

**SAMOHP**  
**South African Mines**  
**Occupational Hygiene**  
**Programme**



# Codebook

**Directorate: Occupational Hygiene**  
**Department of Minerals and Energy**  
**Private Bag X59**  
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# Introduction

The Occupational Hygiene sub-committee was mandated by the Mine Health and Safety Council to develop an Occupational Hygiene Database to record exposures to significant occupational hazards in the South African Mining Industry. Furthermore, Regulation 9.2(2) of the occupational hygiene regulations in conjunction with section 12 of the Mine Health and Safety Act requires the employer to establish, maintain, and record the system of occupational measurements.

In the mining industry we have a large workforce, which is exposed to many different contaminated environments. These take the form of airborne pollutants such as dusts (silica quartz, coal dust, etc.), fibers and other harmful chemical substances, as well as physical agents such as noise, thermal stress, and radiation

Employees exposed to these environmental conditions may develop occupational related illnesses, which lead to either long or short term suffering or death. Compensation claims are increasing, and loss of production may also be incurred.

The correlation between hazardous exposures and occupational related diseases is not fully documented or understood. This leads to ineffective preventive maintenance.

The DME believes that there must be a centralised system through which the correlation between hazardous exposures and occupational related diseases are recorded, tracked and managed, and hence the requirement for this occupational hygiene database.

Additional motivating factors for the establishment of the occupational hygiene database:

- Lack of information on the prevalence of hazardous exposures and occupational diseases in the mining industry.
- The inability to research the correlation between hazardous exposures and occupational diseases, thus corrective action is focused on the symptom rather than the cause.
- Assessment of the magnitude of the problem, so that corrective action can be prioritised and planned.
- To obtain up to date information on the prevailing situation in the South African Mining Industry with regards to the compliance to regulated occupational exposure limits.
- Identify high risk occupations

The following objectives were identified in the establishment of the hygiene database:

- Provide the DME and the South African mining industry with a computerized tool, which would highlight and identify significant hazards that can be managed. These tools will include, but will not be restricted to:
- Obtain management information on Homogenous Exposure Groups (HEG's), based on the results of measured personal exposures in the mining industry.
- A linkage to other departmental systems such as the South African Mines Reportable Accidents Statistics System (SAMRASS ), South African Mines Occupational Diseases Database (SAMODD) etc. including the use of a common set of commodity, working place and occupation codes
- The monitoring of health and compensation i.e. integration of SAMODD and hygiene database.

- Record the extent and the geographical position of hazards over time within certain areas of a mine and nationally.
- Provide exception reporting (outside OEL's)
- Ensure statistical validity and quality control of sampling data
- Remote problem identification
- Instantaneous information available
- Assists to focus inspectors on problem areas
- Monitor hazards and progress of remedial action
- Provide on line analytical processing
- Provide Head Office with a tool to audit regional inspectors
- Facilitate the generation of annual/quarterly reports
- The provision of a database for epidemiological research
- Provide added value to mining industry

## Definitions and Acronyms

“**airborne pollutant**” means any substance in the air that is harmful to health, including dust, fumes, aerosols, gases, fibres, vapours or mists;

“**COP**” means Code of Practice;

“**DME**” means the Department of Minerals and Energy;

“**dose**” means the amount of a pollutant to which a person is exposed;

“**exposure**” means the subjection of a person to an airborne pollutant in the course of employment through any route of entry (e.g. inhalation, ingestion, skin contact, or absorption);

“**HEG**” means a homogeneous exposure group;

“**homogeneous exposure group** ” means a group of employees who experience pollutant exposures similar enough that monitoring exposures of any representative sub group of employees in the group provides data useful for predicting exposures of the remaining employees;

“**MOHAC**” means Mining Occupational Health Advisory Committee;

“**MHSA**” means Mine Health and Safety Act, 1996 (Act No.29 of 1996);

“**NIOSH**” means the United States National Institute for Occupational Safety and Health;

**“Sampling Areas”** means an area derived from the breakdown of a mine into a ventilation district or combination of ventilation districts with a common intake and return of which the return is not used as an intake to another vent area;

**“SAMOHP”** means the South African Mines Occupational Hygiene Programme Codebook;

**“significant airborne pollutant”** means any airborne pollutant to which any employee is exposed in concentrations equal to or exceeding the hazard limits contemplated in regulation 9.2(2);

**“ventilation district”** means such part of a mine as has an independent intake commencing from a main intake air-course and an independent return airway terminating at a main air-course;

**“90<sup>th</sup> percentile”** means the value which must be used to determine when HEG’s need to be re-classified. This value can be calculated by:

- 1) using Microsoft Excel programme (percentile function); or
- 2) first placing all sample results in order from the lowest concentration to the highest concentration (i.e., concentration of specific contaminants). Next, assign each sample result a number, starting with the number 1 for the lowest concentration result up to the highest concentration being given the number equal to the total number of samples collected in that HEG. Multiply the total number of samples collected by 0.9. The sample result with the number corresponding to this calculated value is the 90<sup>th</sup> percentile.

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# Instructions for the completion of personal exposure reports

The sequential methodology of establishing Homogeneous Exposure Groups (HEGs) is imperative if the statistics produced from these reports are to be meaningful. The statistical summary should result in a profile of HEGs and contribute to summaries, which highlight trends within the industry and focus specific research, risk assessment, safety management, and training activities.

**Regulation 9.2(2) prescribes the hazard limits when an occupational hygiene measurement system must be established.**

## System of Occupational Hygiene Measurements

9.2(2) The employer must establish and maintain a system of occupational hygiene measurements, as contemplated in section 12, of all working places where the following hazard limits prevail:

- (a) airborne pollutants:
  - particulates  $\geq \frac{1}{10}$  of the occupational exposure limit;
  - gases and vapours  $\geq \frac{1}{2}$  of the occupational exposure limit;
- (b) thermal stress:
  - heat  $>25,0^{\circ}\text{C}$  wet bulb and/or  $>32,0^{\circ}\text{C}$  dry bulb and/or  $>32,0^{\circ}\text{C}$  mean radiant temperature;
  - cold  $<10^{\circ}\text{C}$  equivalent chill temperature; and
- (c) noise:
  - $\geq 82\text{dB}_{\text{Leq},8\text{h}}$ .

## Report to Regional Principal Inspector

9.2(7) The employer must annually submit to the regional principal inspector of mines, on forms 21.9(2)(a); 21.9(2)(b); 21.9(2)(c) and 21.9(2)(d), respectively, prescribed in chapter 21, and within 30 days from the end of the relevant annual reporting period as indicated on each form, reports which contains quarterly information on the airborne pollutant, heat stress, cold stress and noise aspects of the system of occupational hygiene measurements, established and maintained in terms of regulation 9.2(2), covering the immediately preceding 12 months.

## Quarterly Commodity Sampling Periods

The table listed below must be used when submitting the annual report as required by regulation 9.2(7).

<b>Commodity</b>	<b>1st Quarter</b>	<b>2nd Quarter</b>	<b>3rd Quarter</b>	<b>4th Quarter</b>	<b>Annual Report</b>
Gold	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Sept
Coal	Nov-Jan	Feb-Apr	May-Jul	Aug-Oct	Nov- Oct
Platinum	Sept-Nov	Dec-Feb	Mar-May	Jun-Aug	Sept-Aug
Diamond	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sept	Oct-Sept
Asbestos	Nov-Jan	Feb-Apr	May-Jul	Aug-Oct	Nov- Oct
Base Metals	Sept-Nov	Dec-Feb	Mar-May	Jun-Aug	Sept-Aug
Aggregate and Sand	Nov-Jan	Feb-Apr	May-Jul	Aug-Oct	Nov- Oct
Processed Minerals	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Sept

## **PART A - MANDATORY REPORTS**

### **1. OPERATION DETAILS – REPORT 1** (Report must be submitted to the DME)

Mandatory report as required by regulation 9.2(7)

Reports are to be sent at the set frequency to the Regional Principal Inspector for their records/actions.

Furthermore, a copy of this report is to be forwarded to the Principal Inspector Occupational Hygiene at the address below, to enter the results in the Occupational Hygiene Database.

Principal Inspector  
Occupational Hygiene  
Private Bag X59  
Pretoria  
0001

These reports must reach this office not later than 30 days subsequent to the end of the sampling quarter.

Note: 1) The mines DME reference number is obtainable from:  
The Director: Minerals Bureau  
Mineralia Centre, 391 Andries Street, Private Bag X59, Pretoria 0001  
Tel: (012) 317 9000, Fax (012) 322 4864

The DME reference number must be filled in on each page of the report for identification purposes.

2) Normal computer format must be used in that zeros must be inserted in the empty spaces remaining to the left in each block.

#### **The completed report must consist of:**

- a) Operations Details (Report Form)
- b) The relevant HEG results (Report Forms 21.9(2)(a), 21.9(2)(b), 21.9(2)(c) and 21.9(2)(d)

## Operation Details – Report Form

In terms of regulation 9.2(7)

- General:
1. The frequency of submitting the reports is as follows:
    - airborne pollutants – annually with information per quarter as per the quarterly commodity sampling period
    - thermal stress – annually
    - noise - annually
  2. The Operation Details - Report Form must be attached to annually to Report forms 21.9(2)(a), 21.9(2)(b), 21.9(2)(c) and 21.9(2)(d)
  3. The DME Mine Code is specified in the South African Mines Occupational Hygiene Codebook (SAMOHP).

Report on exposure levels for sampling period.....to.....

DME MINE CODE.....

### Operation Details

Mine/Works: .....

Address: ..... Control Group: .....

.....

..... Minerals: .....

Code: ..... Products: .....

Manager: ..... Production Process:.....

Telephone[....] .....

Telefax: [....] .....

Contact Person: .....

Telephone[....].....

Telefax: [....].....

Directorate.....

	Mine	Contractors	Total Labour
Labour	.....	.....	.....

### State name, designation and qualifications of the engaged occupational hygienist in terms of Section 12.1 of the MHSA

.....

.....

.....

.....

.....

.....

.....

Manager Date

Total Number of Pages of Complete Report .....

Complete the name of the employer or mine as registered with the Minerals Bureau of the Department of Minerals and Energy. The name must correlate with the **DME MINE CODE**- Refer to Part B Generic Codes Section 1



## 2. MANDATORY PERSONAL EXPOSURE – REPORT 2

### 2.1 Occupational Health Programme on Personal Exposure to Airborne Pollutants

#### 2.1.1 Codes required for the completion of this report are:

- DME commodity code (see PART B Generic Codes Section 1)
- Main commodity code (see PART B Generic Codes Section 2)
- Activity area code (see PART B Generic Codes Section 3)
- Occupation in HEG (see PART B Generic Codes Section 5)
- Pollutant Code (see PART B Generic Codes Section 6)

#### 2.1.2 The sequential methodology used for the determination of HEG classification bands is as follows:

##### **Step 1**

Sub-divide the mine into Sampling Areas. (i.e. Surface = Sampling Area 1, Underground Section A = Sampling Area 2, Underground Section B = Sampling Area 3, Underground Section C = Sampling Area 4,... etc). It should be remembered that in terms of the definition of “Sampling Areas” a sampling area might consist of a combination of ventilation districts.

##### **Step 2**

Sub-divide the Sampling Areas into Activity Areas as per the Activity Area Code List found under Part B – Generic Codes - Section 3.

##### **Step 3**

Ensure that adequate measurements of personal exposures to identified significant airborne pollutants for each Activity Area are available. If professional judgement concluded that insufficient historical personal exposure data is available regarding the extent of the risk, a personal monitoring survey must be under taken for each significant airborne pollutant. Acceptable methodologies such as stipulated by NIOSH should be used for this assessment. Once the concentration and composition of the airborne pollutants identified in the Activity Area are determined then proceed to step 4.

##### **Step 4**

Compare the results of the significant pollutants present, either from historical data or from measured data during the personal monitoring survey, in that particular Activity Area to their respective OEL values.

These OEL values are contained in Schedule 22.9(2)(a) of the MHSA. The codes for the Pollutant and Activity Areas are contained in Part B – Generic Codes – Section 5 and 3 of this guideline.

If samples have been taken in previous years, the results may provide valuable information, especially if the process has not changed significantly. If change have occurred, the monitoring data will provide some basis for estimating potential exposures of employees in HEG's based on professional judgements. Plotting past data over time to determine whether the exposure trends are higher or lower may be helpful. If the exposure trends exist, the occupational hygienist may use only the most recent exposure data in the initial assessment. If substantial data is available, some statistical analysis may be appropriate.

If use of the above two resources are unable to clearly determine HEG's then an acceptable international methodology such as NIOSH Occupational Exposure Sampling Strategy Manual or the British Standard BS EN 689:1996 must be utilised.

(Repeat step 4 for every significant pollutant)

**Step 5** (This step is for where single pollutants have been identified in an Activity Area which act independently)

**Single Pollutant** – where no additive effects are known or considered likely, the constituents can be regarded as acting 'independently'. It is then sufficient to ensure compliance with each of the individual OEL's.

Once the personal exposures within each Activity Area have been compared to their respective OEL values, each Activity Area can now be categorised into classification bands to determine the various homogeneous exposure group/s within that Activity Area. The classification bands for airborne pollutants are depicted in the classification band table below.

If an employee is exposed to a number of significant pollutants, which have an additive effect, then Step 6 must be followed.

**Note:** if more than one significant pollutant, acting independently, has been identified in an Activity Area, then those employees exposed to these pollutant would then be allocated to more than one HEG.

(Repeat step 5 for every such significant pollutant)

**Step 6** (This step is only when significant pollutants that have an additive effect have been identified in an activity Area)

The OEL's for pollutants listed in Schedule 22.9(2)(a) of the MHSA are for single compounds or for pollutants containing a common entity. Workers are however frequently subjected to mixed exposures. It is therefore necessary to take into account the possible additive or synergistic effects of these pollutants. Due to the present difficulty in assessing if the effects of a mixture of significant pollutants are either additive or synergistic, the requirements of this COP will be to treat all such cases as if they are additive.

With all types of mixed exposures it is essential that the classification band category assessment should be based on the concentrations of each of the constituents 'in air' to which workers are exposed.

Where effects are additive their combined effects must be used when classifying the Activity Area into their respective HEG's, the following formula must be used to assess the combined effect.

$C_1/L_1 + C_2/L_2 + C_3/L_3 \dots$  **for compliance the combined effect should be < 1**

where  $C_1$ ,  $C_2$  etc are the concentrations of constituents in air and  $L_1$ ,  $L_2$  etc are the corresponding OEL's.

### 2.1.3 Classification Band Table

#### Pollutants (Excluding Toxic Gases & Vapours)

CLASSIFICATION BANDS	
CATEGORY	PERSONAL EXPOSURE LEVEL
A	Exposures $\geq$ the OEL or mixtures of exposures $\geq 1$
B	Exposures $\geq 50\%$ of the OEL and $< OEL$ or mixtures of exposures $\geq 0,5$ and $< 1$
C	Exposures $\geq 10\%$ of the OEL and $< 50\%$ of the OEL or mixtures of exposures $\geq 0,1$ and $< 0,5$

#### Toxic Gases & Vapours

CLASSIFICATION BANDS	
CATEGORY	PERSONAL EXPOSURE LEVEL
A	Exposures $\geq$ the OEL or mixtures of exposures $\geq 1$
B	Exposures $\geq 50\%$ of the OEL and the OEL or mixtures of exposures $\geq 0,5$ and 1

**Please note** that an Activity Area e.g. stoping is not a HEG, this Activity Area i.e. stoping, must be subdivided into the classification bands as shown above. These classification bands are the HEGs within that particular Activity Area.

## 2.1.4 Mandatory Frequency of Sampling

The mandatory sampling frequency is dependent on the category rating. The following table depicts the relevant frequency per category classification:

### Pollutants (Excluding Toxic Gases & Vapours)

CATEGORY	MINIMUM FREQUENCY
<b>A</b>	Sample 5% of employees within a HEG on a 3monthly basis with a minimum of 5 samples per HEG, whichever is the greater.
<b>B</b>	Sample 5 % of employees within a HEG on a 6 Monthly basis with a minimum of 5 samples per HEG, whichever is the greater
<b>C</b>	Sample 5 % of employees within a HEG on an annual basis with a minimum of 5 samples per HEG, whichever is the greater

### Toxic Gases & Vapours

CATEGORY	MINIMUM FREQUENCY
<b>A</b>	Sample 5% of employees within a HEG on a 3monthly basis with a minimum of 5 samples per HEG, whichever is the greater.
<b>B</b>	Sample 5 % of employees within a HEG on an annual basis with a minimum of 5 samples per HEG, whichever is the greater

Notwithstanding the above table the mine must take further intermediate samples in order to increase the confidence that HEGs are appropriately categorised especially where results are widely divergent.

# Annual Airborne Pollutants Personal Exposure Report Form Report Form 21.9(2)(a)

In terms of regulation 9.2. (7)

General:

1. Quarterly Commodity Sampling Periods

Commodity	Annual Reporting Period
Gold; Diamond; Processed Minerals	Oct - Sept
Coal; Asbestos; Aggregate and Sand	Nov - Oct
Platinum; Base Metals,	Sept - Aug

2. The monitoring frequency and number of samples to be used are specified in the SAMOHP
3. Complete one form for each homogeneous exposure group
4. Codes to be used in this form are specified in the SAMOHP
5. Attach Operation Details – Report Form on an annual basis
6. The results of samples taken from randomly selected occupations within a HEG must be assigned to that specific occupation code

Total Number of Pages of Complete Report .....

