



**NATIONAL COMPETENCY STANDARDS
FOR
POLYMERS TAPE PLANT OPERATOR**

**Department of Occupational Standards
Ministry of Labour and Human Resources
Thimphu, Bhutan.**



**NATIONAL COMPETENCY STANDARDS
FOR
POLYMERS TAPE PLANT OPERATOR**

**Department of Occupational Standards
Ministry of Labour and Human Resources
Thimphu, Bhutan.**

First Publication 2013

© Department of Occupational Standards (DOS), MoLHR & DPL

FOREWORD

The Department of Occupational Standards of the Ministry of Labour and Human Resources proudly presents National Competency Standards (NCSs) for Polymers Tape Plant Operator as part of TVET reform initiative for improving the quality of Vocational Education and Training System in Bhutan. The standards represent the fruits of hard work and invaluable experiences gained by the department since its establishment in the latter half of 2003. The main aim of developing Competency Standards is to set up a well defined nationally recognized Vocational Qualification and Certification system that will help set a benchmark for the Technical Vocational Education and Training (TVET) System in our country aligned to international best practices.

Competency Standards is one of the base pillars in the Bhutan Vocational Qualification Framework (BVQF) and is the first step in its implementation. The standards are developed to ensure that employees or vocational graduates possess and acquire the desired skills, knowledge and attitude required by industries and employers. In order to ensure this close match in supply and demand of skills, knowledge and attitude, standards have been developed in close consultation and partnership with industry experts and validated by the Technical Advisory Committees for the concerned economic sectors.

A vocational education and training system based on Competency Standards shall ensure that delivered training is of a high quality and relevant to the needs of the labour market. As a result, future TVET graduates will be better equipped to meet the need and expectations of industries and employers. This positive impact on the employability of TVET graduates will enhance the reputation of vocational education and training and make it attractive to school leavers.

While acknowledging the existing level of cooperation and collaboration, the ministry earnestly requests employers and training providers to extend the fullest support and cooperation in implementing the National Competency Standards. The ultimate objective is to build a competent and productive national workforce that will contribute to the continued socio-economic progress of our country.

I gratefully acknowledge the valuable contributions made by experts from industries during the consultation, verification and validation processes of the standards. I look forward to improved engagement and active participation of the industry and employers in the development of a quality assured demand driven TVET system in the near future.

Nima Sangay Tshempo

Minister

Ministry of Labour and Human Resources

INTRODUCTION

A. National Competency Standards (NCS)

Competency Standards specify the skill, knowledge and attitudes applied to a particular occupation. Standards also specify the standards or criteria of performance of a competent worker and the various contexts in which work may take place. Standards provide explicit advice to assessors regarding the skill and knowledge to be demonstrated by candidates seeking formal recognition either following training or through work experience.

