

## QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR MINING INDUSTRY

### What are Occupational Standards (OS)?

OS describe what individuals need to do, know and understand in order to carry out a particular job role or function

- OS are performance standards that individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding

#### Contact Us:

FIMI House, B-311,  
Okhla Ind. Area Ph-I,  
New Delhi-110020  
011-26814596

E-mail: [scms@skillcms.in](mailto:scms@skillcms.in)



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## Introduction

### Qualifications Pack – Explosives Handler

**SECTOR:** MINING

**SUB-SECTOR:** Mining Operation

**OCCUPATION:** Blasting

**REFERENCE ID:** MIN/ Q 0204

**ALIGNED TO:** NCO-2004/ 7112.90

**Brief Job Description:** Persons handling explosives, in open cast mines, is a part of the blasters sub-category. The individual performing this role facilitates mining operations by cautiously storing, transporting and handling explosives used for blasting in mines. Controlled blasting techniques are used to remove debris and over-burden in order to make way for coal or other metals.

The nature of this job requires employees to follow extensive safety precautions therefore the individual has to be experienced and trained in safety procedures and guidelines for mining operations prescribed by DGMS.

**Personal Attributes:** This job requires the individual to be able to work well under pressure. Candidate should be able to feel comfortable working in dangerous situations and be accustomed to handling and being around chemicals and explosives. At the same time the job requires a very diligent attitude towards safety so as to nullify any possibility of an accident on account of careless mishandling or pilferage of explosives.

|                   |  |                    |                  |            |
|-------------------|--|--------------------|------------------|------------|
| Job Details       | Qualifications Pack Code   | MIN / Q 0204       |                  |            |
|                   | Job Role   | Explosives Handler |                  |            |
|                   | This job role is applicable in both national and international scenarios |                    |                  |            |
|                   | Credits(NSQF)  | TBD                | Version number   | 1.0        |
|                   | Sector   | Mining             | Drafted on       | 01/02/2014 |
|                   | Sub-sector   | Mining Operation   | Last reviewed on | 24/03/2014 |
|                   | Occupation   | Blasting           | Next review date | 24/03/2017 |
| NSQC Clearance on |  | 18/06/2015         |                  |            |

| Job Role   | Explosives Handler  |
|--|---|
| Role Description                                 | Facilitates mining operations by safely storing, transporting and handling explosives used for blasting in mines.   |
| NSQF level                                       | 3   |
| Minimum Educational Qualifications               | Preferable Class XII  |
| Maximum Educational Qualifications               | Not applicable  |
| Training<br>(Suggested but not mandatory)        | <ol style="list-style-type: none"> <li>1. Technical and gallery training as per first schedule, Mining Vocational Training Rules (MVTR) 1966.</li> <li>2. Training in handling explosives as per sixth schedule, Mining Vocational Training Rules (MVTR) 1966.</li> </ol>   |
| Minimum Job Entry Age                            | 18 Years  |
| Experience                                       | N.A.  |
| Applicable National Occupational Standards (NOS) | <p><b>Compulsory:</b></p> <ol style="list-style-type: none"> <li>1. MIN/N 0212 (<a href="#">Handling, examining, and identifying explosives</a>)</li> <li>2. MIN/ N 0213 (<a href="#">Receipt, storage, packing, issue, and transportation of explosives</a>)</li> <li>3. MIN /N 0214 (<a href="#">Carry out documentation and reporting</a>)</li> <li>4. MIN/ N 0204 (<a href="#">Health and Safety</a>)</li> </ol> <p><b>Optional:</b><br/>Not applicable</p> |
| Performance Criteria                             | As described in the relevant OS units   |

Definitions

| Keywords /Terms               | Description   |
|-------------------------------|---|
| Sector                        | Sector is a conglomeration of different business operations having similar businesses and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.   |
| Sub-sector                    | Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.  |
| Occupation                    | Occupation is a set of job roles, which perform similar/related set of functions in an industry.  |
| Function                      | Function is an activity necessary for achieving the key purpose of the sector, occupation, or area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of OS.                                      |
| Job Role                      | Job role defines a unique set of functions that together form a unique employment opportunity in an organization.   |
| OS                            | OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the knowledge and understanding they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts. |
| Performance Criteria          | Performance Criteria are statements that together specify the standard of performance required when carrying out a task.  |
| NOS                           | NOS are Occupational Standards which apply uniquely in the Indian context.  |
| Qualifications Pack Code      | Qualifications Pack Code is a unique reference code that identifies a qualifications pack.  |
| Qualifications Pack           | Qualifications Pack comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A Qualifications Pack is assigned a unique qualification pack code.   |
| Unit Code                     | Unit Code is a unique identifier for an Occupational Standard, which is denoted by an 'N'.  |
| Unit Title                    | Unit Title gives a clear overall statement about what the incumbent should be able to do.   |
| Description                   | Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.  |
| Knowledge and Understanding   | Knowledge and Understanding are statements which together specify the technical, generic, professional and organizational specific knowledge that an individual needs in order to perform to the required standard.   |
| Organizational Context        | Organizational Context includes the way the organization is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.  |
| Technical Knowledge           | Technical Knowledge is the specific knowledge needed to accomplish specific designated responsibilities.  |
| Core Skills or Generic Skills | Core Skills or Generic Skills are a group of skills that are key to learning and working in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.           |



