

# LEGISLATION UPDATE

No. 4/99

2 Nov 1999

## GAZETTAL OF SPECIFICATIONS UNDER THE COAL MINES REGULATIONS 1999

Attached are copies of notices gazetted under the new Coal Mines Regulations 1999 by the Chief Inspector of Coal Mines. These notices detail certain requirements such as the properties of equipment, limits of gases and dusts, and actions that are required to be taken to enhance safety and health in mines.

Many of the requirements that were specified under the old regulations have been dealt with by other means in the new regulations, such as through guidelines. Where the new regulations continue to permit specification of matters, these specifications are generally designed to maintain the status quo.

The attached notices have been made in order to ensure that the requirements are clear and make reference to the new clauses. They specify requirements in relation to the following matters:

- Monitoring for diesel exhaust emissions
- Diesel fuel
- Ventilating Sheet and non-metallic ventilating ducting
- Prohibition on the use of aluminium and light metal alloys
- Storage and location of flammable materials
- Restrictions on the use of stone dust

under the Coal Mines (Underground) Regulation 1999,

- Specified limits for airborne dust
- Collection and analysis of samples of airborne dust

under both the Coal Mines (Underground) Regulation 1999 and the Coal Mines (Open Cut) Regulation 1999.

A further specification under the Coal Mines (General) Regulation 1999 to provide requirements for roll-over and falling object protection structures (ROPS & FOPS) on mobile equipment is currently being finalised and will be gazetted shortly.

**FURTHER INFORMATION CAN BE OBTAINED FROM MR DANIEL HOENIG - (02) 9901 8886  
OR YOUR LOCAL DEPARTMENT OF MINERAL RESOURCES OFFICE:**

Sydney: 9901 8888 Armidale: 6770 2100 Broken Hill: (08) 8080 0625 Cardiff: 4954 7899 Cobar: 6836 4392  
Lightning Ridge: 6829 0678 Lithgow: 6351 3052 Orange: 6361 7654 Singleton: 6572 1899 Wollongong: 4227 1699

**New South Wales Government Gazette No. 104**  
**Official Notices – 10 September 1999 (8735-8736)**

**COAL MINES REGULATION ACT 1982**

**COAL MINES (UNDERGROUND) REGULATION 1999**

File No: C99/0691

Date: 1 September 1999

**MONITORING FOR DIESEL EXHAUST EMISSIONS**

By this notice the following requirements are specified for the purpose of clause 14 (2) of the Coal Mines (Underground) Regulation 1999:

- (a) The maximum permissible limits for raw undiluted exhaust components from a diesel engine to be used in an underground mine are 1500 parts per million of carbon monoxide or 750 parts per million of oxides of nitrogen.
- (b) The maximum permissible limits for diluted components of diesel engine exhaust in mine air are 50 parts per million of carbon monoxide, 3 parts per million of nitrogen dioxide or 25 parts per million of nitric oxide.
- (c) Except as provided for under (e), at least once every 28 days, the raw undiluted exhaust of each diesel engine in use underground at a mine must be sampled and analysed in accordance with the requirements for a Type B Exhaust Analysis which follow in this notice.
- (d) At least once every 6 months the raw undiluted exhaust gases of each diesel engine in use underground at a mine must be sampled and analysed in accordance with the requirements for a Type A Exhaust Analysis which follow in this notice.
- (e) A Type B Exhaust Analysis as per (c) need not be carried out where an engine is subject to a Type A Exhaust Analysis at least once every 3 months.
- (f) At least once in each week that a diesel engine is operated in a mine the atmosphere of the roadway in which the engine normally operates must be tested to ascertain that the limits in (b) are not exceeded. The tests for gas must be taken approximately 5 metres from the equipment on the return side and at a level approximately 1.5 metres above the floor. The air quantity must be measured in the same general area as the tests for gas are made.
- (g) Engines which have not previously been tested, which have been overhauled or are to be first used underground must undergo a Type A Exhaust Analysis under conditions of:
  - maximum power output;
  - half blocked intake at maximum power output; and
  - idle.