Purpose of National Competency Standards

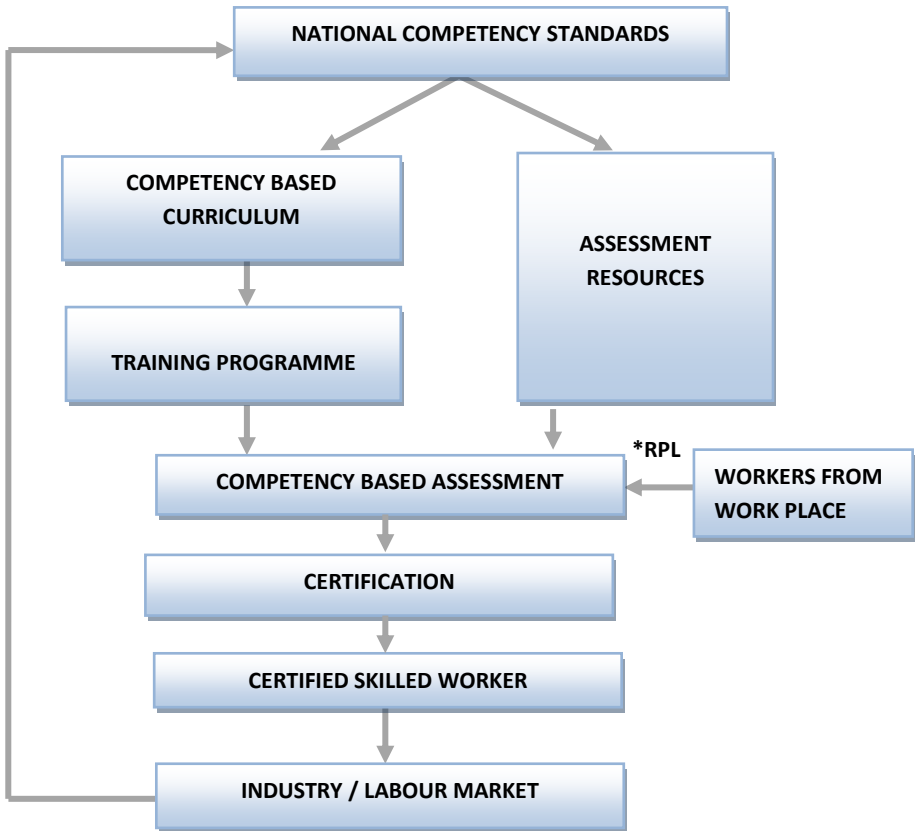
National Competency Standards serve a number of purposes including:

- Providing advice to curriculum developers about the skill and knowledge to be included in curriculum.
- Providing specifications to assessment resource developers about the skill, knowledge and attitudes within an occupation to be demonstrated by candidates.
- Providing advice to industry/employers about job functions, which in turn can be used for the development of job descriptions, performance appraisal systems and work flow analysis.

B. Bhutan Vocational Qualification Framework (BVQF)

Bhutan Vocational Qualifications Framework is an agreed system of Assessing, Certifying and Monitoring nationally recognized qualifications for all learning in the TVET sector against national standards, in training institutions, in the workplace, in schools or anywhere where learning takes place.

Components of the Bhutan Vocational Qualification Framework (BVQF)



* RPL = Recognition of Prior Learning

BVQF Levels

The Bhutan Vocational Qualification Framework has three levels classified based on the competency of the skilled workers. The three levels are:

- National Certificate Level 3 (NC III)
- National Certificate Level 2 (NC II)
- National Certificate Level 1 (NC I)

BVQF Level Descriptors

The qualification levels are decided based on level descriptors. The detail of the qualification level descriptor is as follows:

National Certificate Level 1

Carry out processes that:	Learning demand:	Responsibilities which are applied:
<ul style="list-style-type: none">• Are narrow in range.• Are established and familiar.• Offer a clear choice of routine responses.• Involve some prioritizing of tasks from known solutions.	<ul style="list-style-type: none">• Basic operational knowledge and skill.• Utilization of basic available information.• Known solutions to familiar problems.• Little generation of new ideas.	<ul style="list-style-type: none">• In directed activity.• Under general supervision and quality control.• With some responsibility for quantity and quality.• With no responsibility for guiding others.

National Certificate Level 2

Carry out processes that:	Learning demand:	Responsibilities which are applied:
<ul style="list-style-type: none"> • Require a range of well developed skills. • Offer a significant choice of procedures requiring prioritization. • Are employed within a range of familiar context. 	<ul style="list-style-type: none"> • Some relevant theoretical knowledge. • Interpretation of available information. • Discretion and judgments. • A range of known responses to familiar problems 	<ul style="list-style-type: none"> • In directed activity with some autonomy. • Under general supervision and quality checking. • With significant responsibility for the quantity and quality of output. • With some possible responsibility for the output of others.