## ***Qualifications Pack For Explosives Handler***



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# National Occupational Standard



## Overview

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This unit is about handling, examining, and identifying explosives in open cast mines.

MIN/N 0212

## Handling examining and identifying explosives

National Occupational Standard

|   |   |
|---|---|
| <b>Unit Code</b>  | <b>MIN/N 0212</b>   |
| <b>Unit Title (Task)</b>  | <b>Handling, Examining, And Identifying Explosives</b>  |
| <b>Description</b>  | This unit is about handling, examining, and identifying explosives in open cast mines   |
| <b>Scope</b>  | <p>This OS unit/task covers the following:</p> <ul style="list-style-type: none"> <li>Identify and examine explosives.</li> <li>Recording details of checking and maintenance</li> </ul>  |
| <b>Performance Criteria (PC) w.r.t. the Scope</b>   |   |
| <b>Element</b>  | <b>Performance Criteria</b>   |
| <b>Identify and examine explosives</b>  | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Identify different types of explosives and their use</p> <p>PC2. Identify different types of detonators and their use.</p> <p>PC3. Use a variety of gauges and equipment such as galvanometer, multi-meters, ring gauges etc. to detect defects and deterioration in explosive materials.</p> <p>PC4. Examine shot holes and test firing circuits</p>   |
| <b>Recording details of checking and maintenance</b>  | PC5. Prepare quality deficiency reports   |
| <b>Knowledge and Understanding (K)</b>  |   |
| <b>A. Organizational Context</b><br>(Knowledge of the company / organization and its processes) | <p>The user/individual on the job needs to know and understand:</p> <p>KA1. Detail of the mine he is working in</p> <p>KA2. Job specific documents e.g. daily activity log and importance of the same</p> <p>KA3. Job duties of persons handling explosives.</p> <p>KA4. Risk and impact of not following defined procedures/work instructions</p> <p>KA5. Cost of equipment and loss for the company that results from damage of equipment</p> <p>KA6. Cost (direct/indirect) of accidents for the company</p> <p>KA7. Locally prepared emergency response / disaster management plan</p> <p>Safety guidelines specified by Directorate General of Mine Safety (DGMS))</p> <p>KA8. Different types of mines and detail of the mine he is working in</p> <p>KA9. Mine Organisation, time keeping, need for discipline and punctuality</p> <p>KA10. Benching in quarries, Dressing of overhangs, Fencing, First aid and Hygiene</p> <p>KA11. Code of practice in specific areas of mine. Significance of fences</p> <p>KA12. Standing orders in force at the mine. Safety in the vicinity of machinery</p> |

MIN/N 0212

### Handling examining and identifying explosives

|                               |   |
|-------------------------------|---|
|                               | <p>KA13. Shot-firing and Safety regulations. How and where to take shelter</p> <p>KA14. Tramways and siding, Haulage rooms, Winding rooms, Boilers, Electrical Gears</p> <p>KA15. Duties of workmen under Mines act</p> <p>KA16. Provision of wages, working hours and accident compensation as per Mines act</p> <p>KA17. Knowledge of mining safety procedures</p> <p>KA18. Outcome of violation of safely procedures</p> <p>KA19. Precautions to be taken when handling explosives</p> <p>KA20. not to use battery operated watches, synthetic cloths, watch strap and socks</p> <p>KA21. importance of using only conducting type of foot-wears; in case of leather shoes or boots, the sole shall also be of leather and without hobnails</p> <p>KA22. Dust, noise and vibration – their sources and measures to minimize</p> <p>KA23. Environmental impact of mining</p> <p>KA24. Refresher training as per fourth schedule MVTR (1966) within one month of joining duties following absence from duties for a period exceeding six months.</p> |
| <b>B. Technical Knowledge</b> | <p>The user/individual on the job needs to know and understand:</p> <p>KB1. Different types of explosives, their composition and categorization</p> <p>KB2. Difference between low and high explosives. Low explosives and their firing</p> <p>KB3. Safety and its burning speed</p> <p>KB4. High explosives, their detonation. Electric shot-firing.</p> <p>KB5. Various firing techniques and use of safety fuse and detonating fuse.</p>   |



