

Revised Application Documentation: Version 4 /25 May, 2015

## **QUALIFICATION FILE – CONTACT DETAILS OF SUBMITTING BODY**

### **Name and address of submitting body:**

#### **Rubber Skill Development Council**

Ramakrishna Dalamia Wing, PHD House (4th Floor)  
4/2, Siri Fort Institutional Area,  
August Kranti Marg, New Delhi - 110016

### **Name and contact details of individual dealing with the submission**

**Name: Shikher Saxena**

**Position in the organisation : Manager - Standards & Assessment**

**Address if different from above : Same**

**Tel number(s) 011 41009347, 41009348**

**E-mail address [info@rsdcindia.in](mailto:info@rsdcindia.in)**

## **List of documents submitted in support of the Qualifications File**

1. **Qualification Pack – Autoclave Operator (Attached as Annexure 1)**
2. **Occupational Map (Attached as Annexure 2)**
3. **RFP for development of National Occupation Standard (Attached as Annexure 3)**
4. **Composition of NOS Subcommittee (Attached as Annexure 5)**
5. **Industry engagement certificate (Attached as Annexure 6)**
6. **Assessment Process flow (Attached as Annexure 8)**
7. **Web Link : Reports of Skill Gap study conducted by RSDC**  
<http://rsdcindia.in/knowledge-base.html>

## 8. QUALIFICATION FILE SUMMARY

<b>Qualification Title</b>	Autoclave Operator - RSC/ Q 0210		
<b>Body/bodies which will assess candidates</b>	RSDC's affiliated assessment agency		
<b>Body/bodies which will award the certificate for the qualification.</b>	Rubber Skill Development Council		
<b>Body which will accredit providers to offer the qualification.</b>	Rubber Skill Development Council		
<b>Occupation(s) to which the qualification gives access</b>	Auto clamp operator is under Moulding/Curing Occupation under Tyre and Non-Tyre manufacturing process		
<b>Proposed level of the qualification in the NSQF.</b>	4		
<b>Anticipated volume of training/learning required to complete the qualification.</b>	350 Hrs		
<b>Entry requirements / recommendations.</b>	Class X, Desirable – 18 Years		
<b>Progression from the qualification.</b>	Autoclave Operator level role which lead supervisory level in under Moulding/Curing Occupation under Tyre and Non-Tyre manufacturing process		
<b>International comparability where known:</b>	Not applicable		
<b>Planned arrangements for RPL.</b>	RPL assessment carries out as per normal RSDC assessment process.		
<b>Formal structure of the qualification</b>			
<b>Title of unit or other component</b> (include any identification code used)	<b>Mandatory/ Optional</b>	<b>Estimated size (learning hours)</b>	<b>Level</b>
<u>RSC/ N1001 ( Prepare autoclave unit )</u>	M	90	4
<u>RSC/ N1002 ( Perform curing operation using the autoclave unit )</u>	M	80	4
<u>RSC/ N1003 ( Perform post autoclave curing activities )</u>	M	80	4
<u>RSC/ N5001 (To carry out housekeeping)</u>	M	25	Common across level (3 to 5)
<u>RSC/ N5002 (To carry out reporting and documentation)</u>	M	25	Common across level (3 to 5)
<u>RSC/ N5003 (To carry out quality checks)</u>	M	25	Common across level (3 to 5)
<u>RSC/ N5004 (To carry out problem identification and escalation)</u>	M	25	Common across level (3 to 5)

Please attach any document giving further detail about the structure of the qualification – eg a Curriculum or Qualification Pack.

Give details of the document here:

Qualification Pack – Autoclave Operator

## **SECTION 1**

### **ASSESSMENT**

#### **Name of assessment body:**

If there will be more than one assessment body for this qualification, give details.

- RSDC's affiliated assessment agency. At present RSDC has two affiliated assessment agency.
  1. Aspiring Minds
  2. Trendsetters

Kindly refer RSDC assessment protocol for selection of assessment agency as Annexure 9

#### **Will the assessment body be responsible for RPL assessment?**

- Yes

Give details of how RPL assessment for the qualification will be carried out and quality assured.

RPL assessment will be carries out as per normal RSDC assessment process.

**Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, consistent and fair and show that these are in line with the requirements of the NSQF:**

With uniformity and setting of National Occupational Standards (NOS), for different Jobs Roles the assessment of candidates will be at NOS level. Assessment criterion has been defined for each NOS and it includes both theoretical and practical skills on which the candidate will be assessed. The question suite which will be used to check the skills of the trainee would include

- **Theoretical test suite** – Will include multiple choice questions, audio-video question etc. which will test the trainee on his knowledge of the subject
- **Practical Knowledge suite** – Practical knowledge can be tested through Assessor driven evaluation, Situational Judgment Tests and Simulations. A mix of the three would be able to evaluate the trainee on his practical knowledge of the QP

#### **RSDC's assessment strategy:**

- Assessment criteria for each Qualification Pack developed, in which each Performance criteria (PC) assigned marks based on NOS separately for theoretical and practical skill
- Set of question bank developed to assess the theoretical and practical knowledge. To ensure the quality, each trainees get the unique set of question
- Student has to score minimum marks separately for theoretical and practical skill and overall percentage should also be 50%.
- Empanelment of subject matter expert as assessor to assess trainee specifically on practical skills
- Assessments are preferably conducted on tablets or pen or papers in regional languages according to the requirement.
- Questions are uploaded in the tablets only on the day of assessment
- It has been ensure that TP/trainer should not be present during assessment

Please attach any documents giving further information about assessment and/or RPL.

Give details of the document(s) here:

Assessment Process flow

## ASSESSMENT EVIDENCE

Complete the following grid for each grouping of NOS, assessment unit or other component as listed in the entry on the structure of the qualification on page 1.

Assessable outcomes			Assessment criteria for the outcome		
NOS	Elements	Performance Criteria	Total	Theory	Practical
1. RSC / N 1001 Prepare Autoclave Unit	Equipment readiness	PC1. Ensure the emergency safety feature of a machine is working.	9	5	4
		PC2. Ensure that the equipment (autoclave, trolleys and mandrels) is clean.	11	5	6
		PC3. Set parameters for the equipment (temperature and pressure — steam and air) as per the organizational SOP.	11	5	6
		PC4. Set safety valves at the correct pressure.	11	5	6
		PC5. Prepare pre-formed components of desired size and shapes for the curing purpose.	9	5	4
	Raw material appropriateness	PC6. Ensure that unvulcanized component to be fed are approved by an accredited laboratory.	8	4	4
		PC7. Collect all unvulcanized components required for production and store them in designated areas.	8	4	4
		PC8. Match batch codes of each unvulcanized component with batch codes on the job schedule given by the planning department.	8	4	4
	Health & Safety	PC9. Ensure the use of certified/pressure-tested autoclaves and the functioning of safety valves.	8	4	4
		PC10. Adhere to all safety norms (such as wearing protective gloves and shoes).	8	4	4
		PC11. Comply with health, safety, environment guidelines and regulations in accordance with international/national standards or the organizational standards.	9	5	4
			100	50	50
2. RSC / N 1002 Perform Curing Operation Using The Autoclave Unit	Raw material appropriateness	PC1. Ensure, through visual inspections, that pre-forms are of the desired quality (uncontaminated).	4	4	0
		PC2. Ensure that batch sizes of pre-forms are as per the organisational SOP.	4	4	0
	Operation	PC3. Load/Feed pre-forms into an autoclave unit.	16	6	10
		PC4. Load/Feed rubber components appropriately in the machine to have rejections and re-works within tolerance	16	6	10