National Certificate Level 3

Carry out processes that:	Learning demand:	Responsibilities which are applied:
<ul style="list-style-type: none"> • Requires a wide range of technical or scholastic skills. • Offer a considerable choice of procedures requiring prioritization to achieve optimum outcomes. • Are employed in a variety of familiar and unfamiliar contexts. 	<ul style="list-style-type: none"> • A broad knowledge base which incorporates some theoretical concepts. • Analytical interpretation of information. • Informed judgment. • A range of sometimes innovative responses to concrete but often unfamiliar problems. 	<ul style="list-style-type: none"> • In self-directed activity. • Under broad guidance and evaluation. • With complete responsibility for quantity and quality of output. • With possible responsibility for the output of others.

PURPOSE

This qualification is designed for people interested in a career as PolymersTape Plant Operator.

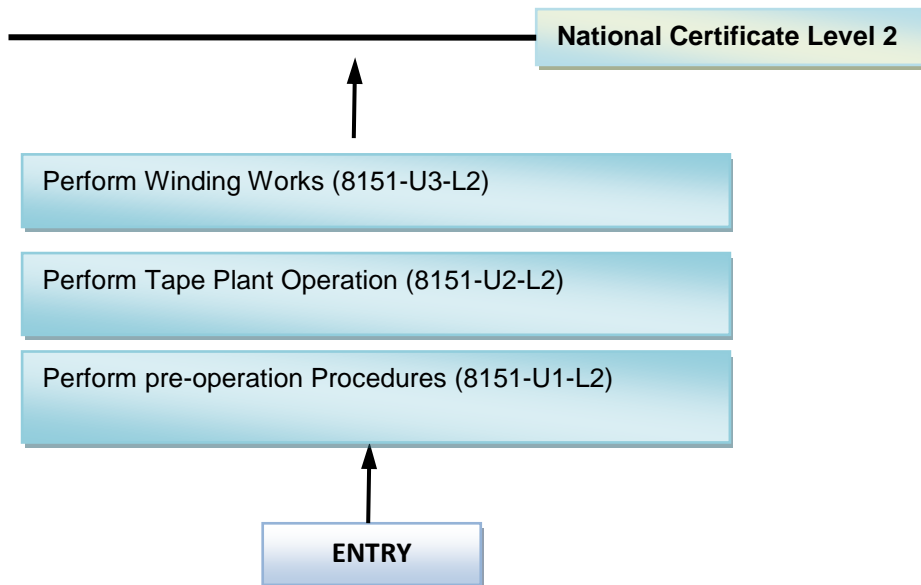
The qualifications for Tape Plant Operator start from Level 2. It comprises of three units; perform pre-operation procedures, perform tape plant operation and performing winding works. These are essential knowledge and skills required for tape plant operator and this qualification prepares people for entry into the National Certificate Level 3.

The National Certificate in Polymers Tape Plant Operator Level 2 is currently the final achievement in this qualification pathway. Candidates wishing to be admitted into higher level will have to hold the National Certificate Level 2.

The Level 3 qualification recognizes the skills and knowledge required for people working as a highly skilled PolymersTape Plant Operator and builds on the skills and knowledge that candidates will have gained through the successful completion of the Level 2 certificate.

A diagram of the qualification pathway will be as follows.

PACKAGING OF QUALIFICATION FOR POLYMERS TAPE PLANT OPERATOR



CODING USED FOR COMPETENCY STANDARDS

The coding and classification system developed in Bhutan is logical, easy to use, and also aligned with international best practises. The Bhutanese coding and classification system is based on the International Standard Classification of Occupations, 2008 (ISCO-08) developed by the International Labour Organisation (ILO).

The coding of the National Competency Standards forms the basis of the identification code for the Vocational Education and Training Management Information System (VET – MIS) both in terms of economic sector identification and that of the individual standard.

Coding the individual unit of Competency Standard

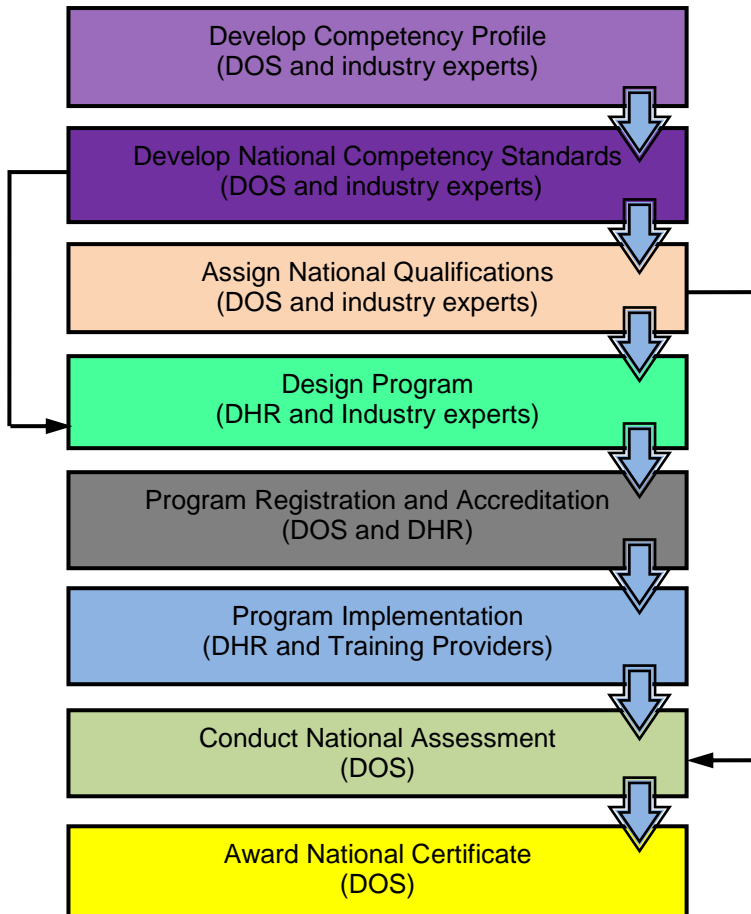
Coding the individual units of Competency Standard has a multiple purpose:

- to identify the level,
- to identify to which qualification level the standard belongs,

A job can include a number of competencies described in the Competency Standards.

To illustrate with an example, the ILO assigns the code 8151 to the occupation fabric related works. Therefore, in the Bhutan's context, the occupation Tape Plant Operator has been assigned the code 8151 in the National Coding System. The first unit is assigned the code U1, the first Unit of National Competency Standard is designated the code 8151 U1. Levels are assigned the code L and follow a logical progression from the National Certificate Level 1 (NC I) to the National Certificate Level 3 (NC III). Therefore the National Certificate Level 3 is assigned the code L3.

Implementation and operational procedures for Competency Standards (CS)



Key:

MoLHR – Ministry of Labour and Human Resources

DHR – Department of Human Resources

DOS – Department of Occupational Standards

NATIONAL COMPETENCY STANDARDS FOR POLYMERS TAPE PLANT OPERATOR

Validation date : 29th August, 2013

Endorsement date : 29th August, 2013

Date of Review : 29th August, 2016 (max. 3 years).

Technical Advisory Committee (TAC) members for the Manufacturing Sector involved in the validation:

1. Norbu Tshering, Chief Executive Officer (CEO), Dungsam Polymers Limited, Nanglam.
2. Lungpa Tandin, Sr. Manager, Dungsam Polymers Limited Nanglam.
3. Tshewang, Senior Programme Officer, Standards and Qualification Division (SQD), Department of Occupational Standards, MoLHR, Thimphu.
4. D.B Gurung, Executive Engineer, Dungsam Polymers Limited, Nanglam.
5. Karma Sonam, Experts, Bhutan Polymers Limited, Nanglam.

