National Occupational Skill Standard (NOSS)

Occupational Title : **Dairy Technician**

Level : **1**

Sector : **Agriculture**

Sub - Sector : **Dairy Technology**

NOSS ID/NSCO ID :

ISCO NO :

Council for Technical Education and Vocational Training

NATIONAL SKILL TESTING BOARD

Madhyapur Thimi-17, Sanothimi, Bhaktapur, Nepal

Developed: 23-03-2021 (10-12-2077)

DACUM Panel:

S. No.	Name	Designation	Organization
1.	Mr. Puspa Raj Pathak	Member	Production Manager, Nepal Dairy
2.	Mr. Chet Bahadur Nepali	Member	Senior Q.C. Officer, Nepal Dairy
3.	Mr. Santosh Baral	Member	Production Department, Rajdhani Dairy
4.	Mr. Deepak Bajagain	Member	Dairy Boy, DDC
5.	Mr. Rajkumar Maharjan	Member	Senior Dairy Boy, DDC
6.	Mr. Vikas Machamasi	Member	Private Worker
7.	Mr. Ujjwal Lage	Member	Bhaktapur Dairy
8.	Mr. Bishow Raj Basnet	Member	Production Incharge, Aadhunik Dairy
9.	Mr. Puspa Raj Basnet	Member	Production Incharge, Aadhunik Dairy
10.	Mr. Gajendra Prasad Kushwaha	Member	Dairy Boy, DDC

DACUM Facilitator/Co Facilitator

Mr. Baikuntha Shrestha

Mr. Bhumaheshwor Ranjitkar

DACUM Workshop on 2 & 3 August, 2009

DACUM Panel:

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1.	Mr. Puspa Raj Pathak	Member	Production Manager, Nepal Dairy
2.	Mr. Chet Bahadur Nepali	Member	Senior Q.C. Officer, Nepal Dairy
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Mr. Baikuntha Shrestha

Mr. Bhumaheshwor Ranjitkar

DACUM Workshop on 2 & 3 August, 2009

Verification Panel:

No	Name	Designation	Organization
1.	Mr. Panna Das Shrestha	Member	Everest Dairy, Kathmandu.
2.	Mr. Chet Bahadur Nepali	Member	Nepal dairy.
3.	Mr. Padam Bdr. Ghising	Member	Rajdhani Dairy.
4.	Mr. Krishna Thapa Magar,	Member	Nava Prabhat Dairy.
5.	Mr. Ram Krishna Maharjan	Member	DDC Lalitpur.
6.	Mr. Ram Pd. Tyata	Member	Kalika Dairy.
7.	Mr. Tej Bdr. Thapa	Member	Kathmandu Dairy.
8.	Mr. Sudarsan Kandel	Member	DDC Balaju.
9.	Mrs. Sarsoti Rijal	Member	Kalanki Dairy.

DACUM Facilitator/Co-facilitator:

Mr. Baikuntha Shrestha

Mr. Bhumaheshwor Ranjitkar

Customized DACUM workshop on 25 August 2009

The Occupational Profile (OP) Developed by:

No	Name	Designation	Organization
1.	Mr. Subarna Kaji Shakya	Coordinator	Livestock Technical Sub Committee, National Skill Testing Board, Sanothimi, Bhaktapur
2.	Mr. Chandra Bhakta Nakarmi	Director	National Skill Testing Board, Sanothimi, Bhaktapur
3.	Mr. Jitendra Thike	Sr. Livestock Development Officer	Livestock Quality Control Lab, Hariharbhawan, Lalitpur
4.	Mr. Chet Bahadur Nepali	Sr. QC Officer	Nepal Dairy Pvt. Ltd. Hattiban, Lalitpur
5.	Mr. Puspa Raj Pathak	Production Manager	Nepal Dairy Pvt. Ltd. Hattiban, Lalitpur
6.	Mr. Deepak Prasad Poudel	Deputy Director	National Skill Testing Board Sanothimi, Bhaktapur
7.	Mr. Ram Hari Devkota	Deputy Director	National Skill Testing Board Sanothimi, Bhaktapur
8.	Mr. Ishwar Chandra Ghimire	Skill Testing Officer	National Skill Testing Board Sanothimi, Bhaktapur

Recommended by Agriculture Technical Sub Committee: 1 September 2009

The National Occupational Skill Standard Developed by:

No	Name	Designation	Organization
1.	Dr. Nar Bahadur Rajwar	Coordinator	Livestock Technical Sub Committee National Skill Testing Board, Sanothimi, Bhaktapur
2.	Mr. Tek Bahadur Malla	Director	National Skill Testing Board Sanothimi, Bhaktapur
3.	Dr. Balak Chaudhary	Member	National Dairy Development Board Harihar Bhawan, Lalitpur
4.	Dr. Bhuvaneshwar Sharma	Member	Himalayan College of Agricultural Sciences and Technology Kirtipur, Kathmandu
5.	Dr. Mukul Upadhyaya	Member	Department of Livestock Services Harihar Bhawan, Lalitpur
6.	Mr. Sushil Adhikari	Member	Technical Training and Research Institute (TTRI) Kumaripati, Lalitpur
7.	Mr. Baikuntha Shrestha	Member-Secretary	Livestock Technical Sub Committee National Skill Testing Board, Sanothimi, Bhaktapur
8.	Mr. Tulsi KC	Member	Sr. Skill Testing Officer, National Skill Testing Board Sanothimi, Bhaktapur
9.	Mr. Suresh Maharjan	Member	Skill Testing Officer, National Skill Testing Board Sanothimi, Bhaktapur
10.	Mr. Kishor Chandra Sharma	Member	Skill Testing Assistant, National Skill Testing Board Sanothimi, Bhaktapur

Recommended by Agriculture Technical Sub Committee: 23 March 2021 (10 Chaitra 2077)

1	**Occupational Title: Dairy Technician** **Level: 1**
2	**Job Description:** Dairy Technician, L-1 prepares basic milk products and performs general servicing of dairy equipment.
3	**UNITS OF COMPETENCY:** 1. Prepare basic milk products. 2. Perform general servicing of dairy equipment. 3. Perform communication. 4. Develop professionalism. ***Note: Units 3 and 4 are not for testing purpose.***
4	**Qualifying Notes/Prerequisites:** • Physical Requirements: Sound health • Entry Requirements: As per NSTB rules. **Additional Information:** • Assessment Types: Performance test only. • Assessment Duration: 4 to 6 Hours (Full Competency Only) • Recommended Group Size: 6 to 8 candidates

5	**Unit No: 1** **Unit Title: Prepare basic milk products**	**Unit code:**
	Elements of competency	**Performance standards**
	1.1 Prepare tools, equipment and materials	1.1.1 ***Personal protective equipment (PPE)*** used in accordance with task requirement. 1.1.2 Cleaning solution prepared as per manufacturer's instruction. 1.1.3 Work area cleaned, sanitized and hygiene maintained. 1.1.4 Tools and equipment collected, cleaned, sanitized and checked for working condition as per organization standard. 1.1.5 ***Materials*** collected and prepared in accordance with ***task requirements.***
	1.2 Collect milk	1.2.1 Milk collected and ***detail information*** recorded. 1.2.2 Temperature of milk measured and recorded.
	1.3 Perform testing of raw milk	1.3.1 Sample milk taken from 2/3 depth of the container after mixing milk. 1.3.2 Milk tested using ***sensory organs*** and recorded. 1.3.3 ***Chemical parameter*** of milk tested and recorded. 1.3.4 Clot on Boiling (COB) test performed and recorded. 1.3.5 Alcohol test performed and recorded. 1.3.6 Acidity test performed and recorded. 1.3.7 ***Adulteration test*** performed and recorded. 1.3.8 Milk that meets ***physical*** and ***chemical parameters*** accepted.
	1.4 Process milk	1.4.1 Milk heated at 63^{o}C for 30 minutes and immediately chilled up to 5^{o}C. 1.4.2 Milk packaged in a food grade pouch and bottle with ***labels***. 1.4.3 Processed milk stored below 5^{o}C.
	1.5 Prepare curd	1.5.1 ***Standard milk*** collected and heated at 85-90^{o}C for 5 minutes and cooled down to 42-45^{o}C. *1.5.2* 1.5-2 % of starter culture added to milk and incubated at 42-45^{o}C for 3-4 hours. 1.5.3 Curd stored at 4 to 8^{o}C.