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## Handling examining and identifying explosives

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|---|--|
|   | <p>KB6. Different types of detonators and their use</p> <p>KB7. Charging and firing of shots</p> <p>KB8. Different blasting patterns and their applications</p> <p>KB9. Danger from explosive. Clearing of fumes produced during shot-firing.</p> <p>KB10. Danger of blasting in vicinity of villages, roads and other structures.</p> <p>KB11. Case studies and accidents occurred due to improper blasting.</p> <p>KB12. Care in handling explosives. Taking shelter.</p> <p>KB13. Magazine keeping. Storage of explosives on surface and below ground.</p> <p>KB14. Issue of explosives. Return of unused explosives</p> <p>KB15. Permitted explosives.</p> <p>KB16. Knowledge of the techniques and equipment used to examine highly specialized items such as hazardous materials, explosives, toxic chemicals and flammables.</p> <p>KB17. vibration analysis and how to measure vibration.</p> <p>KB18. velocity of detonation and how to measure velocity of detonation.</p> <p>KB19. Required limits of above two parameters in a blasting site</p> <p>KB20. Theory of Free face.</p> |
| <b>Skills</b>                             |  |
| <b>A. Core Skills/<br/>Generic Skills</b> | <b>Writing Skills</b>  |
|   | The user/ individual on the job needs to know and understand how to:   |
|   | SA1. Fill out various issue slips and transit slips legibly and with complete information.   |
|   | SA2. Fill out administrative forms   |
|   | <b>Reading Skills</b>  |
|   | The user/individual on the job needs to know and understand how to:  |
|   | SA3. Read documentation and manuals  |
|   | SA4. Read and comprehend banners /signage  |
|   | <b>Oral Communication (Listening and Speaking skills)</b>  |
|   | The user/individual on the job needs to know and understand how to:  |
|   | SA5. Communicate with supervisors and peers in a proper manner adhering to the values respect for or individual  |
| <b>B. Professional Skills</b>             | <b>Decision Making</b>   |



MIN/N 0212

### Handling examining and identifying explosives

|  |   |
|--|---|
|  | The user/individual on the job needs to know and understand how to:<br>SB1. make decisions pertaining to the concerned area of work.  |
|  | <b>Plan and Organize</b>  |
|  | The user/individual on the job needs to know and understand how to:<br>SB2. plan and organize the work order and jobs<br>SB3. organize all process manuals so that sorting/ accessing information is easy   |
|  | <b>Customer Centricity</b>  |
|  | NA  |
|  | <b>Problem Solving</b>  |
|  | The user/individual on the job needs to know and understand how to:<br>SB4. detect problems in day to day tasks<br>SB5. discuss possible solution with the supervisor for problem solving<br>SB6. make decisions in emergency conditions  |
|  | <b>Analytical Thinking</b>  |
|  | The user/individual on the job needs to know and understand how to:<br>SB7. follow instructions and work on areas of improvement identified<br>SB8. complete the assigned tasks with minimum supervision<br>SB9. complete the job within timelines and quality norms                    |
|  | <b>Critical Thinking</b>  |
|  | The user/individual on the job needs to know and understand how to:<br>SB10. use common sense and make judgments during day to day basis<br>SB11. use reasoning skills to identify and resolve basic problems<br>SB12. use intuition to detect any potential problems which could arise |

MIN/N 0212

Handling examining and identifying explosives

## NOS Version Control

| NOS Code      | MIN/N 0212       |                  |            |
|---------------|------------------|------------------|------------|
| Credits(NSQF) | TBD              | Version number   | 1.0        |
| Sector        | Mining           | Drafted on       | 01/02/2014 |
| Sub-sector    | Mining Operation | Last reviewed on | 24/03/2014 |
| Occupation    | Blasting         | Next review date | 24/03/2017 |

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# National Occupational Standard



## Overview

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This unit is about receipt, storage, packing, issue, and transportation of explosives