Subject experts involved during the consultation workshop for Tape Plant Operator:

1. Sonam Zangpo, Tape Plant Operator , DPL, Nanglam.
2. Norbu Wangdi, Tape Plant Operator, DPL, Nanglam.
3. Rinchen Tshering, Winderman, DPL, Nanglam.
4. Lal Bdr. Gurung, Winderman, DPL, Nanglam.
5. Prem Kr. Rai, Winderman, DPL, Nanglam.
6. Karma Tenzin, Winderman, DPL, Nanglam.

Development group (Facilitator):

Tshewang, Sr. Programme Officer, Department of Occupational Standards (DOS), MoLHR, Thimphu.

Chogay Lhendup, Asst. Programme Officer, Department of Occupational Standards, MoLHR, Thimphu.

TABLE OF CONTENTS
NATIONAL COMPETENCY STANDARDS FOR
Polymers Tape Plant Operator

SI.	UNIT TITLE	ELEMENTS OF COMPETENCE	PAGE NO.
1.	Perform Pre-Operation Procedures	1.1 Prepare for work 1.2 Carry out work	14
2.	Perform Tape Plant Operation	2.1 Prepare for work 2.2 Carry out work	16
3.	Perform Winding Work	3.1 Prepare for work. 3.2 Wind tape	19

UNIT TITLE : **Perform pre-operation procedures**

DESCRIPTOR : This unit covers the knowledge, skills and attitudes required in performing pre-operation procedures in checking creels and bobbin.

CODE : **8151 - U1- L2**

ELEMENTS OF COMPETENCE	PERFORMANCE CRITERIA
Prepare for works	1.1 Select and use Personal Protective Equipment (PPE) as per the job requirements 1.2 Identify and use required materials as per the job requirement. 1.3 Identify and use required tools as per the job requirement
Carry out work	2.1 Carry out walk-around check as per the manufacturer's procedures. 2.2 Note and report abnormal conditions to authorized person in accordance with establishment procedures.

RANGE STATEMENT

PPE may include but not limited to:

- Gloves
- Helmet
- Working dress
- Goggles
- Ear muff
- mask
- Safety boots

ASSESSMENT GUIDE

Methods of Assessment

- The candidate shall have access to all required tools, equipment, materials and documents
- Evidence of performance shall be based on practical demonstration
- Knowledge can be assessed through diagrams, in writing or orally (viva-voce)
- The candidate must complete the assessment in industry accepted time frame

Context for Assessment

- Competency may be assessed in the actual workplace or in a simulated workplace setting

Critical aspect

- Demonstrate compliance with safety regulations applicable to work site operations
- Select materials in accordance with specifications and job requirements

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
<ul style="list-style-type: none"> • Economic use of materials • Local alarms • First Aid • Basic computer knowledge • Basic mathematics and its application • Occupational Health and Safety (OHS) Regulation • Environmental Regulation 	<ul style="list-style-type: none"> • Interpret plans and data • Proper use of tools and equipment • Team work • Communication skills • Planning • Problem solving • Decision making • Time management

UNIT TITLE : **Perform Tape Plant Operation**

DESCRIPTOR : This unit covers the knowledge, skills and attitudes required in performing tape plant operation following standard procedures as per the job requirement.

CODE : **8151- U2-L2**

ELEMENTS OF COMPETENCE	PERFORMANCE CRITERIA
1. Prepare for work	1.1 Identify and use PPE as per the job requirement. 1.2 Identify and use required materials as per the job requirement. 1.3 Set the distance between die and water level to the required distance as per the standard practices.
2. Perform work	2.1 Heat the plant to the required temperature and soak time as per the specifications. 2.2 Load the materials as per the required mixing ratio. 2.3 Set the mixing ratio as per the job requirement. 2.4 Set the shaving blades as per the job requirement following standard practices. 2.5 Set the speed on the holding unit as per the job requirement. 2.6 Set the oven temperature as per the job requirement. 2.7 Set the stretching ratio on the stretching unit as per the job requirement following standard practices. 2.8 Check and set annealing unit speed to ensure quality and strength of the tape as per the job requirement.