Main Commodity Code:	
Sample Area	
Activity Area Code:	
HEG Classification Band:	

DME Mine Code
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Quarter Ending:
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HEG		Pollutant Code	Concentration Per Occupation mg/m <sup>3</sup> ppm f/ml (A)	Average Of HEG  (B)	90 th percentile of HEG	Analysis %  (C)	Dose allocated to medical record  mg/m <sup>3</sup> ppm f/ml (D=BxC%)	OEL  mg/m <sup>3</sup> ppm f/ml (E)	Pollutant Index  (F=D/E)	AQI  (G=SUM F)
Occupations in HEG Codes	No of persons per Occupation									

## EXAMPLES OF THE CALCULATIONS FOR THE REPORT

### Calculation of the Time-Weighted Average Concentration (TWA-CONC)

<u>Calculation of results/particulate concentrations</u>														
	Steps	Example												
<b>1</b>	<b>Note the average flow rate and sample time</b>													
	Obtain the calibrated pump flow rate Determine the total sample time Convert total sample time to minutes	2,2 Litres per minute 8 Hours 20 minutes  $\therefore \text{Minutes} = (8 \times 60) + 20$ <b>= 500 minutes</b>												
<b>2</b>	<b>Determine the sample volume</b>													
	Results must be expressed in $\text{mg}/\text{m}^3$  $\therefore$ Volume of air through the sample pump = Flow rate x time  Convert litres to $\text{m}^3$ (1000 litres of air = $1 \text{ m}^3$ )	Volume = Flow Rate (l/min) x time (minutes) = $2.2 \times 500$ <b>= 1100 litres of air</b>  = $1100 \div 1000$ <b>= 1.1 <math>\text{m}^3</math></b> sucked through pump												
<b>3</b>	<b>Determine the correction filter mass (correction factor)</b>													
	Determine the average of pre and post weighed control filters by: <ul style="list-style-type: none"> <li>• weighing pre weighed control filters three times consecutively when weighing sample filters, and</li> <li>• weighing post weighed control filters three times consecutively when weighing exposed sample filters</li> </ul> - add together and divide by 3 If weighed in gram multiply by 1000 to convert to milligram  Subtract the pre weighed blank filter mass from the post weighed blank filter mass.  If this is + <b>subtract</b> as a correction factor. If this is - <b>add</b> as a correction factor.	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center; border-bottom: 1px solid black;">Post filter mass</th> <th style="text-align: center; border-bottom: 1px solid black;">Pre filter mass</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">20,16 mg</td> <td style="text-align: center;">20,10 mg</td> </tr> <tr> <td style="text-align: center;">20,18 mg</td> <td style="text-align: center;">20,11 mg</td> </tr> <tr> <td style="text-align: center;"><u>20,17 mg</u></td> <td style="text-align: center;"><u>20,09 mg</u></td> </tr> <tr> <td style="text-align: center;">= <math>60.51 \div 3</math></td> <td style="text-align: center;">= <math>60,30 \div 3</math></td> </tr> <tr> <td style="text-align: center;"><b>= 20,17 mg</b></td> <td style="text-align: center;"><b>= 20,10 mg</b></td> </tr> </tbody> </table> Correction factor = Post filter mass - Pre filter mass = $20,17 - 20,10$ = <b>0.07 mg</b> Heavier, picked up moisture  As this is positive subtract it from the sample filter mass.	Post filter mass	Pre filter mass	20,16 mg	20,10 mg	20,18 mg	20,11 mg	<u>20,17 mg</u>	<u>20,09 mg</u>	= $60.51 \div 3$	= $60,30 \div 3$	<b>= 20,17 mg</b>	<b>= 20,10 mg</b>
Post filter mass	Pre filter mass													
20,16 mg	20,10 mg													
20,18 mg	20,11 mg													
<u>20,17 mg</u>	<u>20,09 mg</u>													
= $60.51 \div 3$	= $60,30 \div 3$													
<b>= 20,17 mg</b>	<b>= 20,10 mg</b>													
<b>4</b>	<b>Determine the sample mass</b>													
	Subtract the pre weighed sample filter mass from the post weighed sample filter mass. Also weighed in the manner described in step 3	<u>Post weight sample mass - Pre weight sample mass</u> $20,78 - 20,66$ <b>= 0.12 mg</b>												
<b>5</b>	<b>Determine the corrected sample mass</b>													
	Subtract the correction factor from the sample mass (point 4 – 3) Add if mass loss occur	Corrected sample mass = Sample mass - Correction factor = $0,12 \text{ mg} - 0,07 \text{ mg}$ <b>= 0,05 mg</b>												
<b>6</b>	<b>Determine the concentration</b>													
	Divide the corrected sample mass by the volume of air sampled.	Concentration = mass $\div$ volume ( $\text{mg}/\text{m}^3$ ) = $0.05 \div 1.1$ <b>= 0,045 <math>\text{mg}/\text{m}^3</math></b>												
<b>7</b>	<b>Determine the TWA dust concentration as applicable</b>													
	Multiply the concentration with a time correction factor to obtain the E8hEV	TWA = concentration x (total sample time in minutes $\div$ 480)												
	Time correction factor = actual sample time in minutes $\div$ 480	= $0,045 \text{ mg}/\text{m}^3 \times (500 \div 480)$ = <b>0,047 <math>\text{mg}/\text{m}^3</math></b>												
	Therefore: Airborne dust concentration in the working area = dust (in mg) for each cubic metre ( $\text{m}^3$ ) of air.													

## Pollutant Concentration

$$\text{Pollutant Concentration (mg/m}^3\text{)} = \text{TWA conc (mg/m}^3\text{)} \times \frac{\% \text{ pollutant}}{100}$$

(The percentage pollutant is determined by analysis).

## Air Quality Index (AQI)

### For a Single Pollutant

$$\text{AQI} = \frac{\text{The average TWA conc (mg/m}^3\text{)}}{\text{OEL (mg/m}^3\text{)}}$$

The OEL is the threshold limit value for the single pollutant.

### For pollutants that act additively

(a) The composition of samples is ascertained by component analysis.

The average observed TWA concentration of a component is related to its respective OEL and referred to as the Pollutant Index (PI) as per formula;

$$\text{PI} = \frac{\text{TWA-conc}}{\text{OEL}}$$

(c) An air quality index (AQI) is obtained by the summation of all the Pollutant Indices (PI) as follows:

$$\text{AQI} = \text{PI 1} + \text{PI 2} + \text{PI 3} + \text{-----}$$

**NB:** The summation should not include all pollutants, but only those, present at concentration levels in excess of 10% of the OEL.

The accepted principle whereby the combined effect of two or more hazardous substances should be considered also applies to gases, which act chronically on the respiratory system.

A sampling strategy will be developed depending on the instruments and/or procedures adopted for the measurement of the concentrations of these gases

## Example of a Gold Mine

### Annual Personal Exposure Report

Main Commodity Code:	AU
Sample Area	2
Activity Area Code:	08
HEG Classification Band:	B

DME Mine Code: 00965

Quarter Ending: September

HEG		Pollutant Code	Concentration Per Occupation mg/m <sup>3</sup> <input type="checkbox"/> ppm <input type="checkbox"/> f/ml <input type="checkbox"/>	Average Of HEG  (B)	90 th percentile of HEG	Analysis %  (C)	Dose allocated to medical record  (D=BxC%)	OEL  (E)	Pollutant Index  (F=D/E)	AQI  (G=SUM F)
Occupations in HEG  Codes	No of persons per Occupation									
20402	50	C644	0.78	0.74	0.955	10.1	0.07	0.1	0.75	0.75
			0.89							
20899	50		0.51							
			0.99							
20312	40		0.57							
			0.68							
			0.94							
40434	20		0.56							
21046										
10320										
20901										
40314										



## 2.2 Occupational Health Programme on Thermal Stress

### 2.2.1 Codes required for the completion of this report are:

- Main commodity code (see **Section B** Generic Codes)
- Activity area code (see **Section B** Generic Codes)
- Occupation in HEG (see **Section B** Generic Codes)

### 2.2.2 Categorisation of the Thermal Environment for Heat Stress

2.2.2.1 The sequential methodology used for Categorisation of the Thermal Environment (Heat Stress) is as follows:

#### **Step 1**

Sub-divide the mine into Measurement Areas. (i.e. Surface = Measurement Area 1, Underground Section A = Measurement Area 2, Underground Section B = Measurement Area 3, Underground Section C = Measurement Area 4,... etc). These Measurement Areas must be based on areas of control for management purposes, e.g. Mine Overseers section.

#### **Step 2**

Sub-divide the Measurement Areas into Activity Areas as per the Activity Area Code List found under Part B – Generic Codes - Section 3

#### **Step 3**

Evaluate the risk assessment undertaken in the COP for an Occupational Health Programme on Thermal Stress Section 8.1.1.1 “Risk Assessment and Control” and undertake a base-line survey for the following parameters inter-alia of the environmental thermal load, as listed below.

- Wetbulb temperature in °C
- Drybulb temperature in °C
- Radiant heat (Globe temperature) in °C

#### **Step 4**

(a) Subject the above data to an elementary but appropriate statistical analysis in order to categorise each defined activity area with a degree of confidence commensurate with the risk.

**Note:** Using mean values for the purpose of categorisation may underestimate the risk if a significant number of exposed employees have to enter environments close to or at the upper end of the range of recordings.

(b) The above data set constitutes the base-line survey and the mine should retain such records for ongoing monitoring, audits and comparison.

(c) The categorisation of each defined activity area should be based on the most significant parameter(s) of the environmental heat load. This may vary considerably from one operation to the next, or between surface and underground mines and works. Mines should therefore clearly state which parameters are to

be used and also provide a brief explanation (motivation) for the particular approach. For example, in many underground gold mines wet-bulb temperature is by far the most relevant parameter because of the small dry-bulb / wet-bulb difference and the generally low air velocities.

(d) The categorisation system is outlined below.

Category	Temperature range	Interpretation	General action
<b>A: Abnormally hot</b>	WB > 32,5 °C or DB > 37,0 °C or Globe temperature > 37,0 °C  <b>See Note: (1) and (2) below</b>	Unacceptable risk of heat disorders	Work may be undertaken only on a basis of expert risk assessment, supervision and protocols. HSM mandatory.
<b>B</b>	29,0 >WB ≤ 32,5 °C and DB ≤ 37,0 °C Globe temperature: as for DB <b>See Note: (3)</b>	Potentially conductive to heat disorders	HSM mandatory
<b>C</b>	27,5 >WB ≤ 29,0 °C and DB ≤ 37,0 °C Globe temperature: as for DB <b>See Note: (3)</b>	Potentially conductive to heat disorders	HSM mandatory
<b>D</b>	WB ≤ 27,5 °C and DB ≤ 32,5 °C Globe temperature: as for DB <b>See Note (4)</b>	Risk of heat disorders negligible	No special precautions Environmental monitoring must be sufficiently sensitive to detect critical upward drifts in the environmental heat load. The monitoring programme to satisfy this requirement should be specified

**Note : (1)** Temperatures above 32,5 °C wet-bulb or 37 °C dry-bulb

Employees should not be exposed to this category as a matter of routine unless on the basis of expert risk assessment, supervision and protocols.

The HEG concept, as applicable to other categories, does not strictly apply. However, where selected employees, including brigadesmen, undertake such work, systems should be in place to ensure that adequate recovery is ensured and that exposures are linked to the medical surveillance record. Because of the acute consequences of heat exposure, such areas must be clearly designated as 'No entry' or 'No go' areas. The code of practice must make reference to the mine standard(s) relevant to these contingencies.

- (2) Although certain indices conveniently use globe temperature as an alternative to dry-bulb, especially where  $GT - DB > 2^{\circ}\text{C}$ , care should be exercised when high dry-bulb temperatures are recorded in combination with high solar heat loads because of a possible summation of heat loads.
- (3) In order to create a more sensitive data base for both environmental management and the monitoring of health and safety statistics, the subdivisions B and C should be used for record purposes. Mines are nevertheless at liberty to also use any other procedure to enhance the sensitivity of data. HSM practices remain identical for B and C.
- (4) The need for close monitoring of even 'cool' environments is that 'no special precautions', i.e. in terms of a formal HSM programme, are required. In view of the acute consequences of critical escalations in the environmental heat load, ongoing monitoring is of fundamental importance.

### **Step 5 (optional)**

Depending on specific circumstances, needs or operations, mines may opt to implement heat stress management in terms of a heat stress index. This means that recorded data (Step 3) are translated into a single figure representing that index. Generally, this figure falls within a certain category and associated action. This option is acceptable in principle provided that the index enjoys recognition and / or based on past precedent. However, for the purposes of mandatory reports to the DME this does not preclude Step 4 above.

#### 2.2.2.2 Heat Stress Monitoring

It is imperative that correct, meaningful results, which are representative of all full working shifts for that thermal environment, are being obtained when monitoring is done within the working place. **The category of the thermal environment in which persons are working must be allocated to all employees within that thermal measurement area.**

If measurement for any of the stresses above have been taken in previous years, the results may provide valuable information, especially if the process has not changed significantly. Plotting past data over time to determine whether the exposure trends are higher or lower may be helpful. If the exposure trends exist, the occupational hygienist may use only the most recent exposure data in the initial assessment. If substantial data is available, some statistical analysis may be appropriate.

#### 2.2.2.3 Formal Monitoring Period

Thermal monitoring must be conducted for the warmest quarter, as determined during the risk assessment (Generally for Heat Stress: Quarter - January to March).

## 2.2.3 Categorisation of the Thermal Environment for Cold Stress

2.2.3.1 The sequential methodology used for Categorisation of the Thermal Environment (Cold Stress) is as follows:

### Step 1

Sub-divide the mine into Measurement Areas. (i.e. Surface = Measurement Area 1, Underground Section A = Measurement Area 2, Underground Section B = Measurement Area 3, ... etc). These Measurement Areas must be based on areas of control for management purposes, e.g. Mine Overseers section.

### Step 2

Sub-divide the Measurement Areas into Activity Areas as per the Activity Area Code List found under Part B – Generic Codes - Section 3

### Step 3

Evaluate the risk assessment undertaken in the COP for an Occupational Health Programme on Thermal Stress Section 8.1.2.1 “Risk Assessment and Control” and undertake a base-line survey for the following parameters inter-alia of the environmental thermal load, as listed below.

- Drybulb temperature in °C
- Velocity m/s
- Equivalent chill temperature in °C

### Step 4

1. Subject the above data to an elementary but appropriate statistical analysis in order to categorise each defined activity area with a degree of confidence commensurate with the risk.

**Note:** Using mean values for the purpose of categorisation may underestimate the risk if a significant number of exposed employees have to enter environments close to or at the upper end of the range of recordings.

2. The above data set constitutes the base-line survey and the mine should retain such records for ongoing monitoring, audits and comparison.
3. The categorisation system is outlined below.

### **Cold Stress**

Category	Temperature range <sup>1</sup>	Interpretation	General action
A 'Abnormally cold'	≤ -30° C	Severe risk (frost bite)	Stop work; evacuate
B 'Severe cold'	≤ 5° C but not ≤ -30° C	Potential risk	Implement formal CSM <sup>2</sup>
C 'Cold'	>5° C	Negligible risk	No special precautions; monitor equivalent chill temperature <sup>3</sup>

<sup>1</sup>Temperature ranges are given in terms of equivalent chill temperature (ACGIH)

<sup>2</sup>CSM: Cold Stress Management

<sup>3</sup>For categorisation purposes, thermal environments in excess of 10° C dry-bulb do not have to be reported

### 2.2.3.2 Formal Monitoring Period

Thermal monitoring must be conducted for the coldest quarter, as determined during the risk assessment.(Generally for Cold Stress: Quarter – June to August).

# Annual Heat Stress Exposure Report Form Report Form 21.9(2)(b)

In terms of regulation 9.2. (7)

General:

- 1. Risk assessment will determine the warmest quarter (Generally – January – March)
- 2. Quarterly Commodity Sampling Periods

Commodity	Annual Reporting Period
Gold; Diamond; Processed Minerals	Oct - Sept
Coal; Asbestos; Aggregate and Sand	Nov - Oct
Platinum; Base Metals,	Sept - Aug

- 2. Complete one form for each homogeneous exposure group
- 3. Codes to be used in this form are specified in the SAMOHP
- 4. Attach Operation Details – Report Form on an annual basis
- 5. The results of samples taken from randomly selected occupations within a HEG must be assigned to that specific occupation code

Total Number of Pages of Complete Report .....

Main Commodity Code:	
Measurement Area	
Activity Area Code :	
Thermal Classification :	

DME Mine Code
---------------

Quarter Ending
----------------

Thermal Environment		Parameter	Measurements (n)	Mean	Range
Total number of people in Thermal Environment	Occupations in Thermal Environment				
		Wet bulb (WB) oC			
		Dry bulb (DB) °C			
		Globe (GT) °C			

## Annual Cold Stress Exposure Report Form Report Form 21.9(2)(c)

In terms of regulation 9.2. (7)

General:

1. Risk assessment will determine the coldest quarter (Generally for Cold Stress: Quarter – June to August)
2. Quarterly Commodity Sampling Periods

Commodity	Annual Reporting Period
Gold; Diamond; Processed Minerals	Oct - Sept
Coal; Asbestos; Aggregate and Sand	Nov - Oct
Platinum; Base Metals,	Sept - Aug

2. Complete one form for each homogeneous exposure group
3. Codes to be used in this form are specified in the SAMOHP
4. Attach Operation Details – Report Form on an annual basis
5. The results of samples taken from randomly selected occupations within a HEG must be assigned to that specific occupation code

Total Number of Pages of Complete Report .....

Main Commodity Code:	
Measurement Area	
Activity Area Code :	
Thermal Classification :	

DME Mine Code
---------------

Quarter Ending
----------------

Thermal Environment		Parameter	Measurements (n)	Mean	Range
Total number of people in Thermal Env	Occupations in Thermal Environment				
		Dry bulb (DB) °C			
		Equivalent chill temperature °C			
		Air velocity m/s			

## 2.3 Occupational Health Programme on Hearing Conservation

### 2.3.1 Codes required for the completion of this report are:

DME mine code (see **Section B Generic Codes**)

Main commodity code (see **Section B Generic Codes**)

Activity area code (see **Section B Generic Codes**)

Occupation in HEG (see **Section B Generic Codes**)

### 2.3.2 The sequential methodology used for the determination of HEG classification bands is as follows:

#### **DETERMINATION OF HOMOGENEOUS EXPOSURE GROUPS**

The Code of Practice requires you to identify homogeneous exposure groups (HEGs). The sequential methodology used for the determination of homogeneous exposure groups is as follows:

##### **Step 1**

Sub-divide the mine into Measurement Areas. (i.e. Surface = Measurement Area 1, Underground Section A = Measurement Area 2, Underground Section B = Measurement Area 3, Underground Section C = Measurement Area 4,... etc). These Measurement Areas must be based on areas of control for management purposes, e.g. Mine Overseers section.