MIN/N 0204

## Health and Safety

National Occupational Standard

|  |  |
|--|--|
| <b>Unit Code</b>   | <b>MIN/N 0213</b>  |
| <b>Unit Title(Task)</b>  | <b>receipt, storage, packing, issue, and transportation of explosives</b>  |
| <b>Description</b>   | This unit is about receipt, storage, packing, issue, and transportation of explosives  |
| <b>Scope</b>   | <p>This OS unit/task covers the following:</p> <ul style="list-style-type: none"> <li>• Proper storage of explosives</li> <li>• Receipt and Issue of explosive material</li> <li>• Safe transport of explosives</li> </ul>   |
| <b>Performance Criteria (PC) w.r.t. the Scope</b>                                  |  |
| <b>Element</b>   | <b>Performance Criteria</b>  |
| Proper storage of explosives   | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Test and assign condition codes to stored /received explosives.</p> <p>PC2. Properly packages unserviceable explosives for storage</p>   |
| Receipt and Issue of explosive material  | <p>PC3. Performs damage-in-transit examination of the received explosives</p> <p>PC4. Prepares and maintains transit slips for each issue and return transaction</p>   |
| Safe Transport of explosives   | <p>PC5. Ensures all explosives are properly packaged, marked and labeled in compliance with directives and regulations</p> <p>PC6. Visually examine vehicles prior to loading to determine if the vehicle is suitable for transportation of hazardous materials</p> <p>PC7. Briefs drivers on proper route plans, fire-fighting procedures and safety concerns prior to release of the vehicle</p>   |
| <b>Knowledge and Understanding (K)</b>   |  |
| <b>A. Organizational Context (Knowledge of the organization and its processes)</b> | <p>The user/individual on the job needs to know and understand:</p> <p>KA1. The duties and responsibilities associated with his job role</p> <p>KA2. Types of documentation in organization e.g. daily maintenance checklist and importance of the same</p> <p>KA3. Escalation matrix for reporting identified problems</p> <p>Safety guidelines specified by Directorate General of Mine Safety (DGMS))</p> <p>KA4. Different types of mines and detail of the mine he is working in</p> <p>KA5. Mine Organisation, time keeping, need for discipline and punctuality</p> <p>KA6. Benching in quarries, Dressing of overhangs, Fencing, First aid and Hygiene</p> |

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## Health and Safety

|                        |  |
|------------------------|--|
|                        | <p>KA7. Code of practice in specific areas of mine. Significance of fences</p> <p>KA8. Standing orders in force at the mine. Safety in the vicinity of machinery</p> <p>KA9. Shot-firing and Safety regulations. How and where to take shelter</p> <p>KA10. Tramways and siding, Haulage rooms, Winding rooms, Boilers, Electrical Gears</p> <p>KA11. Duties of workmen under Mines act</p> <p>KA12. Provision of wages, working hours and accident compensation as per Mines act</p> <p>KA13. Knowledge of mining safety procedures</p> <p>KA14. Outcome of violation of safely procedures</p> <p>KA15. Precautions to be taken when handling heavy equipment</p> <p>KA16. Refresher training as per fourth schedule MVTR (1966) within one month of joining duties following absence from duties for a period exceeding one year.</p> <p>KA17. Hazardous material safety and security rules and regulations as prescribed by DGMS</p> <p>KA18. Code of practice for safe handling and transport of explosives.</p>   |
| B. Technical Knowledge | <p>The user/individual on the job needs to know and understand:</p> <p>KB1. Different types of explosives, their composition and categorization</p> <p>KB2. Difference between low and high explosives</p> <p>KB3. High explosives, their detonation. Electric shot-firing</p> <p>KB4. Various firing techniques and use of safety fuse and detonating fuse</p> <p>KB5. Different types of detonators and their use</p> <p>KB6. Different blasting patterns and their applications</p> <p>KB7. Danger from explosive. Clearing of fumes produced during shot-firing.</p> <p>KB8. Care in handling explosives. Taking shelter.</p> <p>KB9. Magazine keeping. Storage of explosives on surface and below ground.</p> <p>KB10. Issue of explosives. Return of unused explosives</p> <p>KB11. Permitted explosives.</p> <p>KB12. Knowledge of the techniques and equipment used to examine highly specialized items such as hazardous materials, explosives, toxic chemicals and flammables.</p> <p>KB13. Storage physical security requirements to ensure that hazardous material is secured at all times</p> <p>KB14. Dangers of wastage or pilferage</p> <p>KB15. Significance of wearing protective clothing and gear such as hardhats, steel-</p> |