		limit.			
		PC5. Loading sequence of components in the autoclave should be as per plan to get maximum output.	16	6	10
		PC6. Monitor temperature, pressure and curing time properly during the operation.	16	6	10
	Health & Safety	PC7. Handle the material coming out of autoclave equipment using hand gloves and other safety equipment.	10	6	4
		PC8. Adhere to all safety norms (such as wearing protective gloves and shoes, safety goggles etc)	9	6	3
		PC9. Comply with health, safety, environment guidelines and regulations in accordance with international/national standards or the organizational standards.	9	6	3
			100	50	50
3. RSC / N 1003 Perform Post-curing Activities	Operation	PC1. Ensure that the steam pressure is at the normal level after the completion of cycle.	10	5	5
		PC2. Let off steam completely before opening an autoclave's door.	10	5	5
		PC3. Unload cured product appropriately.	10	5	5
		PC4. Drain condensates properly.	10	5	5
		PC5. Cool cured products/batches correctly.	10	5	5
		PC6. Remove products from mandrels.	10	5	5
	Material disposal	PC7. Dispose of waste material safely, as per organizational SOP.	8	5	3
	Batch Marking	PC8. Ensure identification and traceability by batch marking/coding for the right product as per the instructions laid down by the company (in terms of batch number, weight, color and date stamp).	4	4	0
	Sampling	PC9. Send samples of specified compounds/batches in specified form to an accredited lab for testing.	5	5	0
		PC10. Send the remaining material to designated storage areas.	3	3	0
	Health & Safety	PC11. Handle the material coming out of autoclave equipment using hand gloves and other safety equipment.	6	3	3
		PC12. Adhere to all safety norms (such as wearing protective gloves , shoes, safety goggles etc).	7	5	2
		PC13. Comply with health, safety, environment guidelines and regulations in accordance with international/national standards or the organizational standards.	7	5	2
			100	60	40
4. RSC / N 5001 Carry	Pre housekee	PC1. Inspect the area while taking into account various surfaces	3	3	0

Out Housekeeping Activities	ping activities	PC2. Identify the material requirements for cleaning the areas inspected, by considering risk, time, efficiency and type of stain	3	3	0
		PC3. Ensure that the cleaning equipment is in proper working condition	3	3	0
		PC4. Select the suitable alternatives for cleaning the areas in case the appropriate equipment and materials are not available and inform the appropriate person	3	3	0
		PC5. Plan the sequence for cleaning the area to avoid re-soiling clean areas and surfaces	3	3	0
		PC6. Inform the affected people about the cleaning activity	2	2	0
		PC7. Display the appropriate signage for the work being conducted	3	3	0
		PC8. Ensure that there is adequate ventilation for the work being carried out	3	3	0
		PC9. Wear the personal protective equipment required for the cleaning method and materials being used	3	3	0
		Operations	PC10. Use the correct cleaning method for the work area, type of soiling and surface	3	3
	PC11. Carry out cleaning activity without disturbing others		3	3	0
	PC12. Deal with accidental damage, if any, caused while carrying out the work		3	3	0
	PC13. Report to the appropriate person any difficulties in carrying out your work		3	3	0
	PC14. Identify and report to the appropriate person any additional cleaning required that is outside one's responsibility or skill		3	3	0
	Post housekeeping activities	PC15. Ensure that there is no oily substance on the floor to avoid slippage	9	3	6
		PC16. Ensure that no scrap material is lying around	9	3	6
		PC17. Maintain and store housekeeping equipment and supplies	3	3	0
		PC18. Follow workplace procedures to deal with any accidental damage caused during the cleaning process	3	3	0
		PC19. Ensure that, on completion of the work, the area is left clean and dry and meets requirements	8	2	6
		PC20. Return the equipment, materials and personal protective equipment that were used to the right places making sure they are clean, safe and securely stored	3	3	0
		PC21. Dispose the waste garnered from the activity in an appropriate manner	9	3	6
		PC22. Dispose of used and un-used solutions according to manufacturer's instructions, and	9	3	6