		1.5.4 Color, flavor, consistency and chemical properties maintained as per ***standard parameters***.
	1.6 Prepare plain butter	1.6.1 Cream churned at 14°C until dough is formed. 1.6.2 Butter stored at -15 to -20°C. 1.6.3 Color, flavor, texture, consistency and chemical properties maintained as per ***standard parameters***.
	1.7 Prepare ghee	1.7.1 Butter heated at 110°C until brownish color appears. 1.7.2 Ghee stored at room temperature. 1.7.3 Color, flavor and chemical properties maintained as per ***standard parameters***.
	1.8 Prepare chhena	1.8.1 Whole milk heated upto 85-90°C for 5 minutes and cooled to 65-70°C. 1.8.2 0.2 -1.5 % citric acid solution heated at 65-70^{0}c and added until coagulation takes place and cooled to 55-60°C. 1.8.3 Coagulated mass wrapped in linen cloth and hanged until water drop ceases. 1.8.4 Color, texture and chemical properties maintained as per ***standard parameters***.
	1.9 Prepare paneer	1.9.1 Whole milk heated upto 82-85°C for 5 minutes and cooled to 68-70°C. 1.9.2 0.2 -1.5 % citric acid solution heated at 68-70°C and added until coagulation takes place. 1.9.3 Coagulated mass wrapped and lightly pressed. 1.9.4 Color, texture and chemical properties maintained as per ***standard parameters***.
	1.10 Prepare chhurpi	1.10.1 Skimmed milk heated at 80 - 85°C. 1.10.2 0.2 -1.5 % citric acid solution added until coagulation takes place. 1.10.3 1/3 part of whey drained and boiled for 20 minutes. 1.10.4 Coagulated mass separated in linen clothes and pressed overnight. 1.10.5 Color, texture, consistency and chemical properties maintained as per ***standard parameters***.
	1.11 Prepare khowa	1.11.1 Whole milk boiled and frequently agitated until brownish dough is formed.

		1.11.2 Color, flavor, texture, consistency and chemical properties maintained as per ***standard parameters***.
	1.12 Clean work area	1.12.1 Tools, equipment and utensils cleaned, checked for faults, maintained and stored. 1.12.2 Work area cleaned and sanitized. 1.12.3 Waste disposed in accordance with ***3R's principle.*** 1.12.4 Record maintained and status of tools and equipment reported.
6	**Task Performance Requirements (Tools, Equipment and Materials):** • Pen, paper, register, calculator, pencil, eraser, sharpener, milk can, pasteurizer, butter churner, boiler, deep fridge, steel scale, weighing machine, bottle opener, plunger, test tube, sample dipper, sample bottle, tilt measure, liter jar, thermometer, auto claves, incubator, measuring gauge, lactometer, lactometer jar, butyrometer, stopper key, milk pipette, graduated pipettes, pipette filler, stand, burette, centrifuge machine, sealing machine, beaker, porcelain basin, funnel, measuring cylinder, brushes, conical flask, chilling vat, water bath, CIP tank, compressor, burner (gas stove), gas cylinder, dekchi, ghee kettle, double jacketed vessel, karai, khowa making machine, wooden pedal, hoop, pH meter, buffer solution pH (4,7,10), jhajar, dadoo, packaging materials, packaging aluminum tray, pipe wrench, knife, milk crate, mould, milk hosepipe, alcohol meter, adulteration testing kit, phenolphthalein, nylon/linen cloths, starter culture, IBT tank, milk, SMP, citric acid, nitric acid, caustic soda, bleaching powder, cleaning agents, milk chiller, sugar, Sulphuric acid, amyl alcohol, ethanol, broom, dust bin, dust pan, cleaning brush, first aid kit, and personal protective equipment (PPE).	
7	**Safety and Hygiene (Occupational Health and Safety):** • Maintain personal hygiene and sanitation. • Use personal protective equipment. • Safe handling of materials, tools and equipment. • Keep workplace dry, clean and sanitized. • Prevent from electrical and chemical hazards. • Avoid food contamination.	

8	Required Knowledge		
	Technical Knowledge	**Applied Calculation**	**Graphical Information**

	• Tools and equipment:
	  ○ Types
	  ○ Uses
	  ○ Safe handling
	• Introduction of dairy technology
	• Importance of milk and milk products
	• Milk
	  ○ Introduction
	  ○ Composition
	  ○ Types
	  ○ Properties
	  ○ Quality of raw milk
	  ○ Collection, transportation, chilling and storage
	• Clean milk production
	• Milk sampling
	• Standardization of milk
	• Milk testing
	  ○ Organoleptic test
	  ○ Platform test
		• Convert imperial unit to metric unit and vice versa
		• Calculate amount of cleaning agent
		• Calculate SNF
		• Calculate acidity
			• Read and interpret manufacturer's instruction.
			• Read and interpret standard operating procedure.

	○ Chemical test ○ Acidity test ○ Adulteration test • Milk processing (pasteurization) • Cream separation • Milk homogenization • Storing and packaging of milk • Nepal standard of milk and milk products • Common milk products: ○ Introduction ○ Composition ○ Methods of production ○ Types ○ Quality ○ Factors affecting quality of milk product ○ Methods of packaging and storage • Introduction of starter culture • Cleaning and sanitizing agents • Cleaning techniques/methods • Waste management • Record keeping and documentation		

	• Occupational health and safety rules and regulations • Importance of first aid kit		

9	**Assessment of Competency**				
	Unit: 1 **Unit Title: Prepare basic milk products**				
	Candidate Details		**Assessors Detail**		
	Candidate's Name: Registration Number: Symbol No: Test Centre: Test Date:		Assessors' Name 1. 2. 3.		ID/License No:

Element of competency	Performance Standards	Standard Met	Standard Not Met	Evidence Type	Comments
1.1 Prepare tools, equipment and materials	1.1.1 ***Personal protective equipment (PPE)*** used in accordance with task requirement. 1.1.2 Cleaning solution prepared as per manufacturer's instruction. 1.1.3 Work area cleaned, sanitized and hygiene maintained. 1.1.4 Tools and equipment collected, cleaned, sanitized and checked for working condition as per organization standard. 1.1.5 ***Materials*** collected and prepared in accordance with ***task requirements.***				
1.2 Collect milk	1.2.1 Milk collected and ***detail information*** recorded. 1.2.2 Temperature of milk measured and recorded.				
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	1.3.7 ***Adulteration test*** performed and recorded. 1.3.8 Milk that meets ***physical*** and ***chemical parameters*** accepted.				
1.4 Process milk	1.4.1 Milk heated at 63°C for 30 minutes and immediately chilled up to 5°C. 1.4.2 Milk packaged in a food grade pouch and bottle with ***labels***. 1.4.3 Processed milk stored below 5°C.				
1.5 Prepare curd	1.5.1 ***Standard milk*** collected and heated at 85-90°C for 5 minutes and cooled down to 42-45°C. *1.5.2* 1.5-2 % of starter culture added to milk and incubated at 42-45°C for 3-4 hours. 1.5.3 Curd stored at 4 to 8°C. 1.5.4 Color, flavor, consistency and chemical properties maintained as per ***standard parameters***.				
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1.11 Prepare khowa	1.11.1 Whole milk boiled and frequently agitated until brownish dough is formed. 1.11.2 Color, flavor, texture, consistency and chemical properties maintained as per ***standard parameters***.				
1.12 Clean work area	1.12.1 Tools, equipment and utensils cleaned, checked for faults, maintained and stored. 1.12.2 Work area cleaned and sanitized. 1.12.3 Waste disposed in accordance with ***3R's principle.*** 1.11.1 Record maintained and status of tools and equipment reported.				

WT- Written Test **OQ**- Oral Question **PT-** Practical Test **DO** – Direct Observation **SR**- Supervisor's report **SN**–Simulation

RP- Role Play **PG** –Photographs **VD**- Video **CT** – Certificates **TS** – Testimonials (Reward) **PP** – Product Produced

CS – Case Study

Range Statement

Variable	Range
Personal protective equipment	*May include but not limited to:* • Hair cover/Hair net • Mask • Apron • Eye protective glasses • Gloves • Safety shoes

Materials	*May include but not limited to:*
	• Processed milk
	  ○ Raw milk
	• Curd
	  ○ Milk
	  ○ Sugar
	  ○ Starter culture
	  ○ Skimmed milk powder
	• Plain butter
	  ○ Cream
	• Ghee
	  ○ Cream
	  ○ Butter
	• Chhena
	  ○ Whole milk
	  ○ Citric acid
	• Paneer
	  ○ Whole milk
	  ○ Citric acid

	• Chhurpi
	  ○ Skimmed milk
	  ○ Citric acid
	• Khowa
	  ○ Whole milk

Task requirements	*May include but not limited to:* • Processed milk • Curd preparation • Butter preparation • Ghee preparation • Chhena preparation • Paneer preparation • Chhurpi preparation • Khowa preparation
Detail information	*May include but not limited to:* • Farmer's name and address • Farmer's code • Date of receipt • Volume • Category (Cow/Buffalo)
Sensory organs	*May include but not limited to:* • Eye • Ear • Tongue • Skin • Nose