##### **Step 2**

Sub-divide the Measurement Areas into Activity Areas as per the Activity Area Code List found under Part B – Generic Codes - Section 3

##### **Step 3**

Evaluate the risk assessment undertaken in the COP for an Occupational Health Programme on Hearing Conservation Section 8.1.1 “Risk Assessment and Control” and undertake a baseline personal noise monitoring survey in each Activity Area as per the Activity Area Code List.

Determine the noise exposure levels in the Activity Area.

##### **Step 4**

Compare the results of the significant noise levels measured during the baseline **personal noise monitoring survey**, in that particular Activity Area to the OEL values.

If samples have been taken in previous years, the results may provide valuable information, especially if the process has not changed significantly. Past surveys also provide useful base-line data. If changes have occurred, the monitoring data will provide some basis for estimating potential exposures of employees in HEGs based on professional judgements. Plotting past data over time to determine whether or not the exposure trends are higher or lower may be helpful. If the exposure trends exist, the occupational hygienist may use only the most recent exposure data in the initial assessment. If substantial data is available, some statistical analysis may be appropriate.

If use of the above two resources are unable to clearly determine HEGs then an acceptable international methodology such as NIOSH Occupational Exposure Sampling Strategy Manual or the British Standard BS EN 689:1996 must be utilised.

### **Step 5**

Once the personal noise exposure levels within each Activity Area have been compared to their respective OEL values, each Activity Area can now be categorised into classification bands to determine the various homogeneous noise exposure group/s within that Activity Area. The classification bands for noise exposures are depicted in the classification band table below.

#### **2.3.3 Classification Band and Action Requirements Table for Noise**

<b>CATEGORY</b>	<b>PERSONAL EXPOSURE LEVEL</b>	<b>GENERAL ACTION</b>
A	Exposures $\geq 105$ dB $L_{Aeq, 8h}$	Implement formal Hearing Conservation Programme
B	Exposures $\geq 85 \leq 105$ dB $L_{Aeq, 8h}$	Implement formal Hearing Conservation Programme
C	Exposures $\geq 82$ dB $L_{Aeq, 8h}$ and $< 85$ dB $L_{Aeq, 8h}$	No special precautions; monitoring required as per table below

#### **2.3.4 Frequency of monitoring**

##### **Frequency Table for Noise**

<b>CATEGORY</b>	<b>MINIMUM FREQUENCY</b>
A	Sample 5% of employees within a HEG on an annual basis with a minimum of 5 samples per HEG, whichever is the greater.
B	
C	Sample 5% of employees within a HEG on a two yearly basis with a minimum of 5 samples per HEG, whichever is the greater.



## Annual Personal Noise Exposure Report - Report Form 21.9(2)(d)

In terms of regulation 9.2. (7)

- General:
1. Complete one form for each homogeneous exposure group
  2. General: Quarterly Commodity Sampling Periods

Commodity	Annual Reporting Period
Gold; Diamond; Processed Minerals	Oct - Sept
Coal; Asbestos; Aggregate and Sand	Nov - Oct
Platinum; Base Metals,	Sept - Aug

3. The monitoring frequency and number of samples to be used are specified in the SAMOHP
4. Codes to be used in this form are specified in the SAMOHP
5. The results of samples taken from randomly selected occupations within a HEG must be assigned to that specific occupation code
6. Attach Operation Details – Report Form on an annual basis.

Main Commodity Code:	
Sample Area:	
Activity Area Code:	
HEG Classification Band:	

DME Mine Code:
----------------

<b>HEG</b>			
Occupations in HEG Codes	No of persons per occupation	Sound Pressure Level (L <sub>Aeq, 8h</sub> ) Per occupation	Peak Noise Level [dB(A)] Per occupation

## **PART B - GENERIC CODES**

### **1. DME MINE CODE**

The four digit code of the mine as assigned by the Minerals Bureau, e.g.

**Premier Mine            0509**

**Note:** The Minerals Bureau (of the Department of Minerals and Energy), allocates numbers to new mines, and also to mines that have amalgamated or unbundled or even changed name. It is imperative that these new numbers are linked to the old numbers in order to ensure the continuity of information. This will help ensure that information will not be lost and that comparisons with old data are possible.

The Department of Minerals and Energy mine code is issued by and obtainable from:

The Director: Minerals Bureau Mineralia Centre,  
391 Andries Street, Private Bag X59, Pretoria 0001  
Tel: (012) 317 9000, Fax (012) 322 4864

## 2. MAIN COMMODITY CODE LIST

The main commodity being produced by the mine.

<b>AS</b>	Asbestos	<b>PY</b>	Pyrophyllite
<b>AP</b>	Attapulgitite	<b>QZ</b>	Quartzite
<b>BT</b>	Bentonite	<b>QD</b>	Quartzite Dimension Stone
<b>CA</b>	Calcrete	<b>SA</b>	Sand
<b>CE</b>	Cement	<b>NA</b>	Salt
<b>CL</b>	Coal	<b>Ni</b>	Nickel
<b>Co</b>	Cobalt	<b>SH</b>	Shale
<b>CR</b>	Chrome	<b>SI</b>	Silica
<b>CY</b>	Clay	<b>SM</b>	Silicon-metal
<b>CU</b>	Copper	<b>ST</b>	Sillimanite
<b>DI</b>	Diamonds	<b>SG</b>	Slag
<b>DR</b>	Dolerite	<b>SD</b>	Slate Dimension Stone
<b>DM</b>	Dolomite	<b>SL</b>	Soil
<b>DK</b>	Dwyka	<b>TC</b>	Talc
<b>EM</b>	Emeralds	<b>TE</b>	Tigers-eye
<b>FD</b>	Feldspar	<b>SN</b>	Tin
<b>FI</b>	Fireclay	<b>TN</b>	Titanium
<b>FS</b>	Fluorspar	<b>UR</b>	Uranium
<b>FT</b>	Felsite	<b>VA</b>	Vanadium
<b>FU</b>	Fullers-earth	<b>WS</b>	Wollastonite
<b>FY</b>	Flintclay	<b>ZN</b>	Zinc
<b>GC</b>	Gas and condensate (MOSSGAS)		
<b>AU</b>	Gold		
<b>GT</b>	Granite		
<b>GD</b>	Granite Dimension Stone		
<b>GV</b>	Gravel		
<b>GS</b>	Gypsum		
<b>HG</b>	Mercury		
<b>IL</b>	Ilmenite		
<b>FE</b>	Iron-ore		
<b>JP</b>	Jasper		
<b>KA</b>	Kaolin		
<b>KG</b>	Kieselguhr		
<b>LS</b>	Limestone		
<b>MA</b>	Magnesite		
<b>MH</b>	Malmesbury Hornfels		
<b>MN</b>	Manganese		
<b>MB</b>	Marble		
<b>MC</b>	Mica		
<b>MP</b>	Mineral-pigments		
<b>MM</b>	Montmorillonite		
<b>NP</b>	Nepheline		
<b>NR</b>	Norite		
<b>PB</b>	Lead		
<b>PL</b>	Perlite		
<b>PH</b>	Phosphates		
<b>PT</b>	Platinum group metals		
<b>PR</b>	Prospecting (unspecified minerals)		

### 3. ACTIVITY AREA CODE LIST

<b>Activity</b>	<b>Code</b>
Conventional Mining (coal)	01
Continuous Miner (coal)	02
Longwall Mining (coal)	03
Handgot (coal)	04
Stooping/Pillar Extraction (coal)	05
Rock Mining Coal	06
Opencast	07
Stoping	08
Development (Single shift)	09
Development (Multiblast)	10
Shaft Sinking	11
Raise Boring/Dry Drilling	12
Trackless Mining	13
Scraper Block Caving	14
Ground Handling (Conveyor/Loco's)	15
Shafts & Services	16
Roving Underground	17
U/g workshops	18
Raw material	19
Crushing	20
Milling/Pulverising	21
Screening/Grading	22
Separation Processes	23
Concentrating	24
Heat Process	25
Smelting	26
Chemical Process	27
Refining	28
Final Products	29
Roving Plant	30
Roving Surface	31
Assay/Laboratory	32
Surface Workshops	33
Dumps/Dump Recycling	34

Note:

1. Where the above broad descriptions do not define an activity area exactly, select the "best fit".

## 4. OCCUPATION CODE LIST

### ALPHABETICAL INDEX

Code	Occupation
70301	Acclimatisation supervisor
70302	Acclimatisation worker
80699	Accommodation worker (other accommodation, n.e.c.)
80599	Accommodation worker (residential, n.e.c.)
10206	Accountant (n.e.c.)
10200	Accounting/financial management
10299	Accounting/financial worker (n.e.c.)
30402	Acid plant official
30404	Acid plant worker
10900	Administration/secretarial management
10903	Administrative officer
10000	Administrative/financial management (multi-disciplinary)
10099	Administrative/financial management (n.e.c.)
19999	Administrative/financial/business worker (n.e.c.)
60601	Advocate/barrister
90000	Agricultural management (multi-disciplinary)
90099	Agricultural management (n.e.c.)
99999	Agricultural worker (n.e.c.)
40412	Air conditioning/refrigeration engineer
40413	Air conditioning/refrigeration mechanic
81100	Air transport management
81101	Air transport officer
81199	Air transport worker (n.e.c.)
21507	Air and water services team leader/supervisor
21508	Air and water services worker
81102	Airport controller
30110	Amalgamator
70803	Ambulance officer
70101	Anaesthetist
60106	Aptitude tester
60105	Aptitude testing supervisor
21406	Aquajet operator
50901	Architect
50902	Architectural assistant
50900	Architectural management
50999	Architectural worker (n.e.c.)
40320	Armature winder
50403	Assay technician
50401	Assayer
50499	Assay/chemistry/laboratory worker (n.e.c.)
29909	Assistant driller (Ocean)
10511	Assessor
35910	Assopulp worker
60602	Attorney/solicitor/conveyancer
70303	Audio visual tester
70322	Audiologist/speech therapist
70323	Audiometrist
10100	Auditing management
10199	Auditing worker (n.e.c.)
10102	Auditor (computer/systems)

Code	Occupation
10101	Auditor (internal and external)
40319	Auto electrician
20805	Backfill worker
35020	Baker
11114	Banking officer
11100	Banking/investment management
11199	Banking/investment worker (n.e.c.)
21304	Banksman/onsetter
81202	Bargemaster (Ocean)
80803	Barber/hairdresser
80706	Barman
60601	Barrister/advocate
35110	Beer maker
80705	Beerhall supervisor
21305	Bell signaller
30205	Beltsman
70304	Bio-medical engineer
70102	Biokineticist
40422	Blacksmith
40424	Blacksmith: apprentice
40421	Blacksmith: chargehand
40420	Blacksmith: foreman
40423	Blacksmith: operative
40425	Blacksmith: worker (n.e.c.)
20306	Blaster (supervisory)
20502	Blaster: opencast/quarry (non-supervisory)
20503	Blaster: surface works (eg smelter) (non-supervisory)
20501	Blaster: underground metal (non-supervisory)
20599	Blasting worker (n.e.c.)
40803	Boiler attendant
40450	Boilermaker: operative (gr 1)
40451	Boilermaker: operative (aide) (gr 2)
36015	Book binder
81202	Bosun (Ocean)
10208	Bookkeeper
21404	Box/orepass controller
36710	Brick maker
40614	Bricklayer
40617	Bricklayer: aide
40615	Builder
80499	Building service worker (n.e.c.)
80400	Building services management
40618	Building worker (n.e.c.)
40616	Building worker: operative
50503	Business analyst (computers)
10001	Business management
35010	Butcher
10312	Buyer/purchaser
40343	Cable joiner
30508	Calcinating worker
80701	Canteen supervisor

Code	Occupation
80703	Canteen worker
80501	Caretaker/housekeeper
40621	Carpenter
40622	Carpenter and joiner
40623	Carpenter and joiner: apprentice
40620	Carpenter and joiner: chargehand
40619	Carpenter and joiner: foreman
40624	Carpenter: aide
40625	Carpenter: worker (n.e.c.)
10209	Cashier
30507	Caster
80700	Catering management
21699	Cementer (Ocean)
80799	Catering worker (n.e.c.)
21602	Cementation driller/injector
21601	Cementation supervisor
21699	Cementation worker (n.e.c.)
21307	Chairlift operator
00000	Chairman (group)
80604	Changehouse team leader/supervisor
80605	Changehouse worker
10395	Checker
80702	Chef/cook
40701	Chemical engineer
40700	Chemical engineering management
40799	Chemical engineering worker (n.e.c.)
30499	Chemical process worker (n.e.c.)
50402	Chemist
50404	Chemist technician
00000	Chief executive
80802	Child minder
70320	Chiropodist/podiatrist
60805	Cinema/video operator
40601	Civil engineer
40600	Civil engineering management
40610	Civil engineering technician
40699	Civil engineering worker (n.e.c.)
40651	Civil/building chargehand (other, n.e.c.)
40650	Civil/building foreman (other, n.e.c.)
40652	Civil/building tradesman (other, n.e.c.)
80402	Cleaner (office)/tea maker
40611	Clerk of works
10295	Clerk (accounts/finance)
99995	Clerk (agriculture, n.e.c.)
81195	Clerk (air transport)
50995	Clerk (architectural)
10195	Clerk (auditing)
11195	Clerk (banking/investment)
80795	Clerk (catering)
80695	Clerk (club)
60995	Clerk (creative arts)
10795	Clerk (economics)
40195	Clerk (engineering planning)
49995	Clerk (engineering)

Code	Occupation
51095	Clerk (environmental)
80395	Clerk (estate/township)
70895	Clerk (first aid)
10995	Clerk (general e.g.filing n.e.c.)
50195	Clerk (geology)
80595	Clerk (hostel/quarters).
50795	Clerk (industrial engineering)
60295	Clerk (industrial relations)
10595	Clerk (insurance)
60695	Clerk (legal)
60795	Clerk (library)
10895	Clerk (marketing/sales)
79995	Clerk (medical)
39995	Clerk (metallurgical plant)
20195	Clerk (mining planning)
29995	Clerk (mining) (n.e.c.)
10495	Clerk (payrole/timekeeping)
60195	Clerk (personnel)
36095	Clerk (printing)
10695	Clerk (property/mining rights)
60895	Clerk (public relations)
81095	Clerk (rail transport)
80995	Clerk (road transport)
50395	Clerk (rock mechanics)
50895	Clerk (safety/loss control)
60495	Clerk (school)
80195	Clerk (security)
61095	Clerk (sports/recreation)
50695	Clerk (statistics)
10395	Clerk (stores)
00295	Clerk (strategic planning)
50295	Clerk (survey)
11295	Clerk (tax)
60395	Clerk (training)
60595	Clerk (welfare)
70202	Clinical assistant
80600	Club management
80601	Club secretary
80602	Club team leader
80603	Club worker
20604	Coal auger operator
20601	Coal cutter operator
20605	Coal plough operator
30211	Coal preparation worker
30509	Coking plant attendant
36014	Collator
80401	Commissionaire (offices)
80502	Commissionaire (residential accommodation)
10900	Company secretary (administrative)
40804	Compressor attendant
50508	Computer operator
50505	Computer programmer
30399	Concentration/flotation worker (n.e.c.)
19996	Consultant (administrative/financial, n.e.c.)