MIN/N 0204

## Health and Safety

| Skills (S)                                |   |
|---|---|
| <b>A. Core Skills/<br/>Generic Skills</b> | <b>Writing Skills</b>   |
|   | The user/ individual on the job needs to know and understand how to:  |
|   | SA1. Fill out various issue slips and transit slips legibly and with complete information.                      |
|   | SA2. Fill out administrative forms  |
|   | <b>Reading Skills</b>   |
|   | The user/individual on the job needs to know and understand how to:   |
| <b>B. Professional Skills</b>             | SA3. Read documentation and manuals   |
|   | SA4. Read and comprehend banners /signage   |
|   | <b>Oral Communication (Listening and Speaking skills)</b>   |
|   | The user/individual on the job needs to know and understand how to:   |
|   | SA5. Communicate with supervisors and peers in a proper manner adhering to the values respect for or individual |
|   | <b>Decision Making</b>  |
|   | The user/individual on the job needs to know and understand how to:   |
|   | SB1. make decisions pertaining to the concerned area of work.   |
|   | <b>Plan and Organize</b>  |
|   | The user/individual on the job needs to know and understand how to:   |
|   | SB2. plan and organize the work order and jobs  |
|   | SB3. organize all process manuals so that sorting/ accessing information is easy                                |
|   | <b>Customer Centricity</b>  |
|   | NA  |
|   | <b>Problem Solving</b>  |
|   | The user/individual on the job needs to know and understand how to:   |
|   | SB4. detect problems in day to day tasks  |
|   | SB5. discuss possible solution with the supervisor for problem solving  |
|   | SB6. make decisions in emergency conditions   |
|   | <b>Analytical Thinking</b>  |
|   | The user/individual on the job needs to know and understand how to:   |
|   | SB7. follow instructions and work on areas of improvement identified  |
|   | SB8. complete the assigned tasks with minimum supervision   |
|   | SB9. complete the job within timelines and quality norms  |
|   | <b>Critical Thinking</b>  |
|   | The user/individual on the job needs to know and understand how to:   |
|   | SB10. use common sense and make judgments during day to day basis   |
|   | SB11. use reasoning skills to identify and resolve basic problems   |
|   | SB12. use intuition to detect any potential problems which could arise  |

MIN/N 0204

Health and Safety

## NOS Version Control

| NOS Code      | MIN/N 0213       |                  |            |
|---------------|------------------|------------------|------------|
| Credits(NSQF) | TBD              | Version number   | 1.0        |
| Sector        | Mining           | Drafted on       | 01/02/2014 |
| Sub-sector    | Mining Operation | Last reviewed on | 24/03/2014 |
| Occupation    | Blasting         | Next review date | 24/03/2017 |

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# N a t i o n a l O c c u p a t i o n a l S t a n d a r d



## Overview

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This unit is about reporting and documentation

|   |   |
|---|---|
| <b>Unit Code</b>  | <b>MIN/N 0214</b>   |
| <b>Unit ID (Task)</b>   | <b>Carry out reporting and documentation</b>  |
| <b>Description</b>  | This unit is about carrying out reporting and documentation   |
| <b>Scope</b>  | <p>This unit/task covers the following:</p> <ul style="list-style-type: none"> <li>• Reporting of problem/incidents etc.</li> <li>• Routine logging and Documentation</li> </ul>  |
| <b>Performance Criteria (PC) w.r.t. the Scope</b>   |   |
| <b>Element</b>  | <b>Performance Criteria</b>   |
| <b>Reporting of problem/incidents etc.</b>  | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Report problems/incidents in a timely manner</p> <p>PC2. Follow reporting procedures as prescribed by the employer</p>  |
| <b>Recording and Documentation</b>  | <p>PC3. Identify documentation to be completed in one's role</p> <p>PC4. Record details accurately using the appropriate format</p> <p>PC5. Complete all documentation within stipulated time.</p> <p>PC6. Ensure documents are available to appropriate authorities to inspect</p>   |
| <b>Knowledge and Understanding (K)</b>  |   |
| <b>A. Organizational Context</b><br>(Knowledge of the company / organization and its processes) | <p>The user/individual on the job needs to know and understand:</p> <p>KA1. Various documents that need to be maintained</p> <p>KA2. Company recommended schedule for filling up the documents</p> <p>KA3. The importance of complete and accurate documentation</p> <p>KA4. Procedures for reporting to the appropriate authority</p> <p>KA5. Guidelines for reporting incidents where standard operating procedures were not followed in specific instances.</p> <p>Safety guidelines specified by Directorate General of Mine Safety (DGMS))</p> <p>KA6. Different types of mines and detail of the mine he is working in</p> <p>KA7. Mine Organisation, time keeping, need for discipline and punctuality</p> |

MIN/N 0204

## Health and Safety

|   |  |
|---|--|
|   | <p>KA8. Benching in quarries, Dressing of overhangs, Fencing, First aid and Hygiene</p> <p>KA9. Code of practice in specific areas of mine. Significance of fences</p> <p>KA10. Standing orders in force at the mine. Safety in the vicinity of machinery</p> <p>KA11. Shot-firing and Safety regulations. How and where to take shelter</p> <p>KA12. Tramways and siding, Haulage rooms, Winding rooms, Electrical Gears</p> <p>KA13. Duties of workmen under Mines act</p> <p>KA14. Provision of wages, working hours and accident compensation as per Mines act</p> <p>KA15. Knowledge of mining safety procedures</p> <p>KA16. Outcome of violation of safely procedures</p> <p>KA17. Precautions to be taken when handling heavy equipment</p> <p>KA18. Refresher training as per fourth schedule MVTR (1966) following absence from duties for a period exceeding one year.</p> <p>KA19. Hazardous material safety and security rules and regulations as prescribed by DGMS</p> <p>KA20. Code of practice for safe handling and transport of explosives.</p> |
| <b>Skills (S)</b>                         |  |
| <b>A. Core Skills/<br/>Generic Skills</b> | <b>Writing Skills</b>  |
|   | The user/ individual on the job needs to know and understand how to:<br>SA1. Fill up documentation applicable to one's role  |
|   | <b>Reading Skills</b>  |
|   | The user/individual on the job needs to know and understand how to:<br>SA2. Read and understand manuals, memos and health and safety instructions  |
|   | <b>Oral Communication (Listening and Speaking skills)</b>  |