Adulteration test	*May include but not limited to:* • Starch • Soda • Sugar
Physical parameters	*May include but not limited to:* • Color: white, light yellow • Flavour: milky • Consistency: uniform • Taste: sweet • Appearance: pleasant
Chemical parameters	*May include but not limited to:* • Fat: cow (not less than 3.5%), buffalo (not less than 5%) • Solid Not Fat (SNF): cow (not less than 7.5%), buffalo (not less than 8%) • Acidity: 0.13 to 0.16% • Adulterant: absent
Labels	*May include but not limited to:* • Trade name • Batch number • Packaging date • Expiry date • Maximum Retail Price (MRP) • Quantity • Major contents (Fat %, SNF %)

Standard milk	*May include but not limited to:* • Fat not less than 3% • SNF not less than 8%

Standard parameters	*May include but not limited to:*
	• Curd:
	  ○ Whitish/creamy
	  ○ Mild acidic
	  ○ Semi solid
	  ○ 4.6 pH
	  ○ Acidity 0.9 to 1.2%
	• Butter:
	  ○ Whitish/yellowish
	  ○ Pleasant flavour
	  ○ Semi solid
	  ○ Doughy
	  ○ Moisture content 16 to 20%
	  ○ Fat not less than 80%
	• Ghee
	  ○ Whitish/yellowish
	  ○ Pleasant flavour
	  ○ Moisture content not more than 0.5.%
	  ○ Fat not less than 99.5%
	• Chhena:
	  ○ Whitish/yellowish
	  ○ Semi solid
	  ○ Moisture content 50-55%
	  ○ Fat content 24-30%
	• Paneer:
	  ○ Whitish/yellowish

	○ Semi solid ○ Moisture content 50-55% ○ Fat content 25-30% • Chhurpi: ○ Brownish ○ Solid ○ Hard ○ Moisture content not more than 10% ○ Fat content not more than 1% • Khowa: ○ Brownish ○ Sweet ○ Semi solid ○ Doughy ○ Moisture content 22 to 34% ○ Fat content 32% ○ Lactose 23%
3R's principle	*May include but not limited to:* • Reduce • Reuse • Recycle

5	**Unit No: 2** **Unit Title: Perform general servicing of dairy equipment**	**Unit code:**

Elements of competency	Performance standards
2.1 Prepare tools, equipment and work area	2.1.1 ***Personal protective equipment (PPE)*** used in accordance with task requirement. 2.1.2 Dairy equipment cleaned, disinfected and sanitized as per organization standard. 2.1.3 Working condition and performance of dairy equipment checked as per manufacturer's manual. 2.1.4 Work area cleaned, sanitized and hygiene maintained for milk product preparation.
2.2 Perform routine checkup	2.2.1 Diary equipment inspected for ***physical damage and failure.*** 2.2.2 Performance of dairy equipment checked as per manufacturer's manual. 2.2.3 Dairy equipment inspected for debris.
2.3 Perform routine maintenance	2.3.1 Dairy equipment visually inspected for maintenance. 2.3.2 Dairy equipment cleaned as per manufacturer's manual. 2.3.3 Lubricants applied evenly on lubricating points. 2.3.4 Loosen parts tightened and adjusted as per manufacturer's manual. 2.3.5 Dairy equipment tested for normal operation. 2.3.6 ***Defective parts*** replaced as per manufacturer's manual. 2.3.7 Maintenance work recorded and reported.
2.4 Clean work area	2.4.1 Unused materials sealed tightly and stored/stacked at designated place. 2.4.2 Work area cleaned and waste disposed in accordance with ***3R's principle***. 2.4.3 Tools and equipment cleaned, stored and record updated.