RANGE STATEMENT

Materials may include but not limited to:

- Polypropylene-PP
- Color Master Batch
- Calcium Carbide

PPE may include but not limited to:

- Gloves
- Helmet
- Safety shoes
- Goggles
- Ear muff
- Dust mask

ASSESSMENT GUIDE

Methods of Assessment

- The candidate shall have access to all required tools, equipment, materials and documents
- Evidence of performance shall be based on practical demonstration
- Knowledge can be assessed through diagrams, in writing or orally (viva-voce)
- The candidate must complete the assessment in industry accepted time frame

Context for Assessment

- Competency may be assessed in the actual workplace or in a simulated workplace setting

Critical aspect

- Demonstrate compliance with safety regulations applicable to work site operations
- Select materials in accordance with specifications and job requirements
- Load the materials as per the required mixing ratio.

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
<ul style="list-style-type: none"> • Economic use of materials • Occupational Health & Safety (OHS) • First Aid • Temperature setting • Mixing Ratio • Basic Mathematics • Waste management • Basic knowledge on electronics • Basic computer knowledge • Positive work values 	<ul style="list-style-type: none"> • Interpret plan and details • Use of tools and equipments. • Team work • Communication skills • Planning • Problem solving • Time management • House keeping

UNIT TITLE : **Perform Winding Works**

DESCRIPTOR : This unit covers the knowledge, skills and attitudes required in performing winding works following standard procedures as per the job requirement.

CODE : **8151-U3- L2**

ELEMENTS OF COMPETENCE	PERFORMANCE CRITERIA
1. Prepare for works	1.1 Identify and use required PPE as per the job requirement. 1.2 Identify and use required materials as per the job requirement.
2. Wind Tape	2.1 Check sensor and take necessary actions if necessary, as per the job requirement. 2.2 Set the adjusting knob to the required setting as per the drainer (weight of bag) 2.3 Wind the tape following sequence as per the job requirement. 2.4 Change the bobbin with empty cheese following standard practices.

RANGE STATEMENT

Materials may include but not limited to:

- cheese pipe

ASSESSMENT GUIDE

Methods of Assessment

- The candidate shall have access to all required tools, equipment, materials and documents
- Evidence of performance shall be based on practical demonstration
- Knowledge can be assessed through diagrams, in writing or orally (viva-voce)
- The candidate must complete the assessment in industry accepted time frame

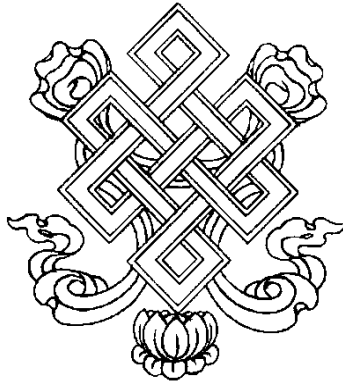
Context for Assessment

- Competency may be assessed in the actual workplace or in a simulated workplace setting

Critical aspect

- Demonstrate compliance with safety regulations applicable to work site operations
- Wind the tape following standard sequence as per the job requirement

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
<ul style="list-style-type: none">• Economic use of materials• Occupational Health & Safety (OHS)• First Aid• Temperature setting• Mixing Ratio• Basic Mathematics• Waste management• Basic knowledge on electronics• Basic computer knowledge	<ul style="list-style-type: none">• Interpret plan and details• Use of tools and equipments.• Team work• Communication skills• Planning• Problem solving• Time management• House keeping• Winding technique and skills



Department of Occupational Standards
Ministry of Labour & Human Resources
Thongsel Lam, Lower Motithang
P.O. Box 1036, Thimphu
Tel: 02-331611 Fax: 02-326873
www.molhr.gov.bt