MIN/N 0204

## Health and Safety

|                               |  |
|-------------------------------|--|
|                               | <p>The user/individual on the job needs to know and understand how to:</p> <p>SA3. Respond appropriately to any queries</p> <p>SA4. Communicate with supervisor</p>  |
| <b>B. Professional Skills</b> | <b>Decision Making</b>   |
|                               | <p>The user/individual on the job needs to know and understand how to:</p> <p>SB1. make decisions pertaining to the concerned area of work.</p>  |
|                               | <b>Plan and Organize</b>   |
|                               | <p>The user/individual on the job needs to know and understand how to:</p> <p>SB2. plan and organize the work order and jobs</p> <p>SB3. organize all process manuals so that sorting/ accessing information is easy</p>   |
|                               | <b>Customer Centricity</b>   |
|                               | NA   |
|                               | <b>Problem Solving</b>   |
|                               | <p>The user/individual on the job needs to know and understand how to:</p> <p>SB4. detect problems in day to day tasks</p> <p>SB5. discuss possible solution with the supervisor for problem solving</p> <p>SB6. make decisions in emergency conditions</p>  |
|                               | <b>Analytical Thinking</b>   |
|                               | <p>The user/individual on the job needs to know and understand how to:</p> <p>SB7. follow instructions and work on areas of improvement identified</p> <p>SB8. complete the assigned tasks with minimum supervision</p> <p>SB9. complete the job within timelines and quality norms</p>                    |
|                               | <b>Critical Thinking</b>   |
|                               | <p>The user/individual on the job needs to know and understand how to:</p> <p>SB10. use common sense and make judgments during day to day basis</p> <p>SB11. use reasoning skills to identify and resolve basic problems</p> <p>SB12. use intuition to detect any potential problems which could arise</p> |

MIN/N 0204

Health and Safety

## NOS Version Control

| NOS Code                    | MIN/N 0214       |                  |            |
|-----------------------------|------------------|------------------|------------|
| Credits(NSQF)<br>[OPTIONAL] | TBD              | Version number   | 1.0        |
| Sector                      | Mining           | Drafted on       | 01/02/2014 |
| Sub-sector                  | Mining Operation | Last reviewed on | 24/03/2014 |
| Occupation                  | Blasting         | Next review date | 24/03/2017 |

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# National Occupation Standards



## Overview

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This unit is about health and safety measures critical in open-cast mines

MIN/N 0204

## Health and Safety

National Occupational Standard

|   |   |
|---|---|
| <b>Unit Code</b>  | <b>MIN/N 0204</b>   |
| <b>Unit Title (Task)</b>  | <b>Health and Safety</b>  |
| <b>Description</b>  | This unit is about health and safety measures critical in open-cast mines   |
| <b>Scope</b>  | This OS unit/task covers the following: <ul style="list-style-type: none"> <li>Health and safety measures critical for handling explosives</li> </ul>   |
| <b>Performance Criteria (PC) w.r.t. the Scope</b>                   |   |
| <b>Element</b>  | <b>Performance Criteria</b>   |
| <b>Health and safety measures critical for handling explosives.</b> | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Perform storage and transport of hazardous materials compliant with safety guidelines prescribed by DGMS.</p> <p>PC2. Deal with misfires as per statutory requirement</p> <p>PC3. Comply with safety regulations and procedures in case of fire hazard.</p> <p>PC4. Operate various grades of fire extinguishers.</p> <p>PC5. Work responsibly and as safe and careful as possible so as not to put the health and safety of self or others at risk, including members of the public</p> <p>PC6. Demonstrate careful practices in handling explosives.</p> <p>PC7. Identify characteristics of post-blast fumes and take necessary precautions.</p> <p>PC8. Wears safety gear such as hard hat, respiratory protection, eye protection, ear protection.</p> |