Code	Occupation
99996	Consultant (agriculture, n.e.c.)
49996	Consultant (engineering, n.e.c.)
09996	Consultant (general management, n.e.c.)
69996	Consultant (humanities, n.e.c.)
79996	Consultant (medical, n.e.c.)
39996	Consultant (metallurgy/beneficiation/manufacturing, n.e.c.)
29996	Consultant (mining production, n.e.c.)
59996	Consultant (scientific/technical, n.e.c.)
89996	Consultant (service occupation, n.e.c.)
11296	Consultant (tax)
40000	Consulting engineer (engineering support)
20000	Consulting engineer (mining)
30003	Consulting metallurgist
20602	Continuous miner driver
49902	Contractor (outside)
30202	Control room operator
60602	Conveyancer/attorney/solicitor
20299	Conveyer worker (n.e.c.)
21202	Conveyer belt attendant
21201	Conveyer belt team leader/supervisor
80702	Cook/chef
10901	Corporate secretary (admin)
10205	Cost accountant
10205	Cost controller
81301	Crane driver
81398	Crane driver trainer
60999	Creative worker (n.e.c.)
10207	Credit controller
20103	Critical path scheduler
90499	Crop worker
81009	Crossing attendant
30207	Crusher attendant
30505	Cupolaman
49903	Cutter
30403	Cyanidation team leader/supervisor
30405	Cyanidation worker
50513	Data base administrator
50514	Data base technician
50510	Data capture supervisor
50511	Data capture typist
29908	Day pusher (Ocean)
29910	Deck attendant (Ocean)
20313	Deck leader (Ocean)
50509	Data controller (computers)
70504	Dental assistant
70503	Dental mechanic
70499	Dental specialist, eg. oral pathologist (n.e.c.)
70401	Dental surgeon/dentist
70502	Dental therapist
70599	Dental worker (n.e.c.)
70103	Dermatologist
40102	Designer (engineering)
80104	Detective
20303	Developer

Code	Occupation
50501	Development management (hardware)
50502	Development management (software)
20310	Development team leader/supervisor
20701	Development team worker
50111	Diamond drill team leader/supervisor
50112	Diamond drill worker
50110	Diamond driller
40501	Diecaster
40477	Diesel mechanic
40478	Diesel mechanic: apprentice
40476	Diesel mechanic: chargehand
40475	Diesel mechanic: foreman
70305	Dietician
60802	Diplomatic/political liaison officer
29911	Diver (Ocean)
40905	Disinfestation worker
80105	Dog handler
80801	Domestic servant
21102	Dragline operator
21101	Dragline supervisor
29906	Drains cleaner
49994	Draughting technician
50994	Draughtsperson (architectural)
40794	Draughtsperson (chemical engineering)
40694	Draughtsperson (civil engineering)
40394	Draughtsperson (electrical engineering)
50194	Draughtsperson (geological)
40594	Draughtsperson (mechanical engineering)
29994	Draughtsperson (mining production, n.e.c.)
49994	Draughtsperson (n.e.c.)
50294	Draughtsperson (survey)
59994	Draughtsperson (technical services)
20401	Drill rig operator (jumbo)
40528	Drill sharpener
20402	Driller: hand percussion/jackhammer
20403	Driller: hand (coal)
20404	Driller: opencast/large diameter
20499	Drilling worker (n.e.c.)
40527	Drillsmith
80908	Driver: ambulance (code 08)
21103	Driver: bulldozer
80905	Driver: forklift
21109	Driver: haul truck (underground and opencast)
80911	Driver: heavy articulated motor vehicle (code 13)
80909	Driver: heavy motor vehicle eg. bus/ambulance (code 10)
80907	Driver: light motor vehicle/car (code 08)
80906	Driver: mobile industrial/agricultural equipment (code 07)
80903	Driver: motorcycle (code 01-04)
80904	Driver: tractor (code 05)
80998	Driving instructor
30406	Dryerman
30702	Dump team leader/supervisor
30703	Dump worker

Code	Occupation
30701	Dumpsman
10907	Duplicator
70104	Ear, nose and throat specialist
10703	Economics assistant
10700	Economics management
10799	Economics worker (n.e.c.)
10702	Economist (n.e.c.)
10205	Economy controller
60901	Editor
60400	Educational management
60499	Educational/school worker (n.e.c.)
70306	EEG technician
40341	Electrical chargehand (other n.e.c.)
40301	Electrical engineer
40300	Electrical engineering management
40399	Electrical engineering worker (n.e.c.)
40340	Electrical foreman (other n.e.c.)
40310	Electrical technician
40342	Electrical tradesman (other n.e.c.)
40314	Electrician
40317	Electrician: aide
40315	Electrician: apprentice
40313	Electrician: chargehand
40312	Electrician: foreman
40316	Electrician: underground section
40318	Electrician: worker (n.e.c.)
40802	Electricity generator worker
40437	Electro mechanic/millwright/minewright
40311	Electronic technician
60500	Employee assistance programme management
19910	Encoder
40800	Energy systems management
40805	Energy systems officer
40801	Energy systems team leader/supervisor
40899	Energy systems worker (n.e.c.)
40201	Engineer (n.e.c.)
40205	Engineering assistant (n.e.c.)
40004	Engineering foreman (n.e.c.)
40202	Engineering inspector
40001	Engineering management (multi-disciplinary)
40099	Engineering management (n.e.c.)
49901	Engineering team leader (n.e.c.)
40299	Engineering technical worker (n.e.c.)
40203	Engineering technician (n.e.c.)
60905	Entertainer
51004	Environmental assistant
51007	Environmental construction supervisor
51008	Environmental construction worker
51001	Environmental engineer
51000	Environmental engineering management
51005	Environmental observer
51003	Environmental officer
51002	Environmental superintendent
51099	Environmental worker (n.e.c.)

Code	Occupation
21504	Equipper
80300	Estate/township management
80301	Estate/township officer
80302	Estate/township team leader/supervisor
80399	Estate/township worker (n.e.c.)
40104	Estimator/calculator
00000	Executive director (n.e.c.)
10317	Explosives issuer
50506	Facilities management (computers)
40344	Fan attendant
90001	Farm manager
10904	Filing/records officer
30302	Filter operator/worker
30301	Filter team leader/supervisor
10204	Financial accountant
10201	Financial analyst
10701	Financial economist
10202	Financial engineer
10200	Financial/accounting management
10000	Financial/admin management (multi-disciplinary)
80202	Fire fighting/rescue officer
80203	Fire fighting/rescue team leader/supervisor
80298	Fire fighting/rescue trainer
80299	Fire fighting/rescue worker (n.e.c.)
81005	Fireman/stoker
80201	Firemaster
70802	First aid attendant
70800	First aid management/medical station superintendent
70801	First aid team leader/supervisor
70898	First aid trainer
70898	First aid training superintendent
70899	First aid worker (n.e.c.)
40428	Fitter and turner
40429	Fitter and turner: apprentice
40427	Fitter and turner: chargehand
40426	Fitter and turner: foreman
40433	Fitter (including machining): apprentice
40432	Fitter (including machining)
40431	Fitter (including machining): chargehand
40430	Fitter (including machining): foreman
40434	Fitter: operative (grade 1)
40435	Fitter: operative aide (grade 2)
40436	Fitter: worker (n.e.c.)
90301	Forester
90300	Forestry engineer
90399	Forestry worker
40502	Forger
40505	Founder
30599	Furnace worker (n.e.c.)
90501	Game ranger
40656	Ganger/plate/tracklayer (main line)
40480	Garage mechanic: aide
40481	Garage serviceman
40482	Garage worker (n.e.c.)



Code	Occupation
90102	Garden supervisor/groundsman
90199	Garden worker
40002	General engineering supervisor
49999	General engineering worker (n.e.c.)
00199	General management (n.e.c.)
00102	General manager (company)
00101	General manager (mine)
20305	General miner
70201	General practitioner
50103	Geochemist
50100	Geological management
50109	Geological observer/field assistant
50199	Geological worker (n.e.c.)
50101	Geologist
50108	Geology technician
50102	Geophysicist
21401	Grab operator
50408	Grade officer
60904	Graphic artist
30210	Grinderman/pulveriser
90102	Groundsman/garden supervisor
80500	Guest house/quarters management
36013	Guillotine operator
70105	Gynaecologist
80803	Hairdresser/barber
40654	Handyman (maintenance)
21504	Handyman (mining)
21001	Haulage team leader/supervisor
21099	Haulage/underground rail transport worker (n.e.c.)
70307	Health/food inspector
90502	Herdsmen/stable hand
21302	Hoist driver
21399	Hoisting worker (n.e.c.)
90101	Horticulturist
79901	Hospital cleaner
10902	Hospital secretary
70002	Hospital superintendent
70324	Hospital worker/orderly
80505	Hostel management
80506	Hostel official
80507	Hostel team leader/supervisor
80501	Housekeeper/caretaker
60000	Humanities management (multi-disciplinary)
60099	Humanities management (n.e.c.)
69999	Humanities worker (n.e.c.)
20801	Hydraulic prop team leader/supervisor
20802	Hydraulic prop worker
40411	Hydraulic technician
40999	Hygiene services worker (n.e.c.)
60203	Induna/tribal representative
50701	Industrial engineer
50700	Industrial engineering management
50704	Industrial engineering officer
50702	Industrial engineering technician

Code	Occupation
50799	Industrial engineering worker (n.e.c.)
70106	Industrial physician
60202	Industrial relations assistant
60200	Industrial relations management
60201	Industrial relations practitioner
60299	Industrial relations worker (n.e.c.)
50599	Info services/computer worker (n.e.c.)
50516	Information centre management (computers)
50500	Information services management
40321	Instrument engineer
40325	Instrument mechanician (industrial)
40326	Instrument mechanician apprentice (industrial)
40324	Instrument mechanician chargehand (industrial)
40323	Instrument mechanician foreman (industrial)
40322	Instrument technician
10596	Insurance adviser
10500	Insurance management
10599	Insurance worker (n.e.c.)
70107	Internist/specialist physician
10315	Inventory controller
90400	Irrigation engineer
10317	Issuer (explosives)
10316	Issuer (stores, non-explosive)
60902	Journalist/writer
40602	Junior engineer (civil engineering)
40302	Junior engineer (electrical engineering)
40402	Junior engineer (mechanical engineering)
40207	Junior engineer (n.e.c)
90503	Kennel worker
30504	Kilnman
80703	Kitchen worker
50406	Laboratory assistant
50400	Laboratory manager/superintendent
50405	Laboratory technician
60103	Labour controller
30506	Ladleman
40346	Lamp room team leader /supervisor
40347	Lamp room worker
40345	Lampman
90200	Land rehabilitation engineer
90201	Land rehabilitation supervisor
90299	Land rehabilitation worker
29905	Lasher/loader (n.e.c.)
80503	Laundry supervisor
80504	Laundry worker
30407	Leaching worker
20309	Learner miner
50409	Learner official (assay/chemistry)
40303	Learner official (electrical engineering)
40206	Learner official (engineering, n.e.c.)
50113	Learner official (geology)
40403	Learner official (mechanical engineering)
30105	Learner official (metallurgy)
20202	Learner official (mining)

Code	Occupation
40208	Learner operative
60603	Legal assistant
60600	Legal management
60699	Legal worker (n.e.c.)
60701	Librarian
60702	Library assistant
60700	Library management
60799	Library worker (n.e.c.)
21306	Lift operator
80705	Liquor outlet supervisor
36010	Lithographer
90599	Livestock worker (n.e.c.)
21106	Load haul dump driver
21004	Loader driver (rail)
21104	Loader driver (trackless)
81003	Loco driver (main line - SPOORNET)
81004	Loco driver (not main line)
21002	Loco driver (underground)
21003	Loco guard (underground)
20603	Longwall sheerer operator
10317	Magazine master
50106	Magnetometer specialist
40653	Maintenance supervisor
10203	Management accountant
10812	Marketing assistant
10810	Marketing officer
10800	Marketing and sales management
10899	Marketing/sales worker (n.e.c.)
40626	Mason
40627	Mason aide
70308	Masseur/masseuse
70600	Matron/nursing services management
40414	Mechanic (ocean)
70402	Maxillo-facial and oral surgeon
40521	Mechanical charge hand
40401	Mechanical engineer
40400	Mechanical engineering management
40599	Mechanical engineering worker (n.e.c.)
40520	Mechanical foreman (other, n.e.c.)
20699	Mechanical rockbreaking worker (n.e.c.)
40410	Mechanical technician
40522	Mechanical tradesman (other, n.e.c.)
60908	Media technician
70001	Medical advisor
79901	Medical labourer
70201	Medical officer
70309	Medical orthotist/prosthetist
70310	Medical physicist
70199	Medical specialist (n.e.c.)
70800	Medical station superintendent/first aid management
70311	Medical technician
70312	Medical technologist
79999	Medical worker (n.e.c.)
70000	Medical/health care management (multi-disciplinary)

Code	Occupation
70099	Medical/health care management (n.e.c.)
20803	Meshing and lacing team leader/supervisor
20804	Meshing and lacing worker
11010	Messenger/postal worker
30103	Metallurgical official (n.e.c.)
30199	Metallurgical worker (n.e.c.)
30000	Metallurgical/plant management
30001	Metallurgical/plant superintendent
30002	Metallurgical/plant supervisor
30101	Metallurgist
30102	Metallurgy technician (extractive)
51006	Microscopist
30208	Milling worker
40437	Millwright/electro mechanic/minewright
21510	Mine construction team leader/supervisor (n.e.c.)
21599	Mine construction worker (n.e.c.)
00101	Mine manager
20002	Mine overseer
20101	Mine planning/valuation engineer
80103	Mine police/security guard
20099	Mine production management (n.e.c.)
20399	Mine production supervisor (n.e.c.)
29999	Mine production worker (n.e.c.)
10900	Mine secretary (administration)
21499	Mine transport worker (n.e.c.)
20305	Miner (general)
50104	Mineralogist
20504	Miner's assistant (cheesa)
20201	Mining engineer (n.e.c.)
20299	Mining technical worker (n.e.c.)
20210	Mining technician (n.e.c.)
90699	Mixed farming worker (n.e.c.)
40103	Model maker
50205	Model maker (survey)
11113	Money market dealer
21308	Monorail winch operator
21309	Monorope winch operator
40543	Motorman (ocean)
70313	Mortuary attendant
40473	Motor mechanic
40474	Motor mechanic apprentice
40472	Motor mechanic chargehand
40471	Motor mechanic foreman
40479	Motor/diesel mechanic operative
40504	Moulder
20704	Multi task worker Underground production
20705	Multi task worker Opencast production
60905	Musician
50515	Network technician (computers)
70108	Neurologist
29908	Night pusher (ocean)
70109	Neurosurgeon
20308	Night shift cleaner
70601	Nurse (charge/senior sister)

Code	Occupation
70603	Nurse (enrolled/staff)
70602	Nurse (registered) all categories n.e.c.
70604	Nursing assistant
70698	Nursing instructor
70600	Nursing services management/matron
70699	Nursing worker (n.e.c.)
70314	Occupational therapist
70120	Occupational health physician
70121	Occupational hygienist
00101	Offshore installation manager (ocean)
21304	Onsetter/banksmanr
50703	Operations research officer
50507	Operations/network operator (computers)
70110	Ophthalmologist
70316	Optical dispenser
70315	Optician/optometrist
70501	Oral hygienist
70324	Orderly/hospital worker
21404	Orepass/box controller
70403	Orthodontist
70111	Orthopaedic surgeon
70317	Orthoptist
70113	Paediatrician
40637	Painter and decorator/maintenance hand
40638	Painter and decorator (worker n.e.c.)
40470	Panelbeater
35911	Paper maker
35900	Paper manufacturing management
35912	Paper tester
70112	Pathologist (medical)
40503	Patternmaker
40629	Paver
10404	Paymaster
10402	Payroll administrator
10401	Payroll controller
10400	Payroll management
10499	Payroll worker (n.e.c.)
50517	PC programmer/product specialist
60905	Performing artist
70404	Perodontist
10905	Personal assistant/secretary
80899	Personal care worker (n.e.c.)
60102	Personnel assistant/masiza
60100	Personnel management
60101	Personnel officer/practitioner
60199	Personnel worker (n.e.c.)
70799	Pharmaceutical worker (n.e.c.)
70701	Pharmacist
60906	Photographer
70318	Physiologist
70319	Physiotherapist
81103	Pilot (aircraft)
21505	Pipes and tracks team leader/supervisor
21506	Pipes and tracks worker

Code	Occupation
20703	Pit worker
40003	Planned maintenance foreman
40100	Planning management (engineering)
20100	Planning management (mining)
20104	Planning observer
20102	Planning officer
40101	Planning officer (engineering)
40199	Planning worker (engineering n.e.c.)
20199	Planning worker (mining n.e.c.)
30204	Plant team leader/supervisor
30299	Plant worker (n.e.c.)
30201	Plant/reduction official
40628	Plasterer
70114	Plastic surgeon
40448	Plater
40447	Plater/boilermaker
40449	Plater/boilermaker apprentice
40446	Plater/boilermaker chargehand
40445	Plater/boilermaker foreman
40452	Plater/boilermaker worker (n.e.c.)
40455	Plater/welder
40457	Plater/welder apprentice
40454	Plater/welder chargehand
40453	Plater/welder foreman
40458	Plater/welder worker (n.e.c.)
40656	Plate/track layer/ganger (main line)
60404	Play school supervisor
40632	Plumber
40635	Plumber aide
40633	Plumber apprentice
40631	Plumber chargehand
40630	Plumber foreman
40634	Plumber operative
40636	Plumber worker (n.e.c.)
70320	Podiatrist/chiroprapist
09801	Pool gang worker
11010	Postal worker/messenger
40530	Power hammer operator
40529	Press operator
60405	Pre-primary school assistant
36011	Printer (n.e.c.)
36012	Printing machine operator
36000	Printing management
36001	Printing supervisor
36099	Printing worker (n.e.c.)
30203	Process controller
60900	Producer/director (creative arts)
20001	Production/section/underground manager
50705	Productivity officer
19992	Project manager (admin/financial n.e.c.)
99992	Project manager/officer (agriculture n.e.c.)
49992	Project manager/officer (engineering n.e.c.)
09992	Project manager/officer (general management n.e.c.)
69992	Project manager/officer (humanities n.e.c.)

Code	Occupation
79992	Project manager/officer (medical/health n.e.c.)
29992	Project manager/officer (mining n.e.c.)
39992	Project manager/officer (reduction/beneficiation/manufacturing)
59992	Project manager/officer (scientific/technical n.e.c.)
89992	Project manager/officer (services n.e.c.)
10601	Property broker
10600	Property/mining rights management
10602	Property/mining rights officer
10699	Property/mining rights worker (n.e.c.)
50107	Prospector
70309	Prosthetist/medical orthotist
70405	Prosthodontist
70115	Psychiatrist
60501	Psychologist (clinical)
60104	Psychologist (industrial)
60803	Public relations assistant
60800	Public relations management
60801	Public relations officer
60899	Public relations worker (n.e.c.)
30210	Pulveriser/grinderman
40531	Pump team leader/supervisor
40532	Pump worker
30104	Pupil metallurgist
10312	Purchaser/buyer
10300	Purchasing/stores management
40613	Quantity surveyor
20307	Quarryman
79999	Radio/medic (ocean)
40327	Radio mechanician
11012	Radio operator
70321	Radiographer
70116	Radiologist
81000	Rail transport management
81001	Rail transport officer
81002	Rail transport team leader
81099	Rail transport worker (n.e.c.)
20607	Raise/tunnel borer operator
20606	Raise/tunnel borer supervisor
10313	Receiver (stores)
10906	Receptionist/typist/word processor operator
10904	Records/filing officer
30099	Reduction/beneficiation/manufacturing management (n.e.c.)
39999	Reduction/beneficiation/manufacturing worker (n.e.c.)
30201	Reduction/plant official
21403	Reeler
30601	Refiner
30699	Refining worker (n.e.c.)
40415	Refrigeration plant operator
40414	Refrigeration plant team leader/supervisor
40412	Refrigeration/air conditioning engineer
40413	Refrigeration/air conditioning mechanic
40906	Refuse collector
70202	Registrar (medical)

Code	Occupation
80200	Rescue training service management
80202	Rescue/fire fighting officer
80203	Rescue/fire fighting team leader/supervisor
80298	Rescue/fire fighting trainer
80299	Rescue/fire fighting worker (n.e.c.)
99997	Researcher (agriculture n.e.c.)
49997	Researcher (engineering n.e.c.)
09997	Researcher (general management n.e.c.)
69997	Researcher (humanities n.e.c.)
79997	Researcher (medical n.e.c.)
39997	Researcher (metallurgy/beneficiation/manufacturing n.e.c.)
29997	Researcher (mining production n.e.c.)
50397	Researcher (rock mechanics)
59997	Researcher (scientific/technical n.e.c.)
89997	Researcher (service occupation n.e.c.)
40508	Rigger and ropeman
40509	Rigger and ropeman apprentice
40507	Rigger and ropeman chargehand
40506	Rigger and ropeman foreman
40511	Rigger and ropeman worker (n.e.c.)
40510	Rigger aide
40655	Road builder
80900	Road transport management
80901	Road transport officer
80902	Road transport team leader
80999	Road transport worker (n.e.c.)
20799	Rock breaking worker (n.e.c.)
50301	Rock mechanics engineer
50300	Rock mechanics management
50302	Rock mechanics officer
50399	Rock mechanics worker (n.e.c.)
20899	Rock support worker (n.e.c.)
20806	Roof bolt machine operator
20807	Roof bolt worker
29909	Roughneck (ocean)
81201	Roustabout (ocean)
40523	Rubber reliner
50802	Safety/loss control auditor
50800	Safety/loss control management
50803	Safety/loss control observer assistant
50801	Safety/loss control officer
50899	Safety/loss control worker (n.e.c.)
10811	Sales representative
10319	Salvage yard aide
10320	Salvage and reclamation worker (surface)
29907	Salvage and reclamation worker (underground)
50204	Sample worker
50203	Sampler
40904	Sanitation worker
40540	Saw doctor
40542	Saw sharpener
40541	Sawmill mechanic
35710	Sawyer
60401	School principal

Code	Occupation
50000	Scientific/technical management (multi-disciplinary)
50099	Scientific/technical management (n.e.c.)
59999	Scientific/technical worker (n.e.c.)
20902	Scraper winch bell operator
20901	Scraper winch driver
20999	Scraping worker (n.e.c.)
30209	Screensman
81299	Sea transport worker (n.e.c.)
10999	Secretarial/administrative worker (n.e.c.)
10900	Secretarial/administration management
10905	Secretary/personal assistant
29901	Section leader
20001	Section/production/underground manager
11112	Securities officer
80103	Security guard/mine police
80101	Security inspector/officer
80100	Security management
80102	Security supervisor (eg sergeant)
80199	Security worker (n.e.c.)
50105	Sedimentologist
50306	Seismic network technician
50305	Seismologist
21107	Self-propelled machine driver (n.e.c.)
89999	Service worker (n.e.c.)
80000	Services management (multi-disciplinary)
80099	Services management (n.e.c.)
40903	Sewage plant operator
20301	Shaft foreman
21501	Shaft sinker
21503	Shaft timberman worker
21502	Shaft timberman/timberman
29909	Shakerhand (ocean)
11111	Share transfer officer
40459	Sheetmetal worker
20302	Shift boss
40526	Shot blast operator
20804	Shotcrete worker
21105	Shovel operator
81007	Shunter
21108	Shuttlecar driver
81008	Signaller
40639	Signwriter
21303	Skipman
30704	Slimes dam team leader/supervisor
30705	Slimes dam worker
30799	Slimes dam/dump worker (n.e.c.)
30501	Smelter
30502	Smelter team leader/supervisor
30503	Smelter worker
60502	Social worker
60602	Solicitor/attorney/conveyancer
30206	Sorter
20405	Spannerman/driller's assistant
50407	Spectrographer

Code	Occupation
70322	Speech therapist/audiologist
61099	Sports worker (n.e.c.)
61002	Sports/recreation assistant
61000	Sports/recreation management
61001	Sports/recreation officer
90502	Stable hand/herdsman
21402	Stacker operator
21509	Stage worker
10311	Standards officer
50602	Statistical officer
50699	Statistical worker (n.e.c.)
50601	Statistician
50600	Statistics management
81201	Stevedore
11110	Stockbroker
81005	Stoker/fireman
29904	Stone packer
20311	Stope team leader/supervisor
20702	Stope team worker
20304	Stoper
10314	Storekeeper
10310	Stores controller
10316	Stores issuer (non-explosive)
10313	Stores receiver
10399	Stores worker (n.e.c.)
10300	Stores/purchasing management
50304	Strata control observer
50303	Strata control officer
00201	Strategic planning analyst
00200	Strategic planning management
00299	Strategic planning worker (n.e.c.)
30408	Stripper operator
19993	Student (administrative/financial n.e.c.)
99993	Student (agriculture n.e.c.)
49993	Student (engineering n.e.c.)
50193	Student (geology)
69993	Student (humanities n.e.c.)
79993	Student (medical)
39993	Student (metallurgy/beneficiation/manufacturing n.e.c.)
29993	Student (mining production n.e.c.)
59993	Student (scientific/technical n.e.c.)
89993	Student (service occupation n.e.c.)
29902	Supervisor's assistant (underground)
70399	Supplementary medical worker (n.e.c.)
70117	Surgeon (general)
50200	Survey management
50299	Survey worker (n.e.c.)
50201	Surveyor (land)
50202	Surveyor (mine)
29903	Sweeper/vamper
10203	Systems accountant
50504	Systems analyst
50512	Systems/network programmer
34510	Tailor

Code	Occupation
80402	Tea maker/office cleaner
60404	Teacher (nursery education)
60403	Teacher (primary education)
60402	Teacher (secondary education)
20312	Team leader/supervisor (other mining production work)
40204	Technical assistant engineering (n.e.c.)
20211	Technical assistant mining (n.e.c.)
50001	Technical services management
59901	Technical services department (TSD) officer (n.e.c.)
11099	Telecommunications worker (n.e.c.)
11011	Telephonist
60907	Television cameraman
70118	Thoracic surgeon
35999	Timber, pulp and paper worker (n.e.c.)
10403	Timekeeper
21405	Tip team leader/supervisor
21406	Tip worker
40512	Toolmaker
20312	Toolpusher (ocean)
60804	Tour guide
40612	Town planner
49994	Tracer (n.e.c.)
21101	Trackless machine team leader/supervisor
21198	Trackless machine trainer (eg dragline)
21199	Trackless machine worker (n.e.c.)
40656	Track/plate layer/ganger (main line)
81006	Train guard
19998	Trainer (administrative/financial n.e.c.)
99998	Trainer (agriculture n.e.c.)
40798	Trainer (chemical engineering)
40698	Trainer (civil engineering)
50598	Trainer (computers)
81398	Trainer (crane driving)
40398	Trainer (electrical engineering)
80298	Trainer (fire fighting/rescue)
70898	Trainer (first aid)
49998	Trainer (general engineering n.e.c.)
09998	Trainer (general management n.e.c.)
69998	Trainer (humanities, n.e.c.)
40598	Trainer (mechanical engineering)
79998	Trainer (medical n.e.c.)
39998	Trainer (metallurgy/beneficiation/manufacturing n.e.c.)
29998	Trainer (mining production n.e.c.)
70698	Trainer (nursing)

Code	Occupation
80998	Trainer (road driving)
50898	Trainer (safety/loss control)
59998	Trainer (scientific/technical n.e.c.)
80198	Trainer (security)
89998	Trainer (service occupation n.e.c.)
60398	Trainer/instructor (n.e.c.)
60302	Training assistant
60300	Training management
60301	Training officer (n.e.c.)
60399	Training worker (n.e.c.)
60903	Translator
81399	Transport worker (n.e.c.)
60203	Tribal representative/induna
10906	Typist/word processor operator/receptionist
09999	Unclassified occupation (unknown/no specific skill)
10906	Typist/word processor operator/receptionist
20001	Underground/production/section manager
30401	Uranium plant official
70119	Urologist
50518	User support (computers)
10510	Valuator
80704	Waiter/waitress
40900	Water, effluent and sanitation management
40907	Water, effluent and sanitation officer
40901	Water, effluent and sanitation team leader/supervisor
40902	Water treatment operator
10395	Weighbridge attendant
40456	Welder
60504	Welfare assistant
60503	Welfare officer
60599	Welfare worker (n.e.c.)
40526	Winch Operator\Driver
40525	Winch transporter team leader
40524	Winch transporter/erector
21301	Winding engine driver (licensed)
20406	Wireline operators (ocean)
10906	Word processor operator/typist/receptionist
50707	Work study observer/assistant
50706	Work study officer
35913	Wrapper
60902	Writer/journalist
10318	Yard supervisor
10321	Yard worker (n.e.c.)



# OCCUPATION CODE LIST

## Numerical index

Code	Occupation
00000	Chairman (group)
00000	Chief executive
00000	Executive director (n.e.c.)
00101	General manager (mine)
00101	Mine manager
00101	Offshore installation manager (ocean)
00102	General manager (company)
00199	General management (n.e.c.)
00200	Strategic planning management
00201	Strategic planning analyst
00295	Clerk (strategic planning)
00299	Strategic planning worker (n.e.c.)
09801	Pool gang worker
09992	Project manager/officer (general management n.e.c.)
09996	Consultant (general management, n.e.c.)
09997	Researcher (general management n.e.c.)
09998	Trainer (general management n.e.c.)
09999	Unclassified occupation (unknown/no specific skill)
10000	Administrative/financial management (multi-disciplinary)
10000	Financial/admin management (multi-disciplinary)
10001	Business management
10099	Administrative/financial management (n.e.c.)
10100	Auditing management
10101	Auditor (internal and external)
10102	Auditor (computer/systems)
10195	Clerk (auditing)
10199	Auditing worker (n.e.c.)
10200	Accounting/financial management
10200	Financial/accounting management
10201	Financial analyst
10202	Financial engineer
10203	Management accountant
10203	Systems accountant
10204	Financial accountant
10205	Cost accountant
10205	Cost controller
10205	Economy controller
10206	Accountant (n.e.c.)
10207	Credit controller
10208	Bookkeeper
10209	Cashier
10295	Clerk (accounts/finance)
10299	Accounting/financial worker (n.e.c.)
10300	Purchasing/stores management
10300	Stores/purchasing management
10310	Stores controller
10311	Standards officer
10312	Buyer/purchaser
10312	Purchaser/buyer
10313	Receiver (stores)

Code	Occupation
10313	Stores receiver
10314	Storekeeper
10315	Inventory controller
10316	Issuer (stores, non-explosive)
10316	Stores issuer (non-explosive)
10317	Explosives issuer
10317	Issuer (explosives)
10317	Magazine master
10318	Yard supervisor
10319	Salvage yard aide
10320	Salvage and reclamation worker (surface)
10321	Yard worker (n.e.c.)
10395	Checker
10395	Clerk (stores)
10395	Weighbridge attendant
10399	Stores worker (n.e.c.)
10400	Payroll management
10401	Payroll controller
10402	Payroll administrator
10403	Timekeeper
10404	Paymaster
10495	Clerk (payrole/timekeeping)
10499	Payroll worker (n.e.c.)
10500	Insurance management
10510	Valuator
10511	Assessor
10595	Clerk (insurance)
10596	Insurance adviser
10599	Insurance worker (n.e.c.)
10600	Property/mining rights management
10601	Property broker
10602	Property/mining rights officer
10695	Clerk (property/mining rights)
10699	Property/mining rights worker (n.e.c.)
10700	Economics management
10701	Financial economist
10702	Economist (n.e.c.)
10703	Economics assistant
10795	Clerk (economics)
10799	Economics worker (n.e.c.)
10800	Marketing and sales management
10810	Marketing officer
10811	Sales representative
10812	Marketing assistant
10895	Clerk (marketing/sales)
10899	Marketing/sales worker (n.e.c.)
10900	Administration/secretarial management
10900	Company secretary (administrative)
10900	Mine secretary (administration)
10900	Secretarial/administration management
10901	Corporate secretary (admin)
10902	Hospital secretary

Code	Occupation
10903	Administrative officer
10904	Filing/records officer
10904	Records/filing officer
10905	Personal assistant/secretary
10905	Secretary/personal assistant
10906	Receptionist/typist/word processor operator
10906	Typist/word processor operator/receptionist
10906	Typist/word processor operator/receptionist
10906	Word processor operator/typist/receptionist
10907	Duplicator
10995	Clerk (general e.g.filing n.e.c.)
10999	Secretarial/administrative worker (n.e.c.)
11010	Messenger/postal worker
11010	Postal worker/messenger
11011	Telephonist
11012	Radio operator
11099	Telecommunications worker (n.e.c.)
11100	Banking/investment management
11110	Stockbroker
11111	Share transfer officer
11112	Securities officer
11113	Money market dealer
11114	Banking officer
11195	Clerk (banking/investment)
11199	Banking/investment worker (n.e.c.)
11295	Clerk (tax)
11296	Consultant (tax)
19910	Encoder
19992	Project manager (admin/financial n.e.c.)
19993	Student (administrative/financial n.e.c.)
19996	Consultant (administrative/financial, n.e.c.)
19998	Trainer (administrative/financial n.e.c.)
19999	Administrative/financial/business worker (n.e.c.)
20000	Consulting engineer (mining)
20001	Production/section/underground manager
20001	Section/production/underground manager
20001	Underground/production/section manager
20002	Mine overseer
20099	Mine production management (n.e.c.)
20100	Planning management (mining)
20101	Mine planning/valuation engineer
20102	Planning officer
20103	Critical path scheduler
20104	Planning observer
20195	Clerk (mining planning)
20199	Planning worker (mining n.e.c.)
20201	Mining engineer (n.e.c.)
20202	Learner official (mining)
20210	Mining technician (n.e.c.)
20211	Technical assistant mining (n.e.c.)
20299	Conveyer worker (n.e.c.)
20299	Mining technical worker (n.e.c.)
20301	Shaft foreman
20302	Shift boss

Code	Occupation
20303	Developer
20304	Stoper
20305	General miner
20305	Miner (general)
20306	Blaster (supervisory)
20307	Quarryman
20308	Night shift cleaner
20309	Learner miner
20310	Development team leader/supervisor
20311	Stope team leader/supervisor
20312	Team leader/supervisor (other mining production work)
20312	Toolpusher (ocean)
20313	Deck leader (Ocean)
20399	Mine production supervisor (n.e.c.)
20401	Drill rig operator (jumbo)
20402	Driller: hand percussion/jackhammer
20403	Driller: hand (coal)
20404	Driller: opencast/large diameter
20405	Spannerman/driller's assistant
20406	Wireline operators (ocean)
20499	Drilling worker (n.e.c.)
20501	Blaster: underground metal (non-supervisory)
20502	Blaster: opencast/quarry (non-supervisory)
20503	Blaster: surface works (eg smelter) (non-supervisory)
20504	Miner's assistant (cheesa)
20599	Blasting worker (n.e.c.)
20601	Coal cutter operator
20602	Continuous miner driver
20603	Longwall shearer operator
20604	Coal auger operator
20605	Coal plough operator
20606	Raise/tunnel borer supervisor
20607	Raise/tunnel borer operator
20699	Mechanical rockbreaking worker (n.e.c.)
20701	Development team worker
20702	Stope team worker
20703	Pit worker
20704	Multi task worker Underground production
20705	Multi task worker Opencast production
20799	Rock breaking worker (n.e.c.)
20801	Hydraulic prop team leader/supervisor
20802	Hydraulic prop worker
20803	Meshing and lacing team leader/supervisor
20804	Meshing and lacing worker
20804	Shotcrete worker
20805	Backfill worker
20806	Roof bolt machine operator
20807	Roof bolt worker
20899	Rock support worker (n.e.c.)
20901	Scraper winch driver
20902	Scraper winch bell operator
20999	Scraping worker (n.e.c.)
21001	Haulage team leader/supervisor
21002	Loco driver (underground)



Code	Occupation
21003	Loco guard (underground)
21004	Loader driver (rail)
21099	Haulage/underground rail transport worker (n.e.c.)
21101	Dragline supervisor
21101	Trackless machine team leader/supervisor
21102	Dragline operator
21103	Driver: bulldozer
21104	Loader driver (trackless)
21105	Shovel operator
21106	Load haul dump driver
21107	Self-propelled machine driver (n.e.c.)
21108	Shuttlecar driver
21109	Driver: haul truck (underground and opencast)
21198	Trackless machine trainer (eg dragline)
21199	Trackless machine worker (n.e.c.)
21201	Conveyer belt team leader/supervisor
21202	Conveyer belt attendant
21301	Winding engine driver (licensed)
21302	Hoist driver
21303	Skipman
21304	Banksman/onsetter
21304	Onsetter/banksmanr
21305	Bell signaller
21306	Lift operator
21307	Chairlift operator
21308	Monorail winch operator
21309	Monorope winch operator
21399	Hoisting worker (n.e.c.)
21401	Grab operator
21402	Stacker operator
21403	Reeler
21404	Box/orepass controller
21404	Orepass/box controller
21405	Tip team leader/supervisor
21406	Aquajet operator
21406	Tip worker
21499	Mine transport worker (n.e.c.)
21501	Shaft sinker
21502	Shaft timberman/timberman
21503	Shaft timberman worker
21504	Equipper
21504	Handyman (mining)
21505	Pipes and tracks team leader/supervisor
21506	Pipes and tracks worker
21507	Air and water services team leader/supervisor
21508	Air and water services worker
21509	Stage worker
21510	Mine construction team leader/supervisor (n.e.c.)
21599	Mine construction worker (n.e.c.)
21601	Cementation supervisor
21602	Cementation driller/injector
21699	Cementer (Ocean)
21699	Cementation worker (n.e.c.)
29901	Section leader

Code	Occupation
29902	Supervisor's assistant (underground)
29903	Sweeper/vamper
29904	Stone packer
29905	Lasher/loader (n.e.c.)
29906	Drains cleaner
29907	Salvage and reclamation worker (underground)
29908	Day pusher (Ocean)
29908	Night pusher (ocean)
29909	Assistant driller (Ocean)
29909	Roughneck (ocean)
29909	Shakerhand (ocean)
29910	Deck attendant (Ocean)
29911	Diver (Ocean)
29992	Project manager/officer (mining n.e.c.)
29993	Student (mining production n.e.c.)
29994	Draughtsperson (mining production, n.e.c.)
29995	Clerk (mining) (n.e.c.)
29996	Consultant (mining production, n.e.c.)
29997	Researcher (mining production n.e.c.)
29998	Trainer (mining production n.e.c.)
29999	Mine production worker (n.e.c.)
30000	Metallurgical/plant management
30001	Metallurgical/plant superintendent
30002	Metallurgical/plant supervisor
30003	Consulting metallurgist
30099	Reduction/beneficiation/manufacturing management (n.e.c.)
30101	Metallurgist
30102	Metallurgy technician (extractive)
30103	Metallurgical official (n.e.c.)
30104	Pupil metallurgist
30105	Learner official (metallurgy)
30110	Amalgamator
30199	Metallurgical worker (n.e.c.)
30201	Plant/reduction official
30201	Reduction/plant official
30202	Control room operator
30203	Process controller
30204	Plant team leader/supervisor
30205	Beltsman
30206	Sorter
30207	Crusher attendant
30208	Milling worker
30209	Screensman
30210	Grinderman/pulveriser
30210	Pulveriser/grinderman
30211	Coal preparation worker
30299	Plant worker (n.e.c.)
30301	Filter team leader/supervisor
30302	Filter operator/worker
30399	Concentration/flotation worker (n.e.c.)
30401	Uranium plant official
30402	Acid plant official
30403	Cyanidation team leader/supervisor
30404	Acid plant worker

Code	Occupation
30405	Cyanidation worker
30406	Dryerman
30407	Leaching worker
30408	Stripper operator
30499	Chemical process worker (n.e.c.)
30501	Smelter
30502	Smelter team leader/supervisor
30503	Smelter worker
30504	Kilnman
30505	Cupolaman
30506	Ladleman
30507	Caster
30508	Calcinating worker
30509	Coking plant attendant
30599	Furnace worker (n.e.c.)
30601	Refiner
30699	Refining worker (n.e.c.)
30701	Dumpsman
30702	Dump team leader/supervisor
30703	Dump worker
30704	Slimes dam team leader/supervisor
30705	Slimes dam worker
30799	Slimes dam/dump worker (n.e.c.)
34510	Tailor
35010	Butcher
35020	Baker
35110	Beer maker
35710	Sawyer
35900	Paper manufacturing management
35910	Assopulp worker
35911	Paper maker
35912	Paper tester
35913	Wrapper
35999	Timber, pulp and paper worker (n.e.c.)
36000	Printing management
36001	Printing supervisor
36010	Lithographer
36011	Printer (n.e.c.)
36012	Printing machine operator
36013	Guillotine operator
36014	Collator
36015	Book binder
36095	Clerk (printing)
36099	Printing worker (n.e.c.)
36710	Brick maker
39992	Project manager/officer (reduction/beneficiation/manufacturing)
39993	Student (metallurgy/beneficiation/manufacturing n.e.c.)
39995	Clerk (metallurgical plant)
39996	Consultant (metallurgy/beneficiation/manufacturing, n.e.c.)
39997	Researcher (metallurgy/beneficiation/manufacturing n.e.c.)
39998	Trainer (metallurgy/beneficiation/manufacturing n.e.c.)
39999	Reduction/beneficiation/manufacturing worker (n.e.c.)

Code	Occupation
40000	Consulting engineer (engineering support)
40001	Engineering management (multi-disciplinary)
40002	General engineering supervisor
40003	Planned maintenance foreman
40004	Engineering foreman (n.e.c.)
40099	Engineering management (n.e.c.)
40100	Planning management (engineering)
40101	Planning officer (engineering)
40102	Designer (engineering)
40103	Model maker
40104	Estimator/calculator
40195	Clerk (engineering planning)
40199	Planning worker (engineering n.e.c.)
40201	Engineer (n.e.c.)
40202	Engineering inspector
40203	Engineering technician (n.e.c.)
40204	Technical assistant engineering (n.e.c.)
40205	Engineering assistant (n.e.c.)
40206	Learner official (engineering, n.e.c.)
40207	Junior engineer (n.e.c.)
40208	Learner operative
40299	Engineering technical worker (n.e.c.)
40300	Electrical engineering management
40301	Electrical engineer
40302	Junior engineer (electrical engineering)
40303	Learner official (electrical engineering)
40310	Electrical technician
40311	Electronic technician
40312	Electrician: foreman
40313	Electrician: chargehand
40314	Electrician
40315	Electrician: apprentice
40316	Electrician: underground section
40317	Electrician: aide
40318	Electrician: worker (n.e.c.)
40319	Auto electrician
40320	Armature winder
40321	Instrument engineer
40322	Instrument technician
40323	Instrument mechanic foreman (industrial)
40324	Instrument mechanic chargehand (industrial)
40325	Instrument mechanic (industrial)
40326	Instrument mechanic apprentice (industrial)
40327	Radio mechanic
40340	Electrical foreman (other n.e.c.)
40341	Electrical chargehand (other n.e.c.)
40342	Electrical tradesman (other n.e.c.)
40343	Cable joiner
40344	Fan attendant
40345	Lampman
40346	Lamp room team leader /supervisor
40347	Lamp room worker
40394	Draughtsperson (electrical engineering)
40398	Trainer (electrical engineering)

Code	Occupation
40399	Electrical engineering worker (n.e.c.)
40400	Mechanical engineering management
40401	Mechanical engineer
40402	Junior engineer (mechanical engineering)
40403	Learner official (mechanical engineering)
40410	Mechanical technician
40411	Hydraulic technician
40412	Air conditioning/refrigeration engineer
40412	Refrigeration/air conditioning engineer
40413	Air conditioning/refrigeration mechanic
40413	Refrigeration/air conditioning mechanic
40414	Mechanic (ocean)
40414	Refrigeration plant team leader/supervisor
40415	Refrigeration plant operator
40420	Blacksmith: foreman
40421	Blacksmith: chargehand
40422	Blacksmith
40423	Blacksmith: operative
40424	Blacksmith: apprentice
40425	Blacksmith: worker (n.e.c.)
40426	Fitter and turner: foreman
40427	Fitter and turner: chargehand
40428	Fitter and turner
40429	Fitter and turner: apprentice
40430	Fitter (including machining): foreman
40431	Fitter (including machining): chargehand
40432	Fitter (including machining)
40433	Fitter (including machining): apprentice
40434	Fitter: operative (grade 1)
40435	Fitter: operative aide (grade 2)
40436	Fitter: worker (n.e.c.)
40437	Electro mechanic/millwright/minewright
40437	Millwright/electro mechanic/minewright
40445	Plater/boilermaker foreman
40446	Plater/boilermaker chargehand
40447	Plater/boilermaker
40448	Plater
40449	Plater/boilermaker apprentice
40450	Boilermaker: operative (gr 1)
40451	Boilermaker: operative (aide) (gr 2)
40452	Plater/boilermaker worker (n.e.c.)
40453	Plater/welder foreman
40454	Plater/welder chargehand
40455	Plater/welder
40456	Welder
40457	Plater/welder apprentice
40458	Plater/welder worker (n.e.c.)
40459	Sheetmetal worker
40470	Panelbeater
40471	Motor mechanic foreman
40472	Motor mechanic chargehand
40473	Motor mechanic
40474	Motor mechanic apprentice
40475	Diesel mechanic: foreman

Code	Occupation
40476	Diesel mechanic: chargehand
40477	Diesel mechanic
40478	Diesel mechanic: apprentice
40479	Motor/diesel mechanic operative
40480	Garage mechanic: aide
40481	Garage serviceman
40482	Garage worker (n.e.c.)
40501	Diecaster
40502	Forger
40503	Patternmaker
40504	Moulder
40505	Founder
40506	Rigger and ropeman foreman
40507	Rigger and ropeman chargehand
40508	Rigger and ropeman
40509	Rigger and ropeman apprentice
40510	Rigger aide
40511	Rigger and ropeman worker (n.e.c.)
40512	Toolmaker
40520	Mechanical foreman (other, n.e.c.)
40521	Mechanical charge hand
40522	Mechanical tradesman (other, n.e.c.)
40523	Rubber reliner
40524	Winch transporter/erector
40525	Winch transporter team leader
40526	Shot blast operator
40526	Winch Operator\Driver
40527	Drillsmith
40528	Drill sharpener
40529	Press operator
40530	Power hammer operator
40531	Pump team leader/supervisor
40532	Pump worker
40540	Saw doctor
40541	Sawmill mechanic
40542	Saw sharpener
40543	Motorman (ocean)
40594	Draughtsperson (mechanical engineering)
40598	Trainer (mechanical engineering)
40599	Mechanical engineering worker (n.e.c.)
40600	Civil engineering management
40601	Civil engineer
40602	Junior engineer (civil engineering)
40610	Civil engineering technician
40611	Clerk of works
40612	Town planner
40613	Quantity surveyor
40614	Bricklayer
40615	Builder
40616	Building worker: operative
40617	Bricklayer: aide
40618	Building worker (n.e.c.)
40619	Carpenter and joiner: foreman
40620	Carpenter and joiner: chargehand

Code	Occupation
40621	Carpenter
40622	Carpenter and joiner
40623	Carpenter and joiner: apprentice
40624	Carpenter: aide
40625	Carpenter: worker (n.e.c.)
40626	Mason
40627	Mason aide
40628	Plasterer
40629	Paver
40630	Plumber foreman
40631	Plumber chargehand
40632	Plumber
40633	Plumber apprentice
40634	Plumber operative
40635	Plumber aide
40636	Plumber worker (n.e.c.)
40637	Painter and decorator/maintenance hand
40638	Painter and decorator (worker n.e.c.)
40639	Signwriter
40650	Civil/building foreman (other, n.e.c.)
40651	Civil/building chargehand (other, n.e.c.)
40652	Civil/building tradesman (other, n.e.c.)
40653	Maintenance supervisor
40654	Handyman (maintenance)
40655	Road builder
40656	Ganger/plate/tracklayer (main line)
40656	Plate/track layer/ganger (main line)
40656	Track/plate layer/ganger (main line)
40694	Draughtsperson (civil engineering)
40698	Trainer (civil engineering)
40699	Civil engineering worker (n.e.c.)
40700	Chemical engineering management
40701	Chemical engineer
40794	Draughtsperson (chemical engineering)
40798	Trainer (chemical engineering)
40799	Chemical engineering worker (n.e.c.)
40800	Energy systems management
40801	Energy systems team leader/supervisor
40802	Electricity generator worker
40803	Boiler attendant
40804	Compressor attendant
40805	Energy systems officer
40899	Energy systems worker (n.e.c.)
40900	Water, effluent and sanitation management
40901	Water, effluent and sanitation team leader/supervisor
40902	Water treatment operator
40903	Sewage plant operator
40904	Sanitation worker
40905	Disinfestation worker
40906	Refuse collector
40907	Water, effluent and sanitation officer
40999	Hygiene services worker (n.e.c.)
49901	Engineering team leader (n.e.c.)
49902	Contractor (outside)

Code	Occupation
49903	Cutter
49992	Project manager/officer (engineering n.e.c.)
49993	Student (engineering n.e.c.)
49994	Draughting technician
49994	Draughtsperson (n.e.c.)
49994	Tracer (n.e.c.)
49995	Clerk (engineering)
49996	Consultant (engineering, n.e.c.)
49997	Researcher (engineering n.e.c.)
49998	Trainer (general engineering n.e.c.)
49999	General engineering worker (n.e.c.)
50000	Scientific/technical management (multi-disciplinary)
50001	Technical services management
50099	Scientific/technical management (n.e.c.)
50100	Geological management
50101	Geologist
50102	Geophysicist
50103	Geochemist
50104	Mineralogist
50105	Sedimentologist
50106	Magnetometer specialist
50107	Prospector
50108	Geology technician
50109	Geological observer/field assistant
50110	Diamond driller
50111	Diamond drill team leader/supervisor
50112	Diamond drill worker
50113	Learner official (geology)
50193	Student (geology)
50194	Draughtsperson (geological)
50195	Clerk (geology)
50199	Geological worker (n.e.c.)
50200	Survey management
50201	Surveyor (land)
50202	Surveyor (mine)
50203	Sampler
50204	Sample worker
50205	Model maker (survey)
50294	Draughtsperson (survey)
50295	Clerk (survey)
50299	Survey worker (n.e.c.)
50300	Rock mechanics management
50301	Rock mechanics engineer
50302	Rock mechanics officer
50303	Strata control officer
50304	Strata control observer
50305	Seismologist
50306	Seismic network technician
50395	Clerk (rock mechanics)
50397	Researcher (rock mechanics)
50399	Rock mechanics worker (n.e.c.)
50400	Laboratory manager/superintendent
50401	Assayer
50402	Chemist

Code	Occupation
50403	Assay technician
50404	Chemist technician
50405	Laboratory technician
50406	Laboratory assistant
50407	Spectrographer
50408	Grade officer
50409	Learner official (assay/chemistry)
50499	Assay/chemistry/laboratory worker (n.e.c.)
50500	Information services management
50501	Development management (hardware)
50502	Development management (software)
50503	Business analyst (computers)
50504	Systems analyst
50505	Computer programmer
50506	Facilities management (computers)
50507	Operations/network operator (computers)
50508	Computer operator
50509	Data controller (computers)
50510	Data capture supervisor
50511	Data capture typist
50512	Systems/network programmer
50513	Data base administrator
50514	Data base technician
50515	Network technician (computers)
50516	Information centre management (computers)
50517	PC programmer/product specialist
50518	User support (computers)
50598	Trainer (computers)
50599	Info services/computer worker (n.e.c.)
50600	Statistics management
50601	Statistician
50602	Statistical officer
50695	Clerk (statistics)
50699	Statistical worker (n.e.c.)
50700	Industrial engineering management
50701	Industrial engineer
50702	Industrial engineering technician
50703	Operations research officer
50704	Industrial engineering officer
50705	Productivity officer
50706	Work study officer
50707	Work study observer/assistant
50795	Clerk (industrial engineering)
50799	Industrial engineering worker (n.e.c.)
50800	Safety/loss control management
50801	Safety/loss control officer
50802	Safety/loss control auditor
50803	Safety/loss control observer assistant
50895	Clerk (safety/loss control)
50898	Trainer (safety/loss control)
50899	Safety/loss control worker (n.e.c.)
50900	Architectural management
50901	Architect
50902	Architectural assistant

Code	Occupation
50994	Draughtsperson (architectural)
50995	Clerk (architectural)
50999	Architectural worker (n.e.c.)
51000	Environmental engineering management
51001	Environmental engineer
51002	Environmental superintendent
51003	Environmental officer
51004	Environmental assistant
51005	Environmental observer
51006	Microscopist
51007	Environmental construction supervisor
51008	Environmental construction worker
51095	Clerk (environmental)
51099	Environmental worker (n.e.c.)
59901	Technical services department (TSD) officer (n.e.c.)
59992	Project manager/officer (scientific/technical n.e.c.)
59993	Student (scientific/technical n.e.c.)
59994	Draughtsperson (technical services)
59996	Consultant (scientific/technical, n.e.c.)
59997	Researcher (scientific/technical n.e.c.)
59998	Trainer (scientific/technical n.e.c.)
59999	Scientific/technical worker (n.e.c.)
60000	Humanities management (multi-disciplinary)
60099	Humanities management (n.e.c.)
60100	Personnel management
60101	Personnel officer/practitioner
60102	Personnel assistant/masiza
60103	Labour controller
60104	Psychologist (industrial)
60105	Aptitude testing supervisor
60106	Aptitude tester
60195	Clerk (personnel)
60199	Personnel worker (n.e.c.)
60200	Industrial relations management
60201	Industrial relations practitioner
60202	Industrial relations assistant
60203	Induna/tribal representative
60203	Tribal representative/induna
60295	Clerk (industrial relations)
60299	Industrial relations worker (n.e.c.)
60300	Training management
60301	Training officer (n.e.c.)
60302	Training assistant
60395	Clerk (training)
60398	Trainer/instructor (n.e.c.)
60399	Training worker (n.e.c.)
60400	Educational management
60401	School principal
60402	Teacher (secondary education)
60403	Teacher (primary education)
60404	Play school supervisor
60404	Teacher (nursery education)
60405	Pre-primary school assistant
60495	Clerk (school)

Code	Occupation
60499	Educational/school worker (n.e.c.)
60500	Employee assistance programme management
60501	Psychologist (clinical)
60502	Social worker
60503	Welfare officer
60504	Welfare assistant
60595	Clerk (welfare)
60599	Welfare worker (n.e.c.)
60600	Legal management
60601	Advocate/barrister
60601	Barrister/advocate
60602	Attorney/solicitor/conveyancer
60602	Conveyancer/attorney/solicitor
60602	Solicitor/attorney/conveyancer
60603	Legal assistant
60695	Clerk (legal)
60699	Legal worker (n.e.c.)
60700	Library management
60701	Librarian
60702	Library assistant
60795	Clerk (library)
60799	Library worker (n.e.c.)
60800	Public relations management
60801	Public relations officer
60802	Diplomatic/political liaison officer
60803	Public relations assistant
60804	Tour guide
60805	Cinema/video operator
60895	Clerk (public relations)
60899	Public relations worker (n.e.c.)
60900	Producer/director (creative arts)
60901	Editor
60902	Journalist/writer
60902	Writer/journalist
60903	Translator
60904	Graphic artist
60905	Entertainer
60905	Musician
60905	Performing artist
60906	Photographer
60907	Television cameraman
60908	Media technician
60995	Clerk (creative arts)
60999	Creative worker (n.e.c.)
61000	Sports/recreation management
61001	Sports/recreation officer
61002	Sports/recreation assistant
61095	Clerk (sports/recreation)
61099	Sports worker (n.e.c.)
69992	Project manager/officer (humanities n.e.c.)
69993	Student (humanities n.e.c.)
69996	Consultant (humanities, n.e.c.)
69997	Researcher (humanities n.e.c.)
69998	Trainer (humanities, n.e.c.)