6 Task Performance Requirements (Tools, Equipment and Materials):

- Pen, paper, register, calculator, pencil, eraser, sharpener, milk can, pasteurizer, butter churner, deep fridge, steel scale, weighing machine, bottle opener, plunger, test tube, sample dipper, sample bottle, tilt measure, liter jar, thermometer, auto claves, incubator, measuring gauge, lactometer, lactometer jar, butyrometer, stopper key, milk pipette, graduated pipettes, stand, burette, centrifuge machine, sealing machine, beaker, porcelain basin, funnel, measuring cylinder, brushes, chilling vat, water bath, centrifugal pump, compressor, burner (gas stove), dekchi,

	ghee kettle, double jacketed vessel, khowa making machine, karai, wooden pedal, hoop , pH meter, jhajar, dadoo, packaging aluminum tray, pipe wrench, knife, milk crate, mould, milk hosepipe, alcohol meter, adulteration testing kit, first aid kit, nylon/linen cloths, IBT tank , nitric acid, caustic soda, bleaching powder, cleaning agents, milk chiller, ethanol, screw driver, phase tester, wrench, pliers, lubricants, grease gun, oil can, hammer, broom, dust bin, dust pan, cleaning brush, toolbox, first aid kit and personal protective equipment (PPE).
7	**Safety and Hygiene (Occupational Health and Safety):** • Maintain personal hygiene and sanitation. • Use personal protective equipment. • Safe handling of materials, tools and equipment. • Keep workplace dry, clean and sanitized. • Prevent from electrical and chemical hazards. • Avoid food contamination.

8	Required Knowledge		
	Technical Knowledge	**Applied Calculation**	**Graphical Information**

	• Tools and equipment:
	  ○ Types
	  ○ Uses
	  ○ Safe handling
	• Common dairy equipment:
	  ○ Introduction
	  ○ Types
	  ○ Operation
	  ○ Application
	• Cleaning agents and cleaning techniques
	• Disinfection and sanitization
	• Importance of routine check-up
	• Importance of routine maintenance
	• Troubleshooting methods/techniques
	• Common defects
	• Record keeping and documentation
	• Waste management
	• Occupational health and safety rules and regulations
	• Importance of first aid kit
		• Convert imperial unit to metric unit and vice versa
		• Calculate amount of cleaning agent
			• Read and interpret manufacturer's manual
			• Read and interpret organization standard operating procedure (SOP)
			• Read and interpret routine maintenance schedule

9	**Assessment of Competency**					
	Unit: 2 **Unit Title: Perform general servicing of dairy equipment**					
	Candidate Details			**Assessors Detail**		
	Candidate's Name: Registration Number: Symbol No: Test Centre: Test Date:			Assessors' Name 1. 2. 3.		ID/License No:
Element of competency	**Performance Standards**			**Standard Met**	**Standard Not Met**	**Evidence Type**	**Comments**
2.1 Prepare tools, equipment and work area	2.1.1 ***Personal protective equipment (PPE)*** used in accordance with task requirement. 2.1.2 Dairy equipment cleaned, disinfected and sanitized as per organization standard. 2.1.3 Working condition and performance of dairy equipment checked as per manufacturer's manual. 2.1.4 Work area cleaned, sanitized and hygiene maintained for milk product preparation.						
2.2 Perform routine checkup	2.2.1 Diary equipment inspected for ***physical damage and failure.*** 2.2.2 Performance of dairy equipment checked as per manufacturer's manual. 2.2.3 Dairy equipment inspected for debris.						

2.3 Perform routine maintenance	2.3.1 Dairy equipment visually inspected for maintenance. 2.3.2 Dairy equipment cleaned as per manufacturer's manual. 2.3.3 Lubricants applied evenly on lubricating points. 2.3.4 Loosen parts tightened and adjusted as per manufacturer's manual. 2.3.5 Dairy equipment tested for normal operation. 2.3.6 ***Defective parts*** replaced as per manufacturer's manual. 2.3.7 Maintenance work recorded and reported.				
2.4 Clean work area	2.4.1 Unused materials sealed tightly and stored/stacked at designated place. 2.4.2 Work area cleaned and waste disposed in accordance with ***3R's principle***. 2.4.3 Tools and equipment cleaned, stored and record updated.				

WT- Written Test **OQ**- Oral Question **PT-** Practical Test **DO** – Direct Observation **SR**- Supervisor's report **SN**–Simulation

RP- Role Play **PG –**Photographs **VD**- Video **CT** – Certificates **TS** – Testimonials (Reward) **PP** – Product Produced

CS – Case Study

Range Statement

Variable	Range
Personal protective equipment	*May include but not limited to:* • Hair cover/ Hair net • Mask • Apron • Eye protective glasses • Gloves • Safety shoes
Physical damage and failure	*May include but not limited to:* • Crack • Broken • Rust • Corrosion • Leakage • Leaching
Defective parts	*May include but not limited to:* • Gasket • Belt • Filter • Nut bolts
3R's principle	*May include but not limited to:* • Reduce • Reuse • Recycle