| Knowledge and Understanding (K)  |   |
|--|---|
| <b>A. Organizational Context</b> (Knowledge of the organization processes) | The user/individual on the job needs to know and understand:                            |
|  | KA1. Benching in quarries, Dressing of overhangs, Fencing                               |
|  | KA2. First aid and Hygiene  |
|  | KA3. Code of practice in specific areas of mine. Significance of fences                 |
|  | KA4. Standing orders in force at the mine. Safety in the vicinity of machinery          |
|  | KA5. Shot-firing and Safety regulations. How and where to take shelter                  |
|  | KA6. Knowledge of mining safety procedures  |
|  | KA7. Outcome of violation of safety procedures  |
|  | KA8. Hazardous material safety and security rules and regulations as prescribed by DGMS |
|  | KA9. Code of practice for safe handling and transport of explosives.                    |

MIN/N 0204

Health and Safety

## NOS Version Control

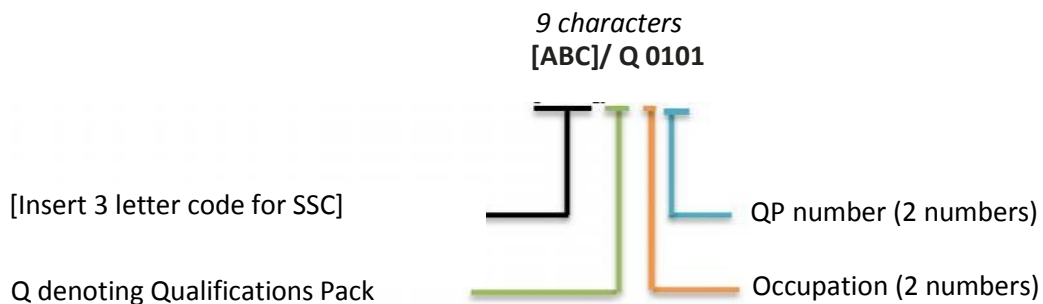
| NOS Code      | MIN / N 0204     |                  |            |
|---------------|------------------|------------------|------------|
| Credits(NSQF) | TBD              | Version number   | 1.0        |
| Sector        | Mining           | Drafted on       | 01/02/2014 |
| Sub-sector    | Mining Operation | Last reviewed on | 24/03/2014 |
| Occupation    | Blasting         | Next review date | 24/03/2017 |

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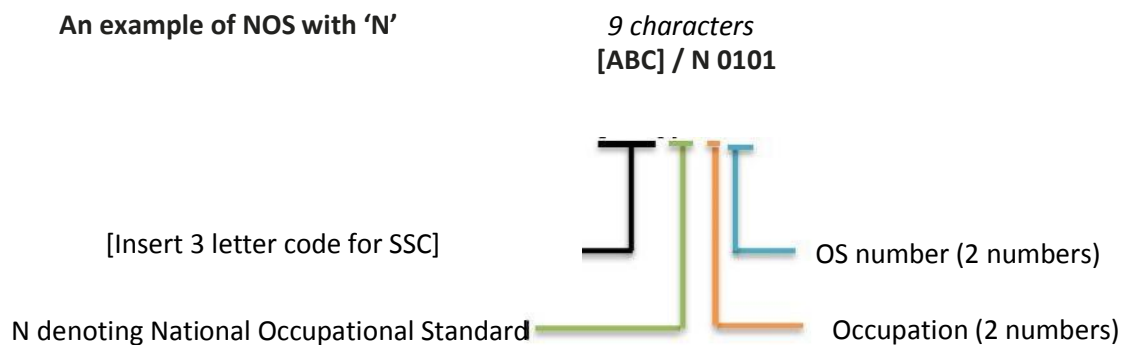
## Nomenclature for QP and NOS units

### Qualifications Pack



### Occupational Standard

An example of NOS with 'N'



## *Nomenclature for QP and NOS units*

The following acronyms/codes have been used in the nomenclature above:

| Sub-sector                        | Range of Occupation numbers |
|-----------------------------------|-----------------------------|
| Exploration & Resource Management | 1 to 25                     |
| Mining Operation                  | 26 to 65                    |
| Engineering Services              | 66 to 90                    |
| Mineral Beneficiation             | 91 to 99                    |

| Sequence         | Description                     | Example |
|------------------|---------------------------------|---------|
| Three letters    | Industry name                   | MIN     |
| Slash            | /                               | /       |
| Next letter      | Whether <b>QP</b> or <b>NOS</b> | N       |
| Next two numbers | Occupation code                 | 01      |
| Next two numbers | OS number                       | 01      |

