



TESTING & QUALITY CONTROL FOR PLASTIC MATERIALS AND PRODUCTS - TECHNICIAN

CURRICULUM/SYLLABUS

This program is aimed at training candidates for the job of a “**Testing & Quality Control for Plastic Materials & Products - Technician**”, in the “**Petrochemical**” Sector/Industry and aims at building the following key competencies amongst the learner.

Program Name	Testing & Quality Control for Plastic Materials & Products - Technician		
Qualification Document Name & Reference ID.	TESTING & QUALITY CONTROL FOR PLASTIC MATERIALS & PRODUCTS - TECHNICIAN CPC/Q 8103		
Version No.	1.0	Version Update Date	
Pre-requisites to Training	Minimum qualification –X th Standard		
Training Outcomes	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • Understand the control/assure the quality of plastic Products with proper instruction and training in the areas of production, inspection, packing, and product testing. • Understand the job requirement for testing & quality control of plastic materials and products in plastic industries. • Understand the instrument function to carry out testing. • Assist management to perform the job as per requirement in operation of various types of testing Machines. • Assist quality inspector for testing equipment / machines controlling and Handling. • Understand and convey the problem in testing & quality control of plastic materials and products. 		

This course encompasses 5 out of 5 Learning Outcome (LO) of “**Testing & Quality Control for Plastic Materials & Products - Technician L3**” Qualification Document .

S. No	Topic/ Module	Theory Duration (hh:mm)	Practical Duration (hh:mm)	Key Learning Outcomes	Corresponding LO Code	Equipment Required
1	Objective and significance of testing	15	35	1. Objective and significance of Quality Assurance 2. Concept of testing- reason for testing- Standard and specifications-National and International standards-BIS, ASTM, ISO, NABL, UL,JIS & DIN	CPC/N 8106	1. Microprocess or based Injection Moulding Machine 2. Automatic Hopper Loader 3. Oven / Drier



2	Plastic Testing & Quality Control	24	56	<ol style="list-style-type: none"> 1. Identification of common plastics materials by simple tests: visual inspection, density, combustion and solvents, analysis with common solvents 2. Melt Flow index 3. Viscosity – Dilute Solution Viscosity 4. Density – Material 5. Characterization Test for Thermosets – Apparent (bulk) Density, 6. Bulk Factor, Cup & Spiral Flow Test, 7. Dynamic Viscosity (Brook field viscometer) Moisture & Sieve Analysis 	CPC/N 8107	<ol style="list-style-type: none"> 4. Dehumidifier 10 Specimen mould 11 Hot air oven 12 Humidity Chamber 13 Weighing balance 14 Two roll mill 15 Vernier 16 Ball neded micrometer, 17 Glass ware, chemicals 18 Measuring tape 19 Thickness gauge
3	Mechanical properties	48	112	<ol style="list-style-type: none"> 1. Introduction – definition of terms Viz. stress, strain behaviour of plastic materials 2. Instrument, standards, procedure, sample preparation, test results and factors affecting test results 3. Short term mechanical properties like tensile strength, elongation, yield strength, modulus, flexural strength, compressive strength. 4. Impact properties – Izod & Charpy. Falling weight & Dart Impact Tests 5. Hardness-Rockwell, Durometer, Barcol Hardness measurements. 6. Abrasion Test, Co efficient of friction, Tear strength 7. Long term Mechanical properties – Fatigue, creep, Stress relaxation 	CPC/N 8107 CPC/N 8108	<ol style="list-style-type: none"> 20 Utility equipment (air compressor) 21 Hot Press 22 Vibration chamber 23 Allen key set inch & mm 24 Hand Hacksaw frame adjustable 25 Micrometre 0-25 mm
4	Thermal Properties	36	84	<ol style="list-style-type: none"> 1. Heat Distortion Temperature (HDT), 2. Vicat softening Temperature (VST), 3. Thermal conductivity, 4. Coefficient of linear thermal 	CPC/N 8107 CPC/N 8108	



				expansion, 5. Marten's heat resistance, 6. Low temperature brittleness, 7. Flammability, Limiting Oxygen Index	
5	Communication skills & 5s	21	49	<ol style="list-style-type: none"> 1. Study of need for communication, communication and its importance 2. Principles of effective communication, Process of communication. 3. Types of communication, verbal, non-verbal, written, e-mail, talking on phone, non-verbal communication, barriers to communication and dealing with barriers, communication content development, speaking, asking questions etc. 4. 5S and TQM Concepts 	CPC/N 8104 CPC/N 8105
Total Hours		144	336		

Total Programme Duration: **480 Hours**