872-1968	85%
Purifilter™ (passively regenerated), Silicon Carbide	Engine Control Systems Newmarket, Canada 800-661-9963	87%
Catalyzed Diesel Particulate Filter, Cordierite, Model Numbers. SXS-CX and SXS-C	Catalytic Exhaust Products, LTD 800-551-5525	85%

*Manufacturer's laboratory based efficiency (Not determined under in-mine test)