Code	Occupation
69999	Humanities worker (n.e.c.)
70000	Medical/health care management (multi-disciplinary)
70001	Medical advisor
70002	Hospital superintendent
70099	Medical/health care management (n.e.c.)
70101	Anaesthetist
70102	Biokineticist
70103	Dermatologist
70104	Ear, nose and throat specialist
70105	Gynaecologist
70106	Industrial physician
70107	Internist/specialist physician
70108	Neurologist
70109	Neurosurgeon
70110	Ophthalmologist
70111	Orthopaedic surgeon
70112	Pathologist (medical)
70113	Paediatrician
70114	Plastic surgeon
70115	Psychiatrist
70116	Radiologist
70117	Surgeon (general)
70118	Thoracic surgeon
70119	Urologist
70120	Occupational health physician
70121	Occupational hygienist
70199	Medical specialist (n.e.c.)
70201	General practitioner
70201	Medical officer
70202	Clinical assistant
70202	Registrar (medical)
70301	Acclimatisation supervisor
70302	Acclimatisation worker
70303	Audio visual tester
70304	Bio-medical engineer
70305	Dietician
70306	EEG technician
70307	Health/food inspector
70308	Masseur/masseuse
70309	Medical orthotist/prosthetist
70309	Prosthetist/medical orthotist
70310	Medical physicist
70311	Medical technician
70312	Medical technologist
70313	Mortuary attendant
70314	Occupational therapist
70315	Optician/optometrist
70316	Optical dispenser
70317	Orthoptist
70318	Physiologist
70319	Physiotherapist
70320	Chiropodist/podiatrist
70320	Podiatrist/chiropodist
70321	Radiographer



Code	Occupation
70322	Audiologist/speech therapist
70322	Speech therapist/audiologist
70323	Audiometrist
70324	Hospital worker/orderly
70324	Orderly/hospital worker
70399	Supplementary medical worker (n.e.c.)
70401	Dental surgeon/dentist
70402	Maxillo-facial and oral surgeon
70403	Orthodontist
70404	Perodontist
70405	Prosthodontist
70499	Dental specialist, eg. oral pathologist (n.e.c.)
70501	Oral hygienist
70502	Dental therapist
70503	Dental mechanic
70504	Dental assistant
70599	Dental worker (n.e.c.)
70600	Matron/nursing services management
70600	Nursing services management/matron
70601	Nurse (charge/senior sister)
70602	Nurse (registered) all categories n.e.c.
70603	Nurse (enrolled/staff)
70604	Nursing assistant
70698	Nursing instructor
70698	Trainer (nursing)
70699	Nursing worker (n.e.c.)
70701	Pharmacist
70799	Pharmaceutical worker (n.e.c.)
70800	First aid management/medical station superintendent
70800	Medical station superintendent/first aid management
70801	First aid team leader/supervisor
70802	First aid attendant
70803	Ambulance officer
70895	Clerk (first aid)
70898	First aid trainer
70898	First aid training superintendent
70898	Trainer (first aid)
70899	First aid worker (n.e.c.)
79901	Hospital cleaner
79901	Medical labourer
79992	Project manager/officer (medical/health n.e.c.)
79993	Student (medical)
79995	Clerk (medical)
79996	Consultant (medical, n.e.c.)
79997	Researcher (medical n.e.c.)
79998	Trainer (medical n.e.c.)
79999	Medical worker (n.e.c.)
79999	Radio/medic (ocean)
80000	Services management (multi-disciplinary)
80099	Services management (n.e.c.)
80100	Security management
80101	Security inspector/officer
80102	Security supervisor (eg sergeant)
80103	Mine police/security guard

Code	Occupation
80103	Security guard/mine police
80104	Detective
80105	Dog handler
80195	Clerk (security)
80198	Trainer (security)
80199	Security worker (n.e.c.)
80200	Rescue training service management
80201	Firemaster
80202	Fire fighting/rescue officer
80202	Rescue/fire fighting officer
80203	Fire fighting/rescue team leader/supervisor
80203	Rescue/fire fighting team leader/supervisor
80298	Fire fighting/rescue trainer
80298	Rescue/fire fighting trainer
80298	Trainer (fire fighting/rescue)
80299	Fire fighting/rescue worker (n.e.c.)
80299	Rescue/fire fighting worker (n.e.c.)
80300	Estate/township management
80301	Estate/township officer
80302	Estate/township team leader/supervisor
80395	Clerk (estate/township)
80399	Estate/township worker (n.e.c.)
80400	Building services management
80401	Commissionaire (offices)
80402	Cleaner (office)/tea maker
80402	Tea maker/office cleaner
80499	Building service worker (n.e.c.)
80500	Guest house/quarters management
80501	Caretaker/housekeeper
80501	Housekeeper/caretaker
80502	Commissionaire (residential accommodation)
80503	Laundry supervisor
80504	Laundry worker
80505	Hostel management
80506	Hostel official
80507	Hostel team leader/supervisor
80595	Clerk (hostel/quarters).
80599	Accommodation worker (residential, n.e.c.)
80600	Club management
80601	Club secretary
80602	Club team leader
80603	Club worker
80604	Changehouse team leader/supervisor
80605	Changehouse worker
80695	Clerk (club)
80699	Accommodation worker (other accommodation, n.e.c.)
80700	Catering management
80701	Canteen supervisor
80702	Chef/cook
80702	Cook/chef
80703	Canteen worker
80703	Kitchen worker
80704	Waiter/waitress
80705	Beerhall supervisor

Code	Occupation
80705	Liquor outlet supervisor
80706	Barman
80795	Clerk (catering)
80799	Catering worker (n.e.c.)
80801	Domestic servant
80802	Child minder
80803	Barber/hairdresser
80803	Hairdresser/barber
80899	Personal care worker (n.e.c.)
80900	Road transport management
80901	Road transport officer
80902	Road transport team leader
80903	Driver: motorcycle (code 01-04)
80904	Driver: tractor (code 05)
80905	Driver: forklift
80906	Driver: mobile industrial/agricultural equipment (code 07)
80907	Driver: light motor vehicle/car (code 08)
80908	Driver: ambulance (code 08)
80909	Driver: heavy motor vehicle eg. bus/ambulance (code 10)
80911	Driver: heavy articulated motor vehicle (code 13)
80995	Clerk (road transport)
80998	Driving instructor
80998	Trainer (road driving)
80999	Road transport worker (n.e.c.)
81000	Rail transport management
81001	Rail transport officer
81002	Rail transport team leader
81003	Loco driver (main line - SPOORNET)
81004	Loco driver (not main line)
81005	Fireman/stoker
81005	Stoker/fireman
81006	Train guard
81007	Shunter
81008	Signaller
81009	Crossing attendant
81095	Clerk (rail transport)
81099	Rail transport worker (n.e.c.)
81100	Air transport management
81101	Air transport officer
81102	Airport controller
81103	Pilot (aircraft)
81195	Clerk (air transport)
81199	Air transport worker (n.e.c.)
81201	Roustabout (ocean)
81201	Stevedore
81202	Bargemaster (Ocean)
81202	Bosun (Ocean)
81299	Sea transport worker (n.e.c.)
81301	Crane driver
81398	Crane driver trainer
81398	Trainer (crane driving)
81399	Transport worker (n.e.c.)
89992	Project manager/officer (services n.e.c.)

Code	Occupation
89993	Student (service occupation n.e.c.)
89996	Consultant (service occupation, n.e.c.)
89997	Researcher (service occupation n.e.c.)
89998	Trainer (service occupation n.e.c.)
89999	Service worker (n.e.c.)
90000	Agricultural management (multi-disciplinary)
90001	Farm manager
90099	Agricultural management (n.e.c)
90101	Horticulturist
90102	Garden supervisor/groundsman
90102	Groundsman/garden supervisor
90199	Garden worker
90200	Land rehabilitation engineer
90201	Land rehabilitation supervisor
90299	Land rehabilitation worker
90300	Forestry engineer
90301	Forester
90399	Forestry worker
90400	Irrigation engineer
90499	Crop worker
90501	Game ranger
90502	Herdsman/stable hand
90502	Stable hand/herdsman
90503	kennel worker
90599	Livestock worker (n.e.c.)
90699	Mixed farming worker (n.e.c.)
99992	Project manager/officer (agriculture n.e.c.)
99993	Student (agriculture n.e.c.)
99995	Clerk (agriculture, n.e.c.)
99996	Consultant (agriculture, n.e.c.)
99997	Researcher (agriculture n.e.c.)
99998	Trainer (agriculture n.e.c.)
99999	Agricultural worker (n.e.c)



## 5. POLLUTANT CODE LIST

SUBSTANCE	CODE
Acetaldehyde	1
Acetic acid	2
Acetic anhydride	3
Acetone	4
Acetonitrile	5
Acetylsalicylic acid [Asprin]	6
Acrolein	7
Acrylaldehyde	7
*Acrylamide	8
Acrylic acid	9
*Acrylonitrile	10
Aldrin	11
Allyl alcohol	12
Allyl chloride	13
Allyl-2,3-epoxypropyl ether	14
Allyl glycidyl ether [AGE]	14
Aluminium alkyl compounds	15
Aluminium metal	
inhalable particulate	16
respirable particulate	17
Aluminium oxides	
inhalable particulate	18
respirable particulate	19
Aluminium salts, soluble	20
Aminodimethylbenzene	21
2-Aminoethanol	22
2-Aminopyridine	23
Ammonia	24
Ammonium chloride, fume	25
Ammonium sulphamate	26
n-Amyl acetate	27
sec-Amyl acetate	28
Aniline	29
Anisidines, o- and p-isomers	30
Antimony & compounds [as Sb] except antimony trisulphide and antimony trioxide	31
*Arsenic & compounds, except arsine [as As]	32
Arsine	33
*Asbestos, all forms	34
Asphalt, petroleum fumes	35
Atrazine	36
Azinphos-methyl	37
Aziridine	38
gamma-BHC	39
Barium compounds, soluble [as Ba]	40
Barium sulphate, respirable particulate	41
Benomyl	42
*Benzene	43
Benzenethiol	44
Benzene-1,2,4,-tricarboxylic acid 1,2-anhydride	45
p-Benzoquinone	46
Benzoyl peroxide	47
Benzyl butyl phthalate	48
Benzyl chloride	49
*Beryllium and beryllium compounds [as Be]	50
Biphenyl	51
*Bis(chloromethyl) ether [BCME]	52
Bis(2,3-epoxypropyl) ether	53
Bis(2-ethylhexyl) phthalate	54
2,2-Bis(p-Methoxyphenyl)-1,1,1-trichloroethane (DMDT)	55
Bismuth telluride [as Bi <sub>2</sub> Te <sub>3</sub> ]	
Undoped	56
Selenium-doped	57
Borates, tetra, sodium salts	
Anhydrous	58
Decahydrate	59
Pentahydrate	60
Bornan-2-one	61
Boron oxide	62

SUBSTANCE	CODE
Boron tribromide	63
Boron trifluoride	64
Bromacil	65
Bromine	66
Bromine pentafluoride	67
Bromochloromethane	68
Bromoethane	69
Bromoethylene	70
Bromoform	71
Bromomethane	72
Bromotrifluoromethane	73
*Buta-1,3-diene	74
n-Butane	75
Butan-1-ol	76
Butan-2-ol	77
Butan-2-one	78
trans-But-2-enal	79
*2-Butoxyethanol [EGBE]	80
n-Butyl acetate	81
sec-Butyl acetate	82
tert-Butyl acetate	83
Butyl acrylate	84
n-Butyl alcohol	76
sec-Butyl alcohol	77
tert-Butyl alcohol	85
n-Butylamine	86
Butyl benzyl phthalate	87
n-Butyl chloroformate	88
n-Butyl glycidyl ether [BGE]	89
n-Butyl lactate	90
2-sec-Butylphenol	91
*Cadmium & cadmium com- pounds, except cadmium oxide fume, cadmium sulphide and cadmium sulphide pigments [as Cd]	92
*Cadmium oxide fume [as Cd]	93
*Cadmium sulphide and cadmium sulphide pigments respirable particulate [as Cd]	94
Caesium hydroxide	95
Calcium carbonate	
inhalable particulate	96
respirable particulate	97
Calcium cyanamide	98
Calcium cyanide	335
Calcium hydroxide	99
Calcium oxide	100
Calcium silicate	
inhalable particulate	101
respirable particulate	102
Camphor, synthetic	103
Caprolactam	
inhalable particulate	104
vapour	105
Captafol	106
Captan	107
Carbaryl	108
Carbofuran	109
Carbon black	110
Carbon dioxide	111
*Carbon disulphide	112
Carbon monoxide	113
Carbon tetrabromide	114
Carbon tetrachloride	115
Carbonyl chloride	116
Catechol	117
Cellulose	
inhalable particulate	118
respirable particulate	119
Cement	
inhalable particulate	120
respirable particulate	121

SUBSTANCE	CODE
Chlordane	122
Chlorine	123
Chlorodiphenyl (42% chlorine)	124
Chlorodiphenyl (54% chlorine)	125
Chlorine dioxide	126
Chlorine trifluoride	127
Chloroacetaldehyde	128
2-Chloroacetophenone	129
Chloroacetyl chloride	130
Chlorobenzene	131
Chlorobromomethane	132
2-Chlorobuta-1,3-diene	133
Chlorodifluoromethane	134
*1-Chloro-2,3-epoxy propane	135
Chloroethane	136
2-Chloroethanol	137
*Chloroethylene (VCM)	138
Chloroform	139
Chloromethane	140
1-Chloro-4-nitrobenzene	141
Chloropentafluoroethane	142
Chloropicrin	143
beta-Chloroprene	133
3-Chloropropylene	13
Chlorosulphonic acid	144
alpha-Chlorotoluene	49
2-Chlorotoluene	145
2-Chloro-6-(trichloromethyl) pyridine	146
Chlorpyrifos	147
Chromium, metal and inorganic compounds [as Cr]	
Cr [II] compounds	148
Metal and Cr [III] compounds	149
*Cr [VI] compounds	150
Coal dust [respirable particulate]	
<5% crystalline quartz/silica	151
>5% crystalline quartz/silica	522
Coal tar pitch volatiles [as cyclohexane solu]	152
*Cobalt & cobalt compounds [as Co]	153
Copper	
fume	154
Dusts & mists [as Cu]	155
Cotton dust	156
Cresols, all isomers	151
Cristobalite	521 – 524
Crotonaldehyde	79
Cryofluorane [INN]	158
Cumene	159
Cyanamide	160
Cyanides, except hydrogen cyanide, cyanogen & cyanogen chloride	334 – 337
Cyanogen	161
Cyanogen chloride	162
Cyclohexane	163
Cyclohexanol	164
Cyclohexanone	165
Cyclohexene	166
Cyclohexylamine	167
Cyclonite [RDX]	168
Cyhexatin	169
2,4-D	170
DDT	171
DDVP	172
2,4-DES	173
DMDT	174
Derris, commercial	175
Diacetone alcohol	176
Dialkyl 79 phthalate	177
Diallyl phthalate	178
2,2'-Diaminodiethylamine	179
*4,4'-Diaminodiphenylmethane [DADPM, DDM]	180
1,2-Diaminoethane	181
Diammonium peroxodisulphate [as S <sub>2</sub> O <sub>8</sub> ]	182
Diatomaceous earth, natural [respirable particulate]	183
Diazinon	184

SUBSTANCE	CODE
Diazomethane	185
Dibenzoyl peroxide	47
Dibismuth tritelluride	56 – 57
Diborane	186
Diboron trioxide	62
Dibrom	187
1,2-Dibromo-2,2-dichloroethyl dimethyl phosphate	187
Dibromodifluoromethane	188
*1,2-Dibromoethane	189
Dibutyl hydrogen phosphate	190
Dibutyl phosphate	190
Dibutyl phthalate	191
Dichloroacetylene	192
1,2-Dichlorobenzene	193
1,4-Dichlorobenzene	194
Dichlorodifluoromethane	195
1,3-Dichloro-5,5-dimethyl hydantoin	196
Dichlorodiphenyltrichloroethane	171
1,1-Dichloroethane	197
*1,2-Dichloroethane	198
*1,1-Dichloroethylene	199
1,2 Dichloroethylene, cis & trans isomers	200
Dichlorofluoromethane	201
*Dichloromethane	202
*2,2'-Dichloro-4,4'-methylene dianiline	203
2,4-Dichlorophenoxyacetic acid	170
1,3-Dichloropropene, cis & trans isomers	204
1,2-Dichlorotetrafluoroethane	205
Dichlorvos	172
Dicyclohexyl phthalate	206
Dicyclopentadiene	207
Dicyclopentadienyl iron	208
Dieldrin	209
Diethanolamine	210
Diethylamine	211
2-Diethylaminoethanol	212
Diethylene glycol	213
Diethylene triamine	179
Diethyl ether	214
Di-(2-ethylhexyl) phthalate [DEHP]	215
Diethyl ketone	216
Diethyl phthalate	217
Difluorochloromethane	134
Diglycidyl ether [DGE]	218
o-Dihydroxybenzene	117
m-Dihydroxybenzene	219
p-Dihydroxybenzene	220
1,2 Dihydroxyethane	283 – 284
Diisobutyl ketone	221
Diisobutyl phthalate	222
Diisodecyl phthalate	223
Diisononyl phthalate	224
Diisooctyl phthalate	225
Diisopropylamine	226
Diisopropyl ether	227
Di-linear 79 phthalate	177
Dimethoxymethane	228
N,N-Dimethylacetamide	229
Dimethylamine	230
N,N-Dimethylaniline	231
1,3-Dimethylbutyl acetate	232
Dimethyl ether	233
N,N-Dimethylethylamine [DMEA]	234
Dimethylformamide	235
2,6-Dimethylheptan-4-one	221
Dimethyl phthalate	236
Dimethyl sulphate	237
Dinitrobenzene, all isomers	238
Dinitro-o-cresol	239
Dinitrotoluene	240
Dinonyl phthalate	241
Di-sec-octyl phthalate	215
1,4-Dioxane, tech grade	242
Dioxathion	243