### List of Abbreviations

| Term  | Description  |
|-------|--|
| NOS   | National occupation standards                          |
| QP    | Qualification pack                                     |
| NVEQF | National vocational education qualifications framework |
| NSQF  | National skills qualifications framework               |
| HEMM  | Heavy earth moving machinery                           |
| NCVT  | National council for vocational training               |
| DGMS  | Directorate general of mines safety                    |
| PC    | Performance Criteria                                   |
| FIMI  | Federation of Indian mineral industries                |

## CRITERIA FOR ASSESSMENT OF TRAINEES

**Job Role** Explosives Handler

**Qualification Pack** MIN / Q 0204

**Sector Skill Council** Skill council for Mining Sector

### Guidelines for Assessment

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC
3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below)
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criteria
5. To pass the Qualification Pack, every trainee should score a minimum of 50% in every NOS
6. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack

|  |   | Marks Allocation  |           |          |                  |
|--|---|-------------------|-----------|----------|------------------|
| Assessment Outcome   | Assessment Criteria   | Total Marks (100) | Out Of    | Theory   | Skills Practical |
| 1. MIN/N 0212<br>(handling, examining, and identifying explosives)                     | PC1. Identify different types of explosives and their use   | 25                | 5         | 2        | 3                |
|  | PC2. Identify different types of detonators and their use.  |                   | 5         | 2        | 3                |
|  | PC3. Use a variety of gauges and equipment such as galvanometer, multi-meters, ring gauges etc. to detect defects and deterioration in explosive materials. |                   | 5         | 1        | 4                |
|  | PC4. Examine shot holes and test firing circuits  |                   | 5         | 0        | 5                |
|  | PC5. Prepare quality deficiency reports   |                   | 5         | 2        | 3                |
|  |   | <b>Total</b>      | <b>25</b> | <b>7</b> | <b>18</b>        |
| 2. MIN/ N 0213<br>(receipt, storage, packing, issue, and transportation of explosives) | PC1. Test and assign condition codes to stored /received explosives.  | 25                | 4         | 1        | 3                |
|  | PC2. Properly packages unserviceable explosives for storage   |                   | 4         | 1        | 3                |
|  | PC3. Performs damage-in-transit examination of the received explosives  |                   | 3         | 0        | 3                |
|  | PC4. Prepares and maintains transit slips for each issue and return transaction   |                   | 4         | 1        | 3                |

|  |   |              |           |          |           |
|--|---|--------------|-----------|----------|-----------|
|  | PC5. Ensures all explosives are properly packaged, marked and labeled in compliance with directives and regulations   |              | 3         | 1        | 2         |
|  | PC6. Visually examine vehicles prior to loading to determine if the vehicle is suitable for transportation of hazardous materials                           |              | 3         | 1        | 2         |
|  | PC7. Briefs drivers on proper route plans, fire-fighting procedures and safety concerns prior to release of the vehicle                                     |              | 4         | 1        | 3         |
|  |   | <b>Total</b> | <b>25</b> | <b>6</b> | <b>19</b> |
| 3. MIN /N 0214<br>(carry out documentation and reporting- Explosive Handler) | PC1. Report problems/incidents in a timely manner   | <b>25</b>    | 5         | 2        | 3         |
|  | PC2. Follow reporting procedures as prescribed by the employer  |              | 4         | 1        | 3         |
|  | PC3. Identify documentation to be completed in one's role   |              | 4         | 1        | 3         |
|  | PC4. Record details accurately using the appropriate format   |              | 4         | 2        | 2         |
|  | PC5. Complete all documentation within stipulated time.   |              | 4         | 1        | 3         |
|  | PC6. Ensure documents are available to appropriate authorities to inspect   |              | 4         | 1        | 3         |
|  |   | <b>Total</b> | <b>25</b> | <b>8</b> | <b>17</b> |
| 4. MIN/ N0204<br>(Health and Safety)   | PC1. Perform storage and transport of hazardous materials compliant with safety guidelines prescribed by DGMS.  | <b>30</b>    | 4         | 1        | 3         |
|  | PC2. Deal with misfires as per statutory requirement  |              | 3         | 1        | 2         |
|  | PC3. Comply with safety regulations and procedures in case of fire hazard.  |              | 3         | 2        | 1         |
|  | PC4. Operate various grades of fire extinguishers.  |              | 3         | 0        | 3         |
|  | PC5. Work responsibly and as safe and careful as possible so as not to put the health and safety of self or others at risk, including members of the public |              | 3         | 0        | 3         |
|  | PC6. Demonstrate careful practices in handling explosives.  |              | 3         | 1        | 2         |
|  | PC7. Identify characteristics of post-blast fumes and take necessary precautions.   |              | 3         | 1        | 2         |
|  | PC8. Wears safety gear such as hard hat, respiratory protection, eye  |              | 3         | 0        | 3         |
|  |   | <b>Total</b> | <b>25</b> | <b>6</b> | <b>19</b> |