- (h) The results of all tests carried out pursuant to (c) must show:
- date of test
  - identification of engine including engine MDADE numbers.
  - engine load condition and speed.
  - concentration (by volume) of carbon monoxide for each test condition.
  - concentration (by volume) of oxides of nitrogen for each test condition.
  - the name of the person who sampled and analysed the exhaust.
  - any action taken as a result of the test.
- (i) The results of all tests carried out pursuant to points (d) (e) and (f) must be supplied to the mine mechanical engineer and must show:
- date of test;
  - identification of engine;
  - quantity of air passing the stationary equipment;
  - concentration (by volume) of carbon monoxide;
  - concentration (by volume) of oxides of nitrogen;
  - the name of person who carried out the test;
  - any action taken as a result of the test; and
  - any other matters required to be recorded for a Type A Exhaust Analysis
- (j) The results of all tests carried out pursuant to (c) (d) (e) and (f) must be durably recorded without delay and the record retained at the mine for at least one year.
- (k) Where the tests required by this notice in (c) (d) or (e) reveal that the raw undiluted exhaust components from a diesel engine used in an underground exceed the limits specified in (a):
- the result must be made known to the mine mechanical engineer; and
  - the equipment in which the diesel engine is operating must not be used underground until the concentration of those gases does not exceed those concentrations unless the equipment is being run to permit its transit by running in an unladen condition to a place for repairs; and
- (l) Where the tests required by this specification in (f) reveal that the diluted components of diesel engine exhaust in the mine air exceed the limits specified in point (b) above, the engine of the equipment must immediately be stopped and not operated:
- until the gases have dispersed;
  - unless the total air quantity in the roadway is increased to the extent that gases produced are diluted to not more than the above mentioned concentrations; or
  - unless it is operated only to the extent necessary to remove the vehicle to a place for remedial maintenance.
- (m) The mine mechanical engineer must ensure durable records are kept of:
- the commencement or discontinuance of use of any diesel engine underground;
  - any report obtained under (d); and
  - any occasion when a diesel engine is withdrawn from service as a result of exhaust gas analysis.

## REQUIREMENTS FOR 'TYPE A' EXHAUST ANALYSIS

1. Exhaust sampling and analysis must be carried out by a laboratory holding relevant accreditation with the National Association of Testing Authorities (NATA).
2. Equipment and reports must at all times comply with the conditions of accreditation with NATA.
3. Gas detection tubes must not be used.
4. NATA certified gas mixtures must be used to calibrate gas analysers.
5. The test report is to be a NATA certificate and must include the following information:
  - name of mine and, where the information is available, the date of the previous test on the engine.
  - engine type
  - engine identifying number
  - the concentration (by volume) of carbon dioxide, carbon monoxide and oxides of nitrogen
  - method of loading and whether sampled directly or by use of gas sample bags.
6. Where possible analysis is to be conducted using a direct sampling technique.
7. Where samples are to be collected using a gas sample bag then the bag must be manufactured from the polymer polyvinylidene chloride (commercially available under the trade names Saran and Saranex) or other alternative equivalent polymers. Where such bags contain an aluminium outer layer then the bag must be placed in a suitable cover and must not be discarded, disposed of or removed from the cover while underground.
8. Where bag samples are taken and not analysed within ten minutes of sampling and if oxides of nitrogen (NO<sub>x</sub>) are to be determined then the following will apply:
  - with the engine two samples are exhaust and one previously been nitrogen operating under test conditions to be taken. One sample of raw sample in a bag that is about half filled with dry nitrogen; and
  - both bag samples are to be analysed and using the carbon monoxide results the amount of dilution calculated. This provides a factor that allows a NO<sub>x</sub> result to be obtained from the diluted sample.
9. Where an engine is fitted with a catalytic oxidiser (purifier) then the statutory limits must be applied to gas results obtained from samples taken prior to the exhaust gases reaching the oxidiser.
10. For statutory six monthly testing engines are to be tested under conditions of maximum fuel input and this is best done at maximum power output. This is not the same as full throttle, no load, maximum engine speed. The engine must be operated at full throttle with sufficient load applied to bring the engine speed down from its maximum by 200-300 rpm.
11. Exhaust analysis conditions will be satisfactory only if the test results at maximum power output for undiluted samples indicate that the CO<sub>2</sub> content by volume is not less than 6%

## REQUIREMENTS FOR 'TYPE B' EXHAUST ANALYSIS

1. Exhaust sampling and analysis must be carried out by a person nominated in writing by the mine mechanical engineer or by a laboratory holding relevant accreditation from the National Association of Testing Authorities (NATA).
2. The gas sample must be taken before the gas is passed through any form of diluter, conditioner or purifier.
3. Gases may be analysed by the use of an appropriate tube type gas detector. Where such a detector is used the gases must be cooled to less than 30 degrees Celsius before entering any detector tube and the manufacturer's instructions relevant to the use of the detector must be followed.
4. The gas sample must be taken with the engine at normal operating temperature.
5. The gas samples must be taken when the diesel engine is being run:-
  - (a) at maximum speed on full load; and
  - (b) at normal idling speed on no load.The procedure to determine (a) must be in accordance with the following:-  
Set the engine throttle to maximum opening without load (normally referred to as 'engine flight speed') then apply sufficient load to reduce the engine speed down from its maximum by 200-300 rpm.

PAUL THOMAS HEALEY  
CHIEF INSPECTOR OF COAL MINES.

## Department of Mineral Resources

### COAL MINES REGULATION ACT 1982

### COAL MINES (UNDERGROUND) REGULATION 1999

File No: C99/0691

Date: 1 September 1999

#### DIESEL FUEL

By this notice the following requirements are specified for diesel fuel for use in underground mines for the purpose of clause 69 of the Coal Mines (Underground) Regulation 1999:

1. All diesel fuel must comply with the Australian Standard AS 3570 for Automotive Diesel Fuel;
2. In addition to compliance with AS 3570, diesel fuel must also comply with the following requirements:
  - (a) the density of the fuel must not exceed 0.85 kg per litre at 15°C when tested in accordance with the American Society for Testing Materials' test ASTM D129-IP61 or the American Society for Testing Materials' test ASTM D4052;
  - b) the flash point must not be less than 61.5°C when tested in accordance with Australian Standard AS 2106 or Australian Standard AS 3570. In the event of a dispute the determination of the flash point by AS 2106 will prevail;
  - c) Sulphur must not exceed 0.3% by mass when tested in accordance with the American Society for Testing Materials' test ASTM D129-IP61 or the American Society for Testing Materials' test ASTM D2622 - IP336.
3. Only diesel fuel additives that have been registered by the Environmental Protection Agency of the United States of America, may be used.
4. Flammable liquids must not be added to the diesel fuel.
5. The mine mechanical engineer must ensure that sufficient testing of diesel fuel is conducted so as to ensure compliance with this notice. Records of the test program and results must be retained at the mine for a minimum of 2 years.

PAUL THOMAS HEALEY  
CHIEF INSPECTOR OF COAL MINES.

**New South Wales Government Gazette No. 111  
Official Notices – 24 September 1999 (9153-9156)**

**COAL MINES REGULATION ACT 1982**

**COAL MINES (UNDERGROUND) REGULATION 1999**

File No: C99/0691

Date: 1 September 1999

**VENTILATING SHEET AND NON-METALLIC VENTILATING DUCTING**

By this notice the following requirements are specified for the purpose of clause 97 of the Coal Mines (Underground) Regulation 1999:

1. Any ventilating sheet used in a mine underground must have the following properties:
  - Fire and electrical resistance properties in accordance with NCB Specification 245 Fire and Electrical Resistance Properties of Supported and Unsupported Sheeting, issued by the National Coal Board of the United Kingdom; and
  - Oxygen index determined by ISO 4589 Plastics - Determination of Flammability by Oxygen Index.
  - Air permeability in accordance with NCB Specification 441 Brattice Sheeting made from Textile Supported Plastics, issued by the National Coal Board of the United Kingdom;
2. Non-metallic flexible ventilating ducting used in a mine underground must have the following properties:
  - Fire and electrical resistance properties in accordance with NCB Specification 245 Fire and Electrical Resistance Properties of Supported and Unsupported Sheeting, issued by the National Coal Board of the United Kingdom; and
  - Oxygen index determined by ISO 4589 Plastics - Determination of Flammability by Oxygen Index.
3. Non-metallic rigid ventilating ducting used in a mine underground must have the following properties:
  - Fire and electrical properties in accordance with Australian Standard AS 2660 “Hose and Hose Assemblies - Air/Water- for Underground Coal Mines”.
  - Oxygen index determined by ISO 4589 Plastics - Determination of Flammability by Oxygen Index.