SUBSTANCE	CODE
Diphenyl	51
Diphenylamine	244
Diphenyl ether [vapour]	245
Diphosphorus pentasulphide	246
Diphosphorus pentoxide	247
Dipotassium peroxodisulphate [as S <sub>2</sub> O <sub>8</sub> ]	248
Diquat dibromide	249
Disodium disulphite	250
Disodium peroxodisulphate [as S <sub>2</sub> O <sub>8</sub> ]	251
Disodium tetraborate	58 – 60
Disulfoton	252
Disulphur decafluoride	253
Disulphur dichloride	254
2,6-Di-tert-butyl-p-cresol	255
6,6-Di-tert-butyl-4,4-thiodi-m-cresol	256
Diuron	257
Divanadium pentoxide	592 – 593
Divinyl benzene [DVB]	258
Emery	
inhalable particulate	259
respirable particulate	260
Endosulfan	261
Endrin	262
Enflurane	263
*Epichlorohydrin	264
1,2-Epoxy-4-epoxyethyl-cyclo-hexane	265
2,3-Epoxypropyl isopropyl ether	266
Ethane-1,2-diol	283 – 284
Ethanethiol	267
Ethanol	268
Ethanolamine	269
Ether	214
*2-Ethoxyethanol [EGEE]	270
*2-Ethoxyethyl acetate [EGEEA]	271
Ethyl acetate	272
Ethyl acrylate	273
Ethyl alcohol	268
Ethylamine	274
Ethyl amyl ketone	275
Ethyl benzene	276
Ethyl bromide	277
Ethyl butyl ketone	278
Ethyl chloride	279
Ethyl chloroformate	280
Ethylene chlorohydrin	281
Ethylene diamine	181
*Ethylene dibromide	189
*Ethylene dichloride	198
Ethylene dinitrate	282
Ethylene glycol	
inhalable particulate	283
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Ethylene glycol dinitrate [EGDN]	282
*Ethylene glycol monobutyl ether [EGBE]	80
*Ethylene glycol monoethyl ether [EGEE]	270
*Ethylene glycol monoethyl ether acetate [EGEEA]	271
*Ethylene glycol monomethyl ether [EGME]	285
*Ethylene glycol monomethyl ether acetate [EGMEA]	286
Ethyleneimine	287
*Ethylene oxide	288
Ethyl ether	214
Ethyl formate	289
2-Ethylhexyl chloroformate	290
Ethylidene dichloride	197
Ethyl mercaptan	267
4-Ethylmorpholine	291
Ethyl silicate	292
Fenchlorphos	293
Ferbam	294
Ferrocene	208
Ferrovandium dust	295
Flammable gas (methane/hydrogen)	296
Fluorides [as F]	297

SUBSTANCE	CODE
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Fluorodichloromethane	201
Fluorotrichloromethane	299
*Formaldehyde	300
Formamide	301
Formic acid	302
2-Furaldehyde	303
Furfural	303
Furfuryl alcohol	304
Gasoline	305
Germane	306
Germanium tetrahydride	306
Glutaraldehyde	307
Glycerol, mist	308
Glycerol trinitrate	309
Glycol monoethyl ether	270
Graphite, natural & synthetic	
inhalable particulate	310
respirable particulate	311
*Grain dust (oat, wheat, barley)	312
Guthion	37
Gypsum	
inhalable particulate	313
respirable particulate	314
gamma-HCH	315
Hafnium	316
Halothane	317
Heptachlor	318
n-Heptane	319
Heptan-2-one	320
Heptan-3-one	278
gamma-Hexachlorocyclohexane	315
Hexachloroethane	
vapour	321
inhalable particulate	322
respirable particulate	323
Hexahydro-1,3,5-trinitro-1,3,5-triazine	168
Hexane, all isomers except n-Hexane	324
n-Hexane	325
1,6-Hexanolactam	104 – 105
Hexan-2-one	326
Hexone	327
sec-Hexyl acetate	322
Hexylene glycol	328
Hydrazine	329
Hydrazoic acid [as vapour]	330
Hydrogen	331
Hydrogen bromide	332
Hydrogen chloride	333
Hydrogen cyanide and cyanide salts [as CN]	
*Hydrogen cyanide	334
Calcium cyanide	335
Potassium cyanide	336
Sodium cyanide	337
Hydrogen fluoride [as F]	338
Hydrogen peroxide	339
Hydrogen selenide [as Se]	340
Hydrogen sulphide	341
Hydroquinone	220
4-Hydroxy-4-methyl-pentan-2-one	176
2-Hydroxypropyl acrylate	342
2,2'-Iminodiethanol	210
2,2'-Iminodi(ethylamine)	179
Indene	343
Indium & compounds [as In]	344
Iodine	345
Iodoform	346
Iodomethane	347
Iron oxide, dust & fume [as Fe]	348
Iron pentacarbonyl	349
Iron salts [as Fe]	350
Isoamyl acetate	351
Isoamyl alcohol	352
Isoamyl methyl ketone	353

SUBSTANCE	CODE
Isobutyl acetate	354
Isobutyl alcohol	355
Isobutyl methyl ketone	327
*Isocyanates, all [as -NCO]	356
Isoflurane	357
Isooctyl alcohol [mixed isomers]	358
Isopentyl acetate	351
Isophorone	359
Isophorone diisocyanate [IPDI]	360
Isopropyl acetate	361
Isopropyl alcohol	362
Isopropyl benzene	159
Isopropyl chloroformate	363
Isopropyl ether	227
Isopropyl glycidyl ether [IGE]	266
Kaolin, respirable particulate	364
Ketene	365
*Lead, elemental, and inorganic compounds [as Pb]	366
*Lead tetra-methyl [as Pb]	367
Lead tetra-methyl [as Pb]	368
Limestone	96 – 97
Lindane	315
Liquified petroleum gas [LPG]	369
Lithium hydride	370
Lithium hydroxide	371
*MBOCA	203
*MDA	180
*MDI	360
Magnesite	
inhalable particulate	372
respirable particulate	373
Magnesium oxide [as Mg]	
inhalable particulate	374
fume and respirable particulate	375
Malathion	376
Maleic anhydride	377
Manganese, elemental, and inorganic compounds [as Mn]	378
Manganese, fume [as Mn]	379
Manganese cyclopentadienyl tricarbonyl [as Mn]	380
Manganese tetroxide	381
Man made mineral fibres [Glass, slag and rock wool fibres]	382
Marble	96 – 97
Mequinol [INN]	383
Mercaptoacetic acid	384
Mercury alkyls [as Hg]	385
Mercury and compounds, except Mercury alkyls, [as Hg]	386
Mesityl oxide	387
Methacrylic acid	388
Methacrylonitrile	389
Methane	390
Methanethiol	391
Methanol	392
Methomyl	393
Methoxychlor	174
*2-Methoxyethanol [EGME]	285
*2-Methoxyethyl acetate [EGMEA]	286
1-Methoxypropan-2-ol	394
Methyl acetate	395
Methyl acrylate	396
Methylal	228
Methyl alcohol	392
Methylamine	397
Methyl n-amyl ketone	320
N-Methylaniline	398
Methyl bromide	399
3-Methylbutan-1-ol	352
1-Methylbutyl acetate	28
Methyl-n-butyl ketone	326
Methyl chloride	400
*Methyl chloroform	401
Methyl 2-cyanoacrylate	402

SUBSTANCE	CODE
Methylcyclohexane	403
Methylcyclohexanol	404
2-Methylcyclohexanone	405
Methylcyclopentadienyl, Manganese tricarbonyl [as Mn]	406
2-Methyl-4,6-dinitrophenol	239
*4,4'-Methylenebis(2-chloroaniline) [MBOCA]	203
*Methylene chloride	202
*4,4'-Methylenedianiline [MDA]	180
*4,4'-Methylene-diphenyl diisocyanate [MDI]	360
Methyl ethyl ketone [MEK]	407
Methyl ethyl ketone peroxides [MEKP]	408
Methyl formate	409
5-Methylheptan-3-one	275
5-Methylhexan-2-one	353
Methyl iodide	347
Methyl isoamyl ketone	353
Methyl isobutyl carbinol	410
Methyl isobutyl ketone [MIBK]	327
*Methyl isocyanate	360
Methyl mercaptan	391
Methyl methacrylate	411
Methyl parathion	412
2-Methylpentane-2,4-diol	328
4-Methylpentan-2-ol	410
4-Methylpentan-2-one	327
4-Methyl-3-penten-2-one	387
*4-Methyl-m-phenylene diisocyanate	360
2-Methylpropan-1-ol	355
2-Methylpropan-2-ol	85
Methyl propyl ketone	413
1-Methyl-2-pyrrolidone	414
Methyl silicate	415
alpha-Methyl styrene	416
Methylstyrenes	417
N-Methyl-N-2,4,6-tetranitroaniline	418
Mevinphos	419
Mica	
inhalable particulate	420
respirable particulate	421
Molybdenum compounds [as Mo]	
soluble compounds	422
insoluble compounds	423
Monochloroacetic acid	425
Morpholine	426
Naled	187
Naphthalene	427
1,5-Naphthalene diisocyanate	428
*Nickel	429
Nickel carbonyl [as Ni]	430
Nickel, organic compounds [as Ni]	431
*Nickel, inorganic compounds [as Ni]	
soluble compounds	432
insoluble compounds	433
Nicotine	434
Nitrapyrin	435
Nitric acid	436
Nitric oxide	437
4-Nitroaniline	438
Nitrobenzene	439
Nitroethane	440
Nitrogen dioxide	441
Nitrogen monoxide	437
Nitrogen trifluoride	442
Nitroglycerine [NG]	309
Nitromethane	443
1-Nitropropane	444
*2-Nitropropane	445
Nitrotoluene, all isomers	446
Nitrous oxide	447
Octachloronaphthalene	448
n-Octane	449
Oil mist, mineral	450

SUBSTANCE	CODE
Orthophosphoric acid	451
Osmium tetroxide [as Os]	452
Oxalic acid	453
Oxalonitrile	161
2,2'-Oxydiethanol	213
Ozone	454
Paraffin wax, fume	455
Paraquat dichloride respirable particulate	456
Parathion	457
Parathion-methyl	412
Particles not otherwise classified [PNOC]: <5% crystalline quartz/ silica	
inhalable particulate	458
respirable particulate	459
Pentacarbonyliron [as Fe]	349
Pentachlorophenol	460
Pentaerythritol	
inhalable particulate	461
respirable particulate	462
Pentane, all isomers	463
Pentan-2-one	413
Pentan-3-one	216
Pentyl acetate	27
Perchloroethylene	464
Perchloryl fluoride	465
Phenacyl chloride	129
Phenol	466
p-Phenylenediamine	467
Phenyl-2,3-epoxypropyl ether	468
Phenyl ether, vapour	245
*Phenylethylene	469
Phenylhydrazine	470
2-Phenylpropene	416
Phorate	471
Phosdrin	419
Phosgene	472
Phosphine	473
Phosphoric acid	474
Phosphorus, yellow	475
Phosphorus pentachloride	476
Phosphorus pentasulphide	246
Phosphorus trichloride	477
Phosphoryl trichloride	478
Phthalic anhydride	479
Picloram	480
Picric acid	481
Piperazine dihydrochloride	482
Piperidine	483
Plaster of Paris	
inhalable particulate	484
respirable particulate	485
Platinum metal	486
Platinum mine dust respirable particulate	
<5% crystalline quartz/silica	487
>5% crystalline quartz/silica	522
Platinum salts, soluble [as Pt]	488
Polychlorinated biphenyls [PCBs]	124 – 125
Polyvinyl chloride [PVC]	
inhalable particulate	489
respirable particulate	490
Portland cement	
inhalable particulate	491
respirable particulate	492
Potassium cyanide	336
Potassium hydroxide	493
Propane-1,2-diol	502 – 503
n-Propanol	494
Propan-1-ol	494
Propan-2-ol	362
Propane	495
Propargyl alcohol	496
Propionic acid	497
Propoxur	498
Propranolol	499

SUBSTANCE	CODE
n-Propyl acetate	500
Propylene dinitrate	501
Propylene glycol	
total (particulate & vapour)	502
particulate	503
Propylene glycol dinitrate [PGDN]	501
Propylene glycol monomethyl ether	394
2-Propyn-1-ol	496
Pulverised fuel ash	
inhalable particulate	504
respirable particulate	505
Pyrethrins	506
Pyridine	507
2-Pyridylamine	508
Pyrocatechol	117
Quartz, crystalline	521 – 524
Quinone	509
RDX	168
Resorcinol	219
Rhodium [as Rh]	
metal fume & dust	510
soluble salts	511
Ronnel	293
Rosin core solder pyrolysis products [as formaldehyde]	512
Rotenone	175
Rouge	
inhalable particulate	513
respirable particulate	514
*Rubber fume	515
*Rubber process dust	516
Selenium & compounds, except hydrogen selenide [as Se]	517
Silane	518
Silica, amorphous	
inhalable particulate	519
respirable particulate	520
Silica, crystalline [respirable particulate]	
Cristobalite	521
Quartz	522
Tridymite	523
Tripoli	524
Silica, fused [respirable particulate]	525
Silicon	
inhalable particulate	526
respirable particulate	527
Silicon carbide	
inhalable particulate	528
respirable particulate	529
Silicon tetrahydride	518
Silver	530
Silver compounds [as Ag]	531
Sodium azide	532
Sodium cyanide	337
Sodium 2,4-dichlorophenoxy	173
Ethyl sulphate	
Sodium fluoroacetate	533
Sodium hydrogen sulphite	534
Sodium hydroxide	535
Sodium metabisulphate	250
Starch	
inhalable particulate	536
respirable particulate	537
Stibine	538
Strychnine	539
*Styrene	469
Subtilisins [Proteolytic enzymes as 100% pure crystalline enzyme]	540
Sucrose	541
Sulfotep	542
Sulphur dioxide	543
Sulphur hexafluoride	544
Sulphuric acid	545
Sulphur monochloride	254
Sulphur pentafluoride	253
Sulphur tetrafluoride	546

SUBSTANCE	CODE
Sulphuryl difluoride	547
2,4,5-T	548
*TDI	360
TEDP	542
TEPP	549
TNT	550
Talc	
inhalable particulate	551
respirable particulate	552
Tantalum metal and oxide dusts [as Ta]	553
Tellurium & compounds, except hydrogen telluride [as Te]	554
Terphenyls, all isomers	555
1,1,2,2-Tetrabromoethane	556
Tetrabromomethane	114
Tetracarbonyl nickel	430
1,1,1,2-Tetrachloro-1,2-difluoroethane	557
1,1,1,2-Tetrachloro-2,2-difluoroethane	558
Tetrachloroethylene	463
Tetrachloromethane	115
Tetrachloronaphthalenes, all isomers	559
Tetraethyl dithiopyrophosphate	542
Tetraethyl orthosilicate	292
Tetraethyl pyrophosphate	549
Tetrafluorodichloroethane	202
1,1,1,2-Tetrafluoroethane [HFC 134a]	560
Tetrahydrofuran	561
Tetramethyl orthosilicate	415
Tetramethyl succinonitrile	562
Tetrasodium pyrophosphate	563
Tetryl	418
Thallium, soluble compounds [as Tl]	564
4,4'-Thiobis(6-tert-butyl-m-cresol)	256
Thioglycolic acid	384
Thionyl chloride	565
Thiram	566
Tin compounds, inorganic except SnH <sub>4</sub> [as Sn]	567
Tin compounds, organic except cyhexatin [as Sn]	568
Titanium dioxide	
inhalable particulate	569
respirable particulate	570
Toluene	571
*2,4-Toluene diisocyanate [TDI]	360
p-Toluenesulphonyl chloride	572
Tribromomethane	71
Tributyl phosphate, all isomers	573
Tricarbonyl(eta-cyclopenta-dienyl)manganese	380
Tricarbonyl(methylcyclopenta-dienyl)manganese	406
Trichloroacetic acid	574
1,2,4-Trichlorobenzene	575
1,1,1-Trichlorobis-2,2-bis(p-chlorophenyl)ethane	171
*1,1,1-Trichloroethane	401
1,1,2-Trichloroethane	576
*Trichloroethylene	577
Trichlorofluoromethane	299
Trichloromethane	139
Trichloronitromethane	143
2,4,5-Trichlorophenoxyacetic acid	548
1,2,3-Trichloropropane	578
1,1,2-Trichlorotrifluoroethane	579
Tri-o-cresyl phosphate	580
Tricyclohexyltin hydroxide	169
Tridymite	522
Triethylamine	581
Trifluorobromomethane	285
Trimanganese tetraoxide	381
Trimellitic anhydride	583
Trimethylamine	584
Trimethylbenzene, all isomers or mixtures	585
3,5,5-Trimethylcyclohex-2-enone	359
Trimethyl phosphite	586
2,4,6-Trinitrophenol	481
2,4,6-Trinitrotoluene	550
Triphenyl phosphate	587

SUBSTANCE	CODE
Tripoli	522
Tri-o-tolyl phosphate	580
Tungsten & compounds [as W]	
soluble	588
Insoluble	589
Turpentine	590
Uranium compounds, natural soluble [as U]	591
Vanadium pentoxide	
inhalable particulate	592
fume & respirable particulate	593
Vinyl acetate	594
*Vinyl benzene	469
Vinyl bromide	595
*Vinyl chloride	596
4-Vinyl cyclohexene dioxide	265
*Vinylidene chloride	199
Vinyl toluenes, all isomers	417
Warfarin	597
Welding fumes	598
White spirit [Stoddard Solvent]	599
Wood dust	
*Hard wood	600
Soft wood	601
Xylene, o-, m-, p- or mixed isomers	602
Xylidine, all isomers	603
Yttrium	604
Zinc chloride, fume	605
Zinc distearate	606 – 607
Zinc oxide, fume	606
Zinc stearate	
inhalable particulate	607
respirable particulate	608
Zirconium compounds [as Zr]	609

**NOTE:** Certain substances will have the same code number as they have the same Cas Number, they are therefore the same substance with a different name.