		clean the equipment thoroughly			
	General	PC23. Maintain schedules and records for housekeeping duty	3	3	0
		PC24. Replenish any necessary supplies or consumables	3	3	0
			100	70	30
5. RSC / N 5002 To Carry Out Reporting And Documentation	Reporting	PC1. Report data/problems/incidents as applicable in a timely manner	12	8	4
		PC2. Report to the appropriate authority as laid down by the company	12	8	4
		PC3. Follow reporting procedures as prescribed by the company	12	8	4
	Recording and Documentation	PC4. Identify documentation to be completed relating to one's role	10	6	4
		PC5. Record details accurately an appropriate format	16	6	10
		PC6. Complete all documentation within stipulated time according to company procedure	14	4	10
		PC7. Ensure that the final document meets with the requirements of the persons who requested it or make any amendments accordingly	6	4	2
	Information Security	PC8. Make sure documents are available to all appropriate authorities to inspect	6	4	2
		PC9. Respond to requests for information in an appropriate manner whilst following organizational procedures	6	6	0
		PC10. Inform the appropriate authority of requests for information received	6	6	0
			100	60	40
6. RSC / N 5003 To Carry Out Quality Checks	Inspection	PC1. Ensure that total range of checks are regularly and consistently performed	24	10	14
		PC2. Use appropriate measuring instruments, equipment, tools, accessories etc ,as required	24	10	14
	Analysis	PC3. Identify non-conformities to quality assurance standards	6	4	2
		PC4. Identify potential causes of non-conformities to quality assurance standards	5	3	2
		PC5. Identify impact on final product due to non-conformance to company standards	5	3	2
		PC6. Evaluating the need for action to ensure that problems do not recur	6	4	2
		PC7. Suggest corrective action to address problem	5	3	2
		PC8. Review effectiveness of corrective action	5	3	2
	Reporting	PC9. Interpret the results of the quality check correctly	4	4	0
		PC10. Take up results of the findings with QC in charge/appropriate authority.	3	3	0
		PC11. Take up the results of the findings	3	3	0

		within stipulated time			
		PC12. Record of results of action taken	3	3	0
		PC13. Record adjustments not covered by established procedures for future reference	3	3	0
		PC14. Review effectiveness of action taken	2	2	0
		PC15. Follow reporting procedures where the cause of defect cannot be identified	2	2	0
			100	60	40
7. RSC / N 5004 To Carry Out Problem Identification And Escalation	Problem Identification	PC1. Identify defects/indicators of problems	7	4	3
		PC2. Identify any wrong practices that may lead to problems	6	3	3
		PC3. Identify practices that may impact the final product quality	6	3	3
		PC4. Identify if the problem has occurred before	5	3	2
		PC5. Identify other operations that might be impacted by the problem	6	4	2
		PC6. Ensure that no delays are caused as a result of failure to escalate problems	5	3	2
	Necessary Action	PC7. Take appropriate materials and sample, conduct tests and evaluate results to establish reasons to confirm suspected reasons for non-conformance (where required)	8	5	3
		PC8. Consider possible reasons for identification of problems	8	5	3
		PC9. Consider applicable corrections and formulate corrective action	3	3	0
		PC10. Formulate action in a timely manner	3	3	0
		PC11. Communicate problem/remedial action to appropriate parties	7	5	2
		PC12. Take corrective action in a timely manner	2	2	0
		PC13. Take corrective action for problems identified according to the company procedures	2	2	0
		PC14. Report/document problem and corrective action in an appropriate manner	8	5	3
		PC15. Monitor corrective action	2	2	0
		PC16. Evaluate implementation of corrective action taken to determine if the problem has been resolved	2	2	0
		PC17. Ensure that corrective action selected is viable and practical	2	2	0
		PC18. Ensure that correct solution is identified to an identified problem	2	2	0
		PC19. Take corrective action for problems identified according to the company procedures	1	1	0
		PC20. Ensure that no delays are caused as a	1	1	0



		result of failure to take necessary action			
	Problem Escalation	PC21. Escalate problem as per laid down escalation matrix	4	3	1
		PC22. Escalate the problem within stipulated time	4	3	1
		PC23. Escalate the problem in an appropriate manner	3	2	1
		PC24. Ensure that no delays are caused as a result of failure to escalate problems	3	2	1
			100	70	30

#### Means of assessment 1

The assessment comprise of :

- Written Assessment
- Viva
- Practical assessment

#### Means of assessment 2

#### Pass/Fail

The Pass mark of written assessment is 40% and for viva and practical assessment is 40%. Total passing mark is 50%.

## SECTION 2

### EVIDENCE OF NEED

**What evidence is there that the qualification is needed?**

Qualification pack has been developed by suggestion and approval of RSDC NOS Subcommittee, which consist of senior leaders and experts from rubber Industry and has been further substantiated by skill gap study conducted by RSDC

**What is the estimated uptake of this qualification and what is the basis of this estimate?**

We had conducted skill gap study in different states of the country to understand the demand and supply for estimated uptake. Assuming the study finding base for entire rubber industry across the nation, employment opportunity is expected to grow approximately at the rate of 30% in the coming 5 year.