PAUL THOMAS HEALEY  
CHIEF INSPECTOR OF COAL MINES.

**Department of Mineral Resources**

**COAL MINES REGULATION ACT 1982**

**COAL MINES (UNDERGROUND) REGULATION 1999**

File No: C99/0691

Date: 1 September 1999

**PROHIBITION ON USE OF ALUMINIUM AND LIGHT METAL ALLOYS**

For the purposes of clause 122 of the Coal Mines (Underground) Regulation 1999, the following material is specified as an aluminium or light metal alloy:

"Any metal or alloy which includes aluminium and/or magnesium and/or titanium in which the total content of these three constituents exceeds 15% by weight but in any case in which the content of magnesium and titanium together exceeds 6% by weight."

PAUL THOMAS HEALEY  
CHIEF INSPECTOR OF COAL MINES.



**Department of Mineral Resources**

**COAL MINES REGULATION ACT 1982**

**COAL MINES (UNDERGROUND) REGULATION 1999**

File No: CM84/5004

Date: 1 September 1999

**STORAGE AND LOCATION OF FLAMMABLE MATERIALS**

For the purposes of clause 123 of the Coal Mines (Underground) Regulation 1999, the test method for the determination of material flashpoint must be in accordance with:

- (a) Australian Standard AS 2106.2 - 1999 "Pensky-Martens closed cup method" being part of Australian Standard AS 2106 - "Methods of Test for the Determination of the Flashpoint of Flammable Liquids (Closed Cup)", or
- (b) in accordance with the tests set out in clause 2.3.3 of the United Nations Recommendations on the Transport of Dangerous Goods.

In the event of a dispute concerning the flash point of a material, the determination of the flash point by Australian Standard AS 2106.2 will prevail.

PAUL THOMAS HEALEY  
CHIEF INSPECTOR OF COAL MINES.

**Department of Mineral Resources**

**COAL MINES REGULATION ACT 1982**

**COAL MINES (UNDERGROUND) REGULATION 1999**

**COAL MINES (OPEN CUT) REGULATION 1999**

File No: C99/0691

Date: 1 September 1999

**SPECIFIED LIMITS FOR AIRBORNE DUST**

For the purposes of clause 161 of the Coal Mines (Underground) Regulation 1999 and clause 29 of the Coal Mines (Open Cut) Regulation 1999, (definition of 'specified limit'), it is hereby notified that the limit specified in respect of certain types of dust is as follows:

**Specified Limit for Quartz-Containing Dust:**

The specified limit for quartz-containing dust is 0.15 milligrams of respirable quartz per cubic metre of air sampled.

**Specified Limit for Respirable Dust (other than quartz-containing dust):**

The specified limit for respirable dust, other than quartz-containing dust, is 3 milligrams of respirable dust per cubic metre of air sampled.

**Definitions:**

In this notice:

- "quartz-containing dust" means respirable dust which contains five per cent or more by mass of respirable quartz;
- "respirable dust" has the same meaning as it has in Australian Standard 2985
- "respirable quartz" means the quartz present in respirable dust.

PAUL THOMAS HEALEY  
CHIEF INSPECTOR OF COAL MINES.

## Department of Mineral Resources

### COAL MINES REGULATION ACT 1982

### COAL MINES (UNDERGROUND) REGULATION 1999

### COAL MINES (OPEN CUT) REGULATION 1999

File No: C99/0691

Date: 1 September 1999

#### COLLECTION AND ANALYSIS OF SAMPLES OF AIRBORNE DUST

For the purposes of clause 165 of the Coal Mines (Underground) Regulation 1999 and clause 33 of the Coal Mines (Open Cut) Regulation 1999, it is hereby notified that the specified places and frequencies of sampling and the specified methods of determination of respirable quartz is as follows:

#### Section 1 - Frequencies of sampling, places and persons to be sampled:

The frequency of sampling, places and persons to be sampled in each part of a mine is as specified in the Table below according to the operations in that part of the mine.

TABLE OF LOCATIONS, FREQUENCIES AND PERSONS FOR SAMPLING

Column 1	Column 2	Column 3
Location	Frequency of Sampling	Persons to be Sampled
(a) in each part of the mine where longwall mining is carried out	each producing shift at intervals not exceeding six months	samples to be collected from the breathing zone of at least five persons including, where possible: <ul style="list-style-type: none"><li>- a shearer-loader operator,</li><li>- two powered support operators</li><li>- a deputy, and</li><li>- one other person to be selected by the Manager.</li></ul>
(b) in each part of the mine where a continuous mining machine operates	each producing shift at intervals not exceeding twelve months	samples to be collected from the breathing zone of at least five persons in each unit, including, where possible; <ul style="list-style-type: none"><li>- a continuous miner driver</li><li>- a sideman or cable handler</li><li>- a shuttle car driver</li><li>- a deputy, and</li><li>- a boot end attendant or other person to be selected by the Manager.</li></ul>
(c) in any place in or about an underground mine other than those referred to in (a) or (b) above, but including crusher stations and washeries	at intervals not exceeding twelve months	samples to be collected from the breathing zone of at least one person.
(d) in any place in or about an open cut mine where dust may be present	at intervals not exceeding twelve months	samples to be collected from the breathing zone of at least one person.

Note:

- (1) Any further samples required by regulation will be additional to these prescribed frequencies.
- (2) In the case of (c) and (d) the Manager must select those activities where employees are likely to be exposed to airborne dust. The District Inspector may require additional activities to be sampled.
- (3) Samples and analyses conducted by or for the Joint Coal Board may be used by the Manager as part or the whole of the required number of samples to be collected for a given period.
- (4) Persons sampled must, as far as possible, remain at the same job for the duration of the test.

## **Section 2 - Methods of determination of respirable quartz:**

The preferred methods of determination of respirable quartz are one of either 'The Potassium Bromide Disc Infra Red Method' or 'The X-ray Diffraction Method' as described in "Guidelines for Determination of Respirable Quartz", publication MDG 3006 MRT 6, published by the Department of Mineral Resources.

### **Definitions:**

In this notice-

- "breathing zone" has the same meaning as it has in Australian Standard 2985
- "quartz-containing dust" means respirable dust which contains five per cent or more by mass of respirable quartz;
- "respirable dust" has the same meaning as it has in Australian Standard 2985
- "respirable quartz" means the quartz present in respirable dust.

PAUL THOMAS HEALEY  
CHIEF INSPECTOR OF COAL MINES.

**Department of Mineral Resources**

**COAL MINES REGULATION ACT 1982**

**COAL MINES (UNDERGROUND) REGULATION 1999**

File No: C99/0691

Date: 1 September 1999

**RESTRICTIONS ON USE OF STONE DUST**

By this notice the following requirements are specified for stone dust for the purpose of clause 179 (1) of the Coal Mines (Underground) Regulation 1999:

- (a) It must not contain more than 3% by mass of free silica as determined by the Method for Free Silica in Limestone Dust in “Guidelines for Coal Dust Explosion, Prevention and Suppression”, publication MDG 3006 MRT 5, published by the Department of Mineral Resources; and
- (b) it is of such fineness as determined by the Method for Size Analysis of Stone Dust in “Guidelines for Coal Dust Explosion, Prevention and Suppression”, publication MDG 3006 MRT 5, published by the Department of Mineral Resources; that
  - (i) not less than 95% by mass must pass through a 250 micrometre sieve, and
  - (ii) of the dry dust which passes through a 250 micrometre sieve, not less than 60% by mass and not more than 80% by mass, must pass through a 75 micrometre sieve.

PAUL THOMAS HEALEY  
CHIEF INSPECTOR OF COAL MINES.