Reports of Skill gap study conducted uploaded on the below link:

<http://rsdcindia.in/knowledge-base.html>

**What steps were taken to ensure that the qualification(s) does/do not duplicate already existing or planned qualifications in the NSQF?**

Mapping has been done with National Classification of Occupation 2004 to ensure the qualification does not duplicate.

**What arrangements are in place to monitor and review the qualification(s)? What data will be used and at what point will the qualification(s) be revised or updated?**

Qualification Packs shall be revised annually.

Please attach any documents giving further information about any of the topics above.

Give details of the document(s) here:

## SECTION 3

### SUMMARY EVIDENCE OF LEVEL

Level of qualification: 4

Summary of Direct Evidence (from learning outcomes):

The Autoclave Operator is accustomed in periodic work, have knowledge to demonstrate skills, using tools & quality concepts and he is able to disseminate with clear responsibility of work, with minimum supervision.

Skill requires fulfil roles and responsibilities along with activities matched with NSQF level 4.

Summary of other evidence (if used):

Autoclave Operator - RSC/ Q 0210

Process Required	Professional Knowledge	Professional Skill	Core Skill	Responsibility	Level
<p>Autoclave Operator is expected to ensure housekeeping and safety in the autoclave area, prepare an autoclave unit and set the parameters on an autoclave unit and accessories to carry out operations.</p> <p>He/She needs to Load pre-forms into an autoclave and Feed un-vulcanised rubber components to the machine</p> <p>He/She needs to unload cured product and removal of cured product from the mandrel</p> <p>The activities identified are the <b>familiar and routine activities</b> in nature and he handles all this independently (with minimal or no supervision).</p>	<p>Autoclave Operator is expected to have <b>factual knowledge of processes and understand the risk of not following defined procedures.</b></p> <p>Autoclave Operator responsible for handling autoclave unit and its operation</p> <p>He/she needs to know to adjust pressure and its importance, functioning of valves and traps and venting and draining operations</p> <p>He/She is expected to have knowledge of Curing operation using an autoclave machine and operation of autoclave units (equipment working, possible setting levels and typical processes followed for different batches).</p> <p>He/She needs to have knowledge of appropriate method for draining condensates and methods for removing products from mandrels</p> <p>He/she needs to have knowledge of Cooling procedure for cured compounds</p> <p>He/She is expected to have knowledge of Batch marking and colour coding</p>	<p>Autoclave Operator handle a autoclave unit and the unvulcanized component and cured compounds.</p> <p>He/She needs to handle chemicals like release agents and various types of material handling equipment like forklifts, trolleys</p> <p>He/She needs to have the capacity to apply technology, combining the physical and sensory skills needed to operate equipment with the understanding of scientific and technological principles needed to explore and adapt systems</p> <p>Thus he is <b>practically engaged</b> in the production activity.</p>	<p>Autoclave Operator is expected to have basic communication skills to fill appropriate forms, process charts and activity logs, etc and also understand <b>application of basic arithmetic principles.</b></p> <p>He/She is expected to conduct themselves in ways, which show a basic understanding of the <b>social and professional environment of working on the shopfloor.</b></p>	<p>The Autoclave operator is responsible for feeding the rubber compound and other materials into an autoclave unit to perform the curing operation.</p> <p>So he is completely responsible for the work on the moulding machine and his <b>own learning.</b></p> <p>He/She is continuously engaged in the <b>self-learning process</b></p> <p>Autoclave Operator is majorly responsible for his own job and self learning process which justifies the pegging of the QP at level 4 and not directly involved in some learning of others (which is a requirement for Level 5). In his routine activity he is free from supervision (which is a</p>	<p style="text-align: center;">4</p>

				requirement of level 3).	
Level 4	Level 4	Level 4	Level 4	Level 4	

**SECTION 4**

**EVIDENCE OF RECOGNITION OR PROGRESSION**

**What steps have been taken in the design of this or other qualifications to ensure that there is a clear path to other qualifications in this sector?**

Occupation Map has been created and attached.

Please attach any documents giving further information about any of the topics above.  
Give details of the document(s) here: