Program Title :

"Fundamentals of Silicon Vacuum Bagging Infusion Process"

A Classroom Training Program – 2 days

Program Summary

"Fundamentals of Silicon Vacuum Bagging Infusion Process" designed to combine strong technical expertise with practical industry application in resin infusion using silicone vacuum bagging systems. Participants will gain hands-on knowledge of process design, material selection, and defect control while also understanding how to improve productivity, reduce consumable costs through reusable silicone systems, and achieve consistent, high-quality output. The program highlights real industrial challenges and solutions, enabling organizations to enhance operational efficiency, minimize rework, and adopt a more sustainable, cost-effective manufacturing approach.

Duration :

02 Day I Classroom sessions and Hands on training (Infusion by using silicon bag)

Date, Time, Location :

- WK1, June 2026
- 9.30 am to 5.00 pm

Target Audience :

- Shop-floor technicians, Process engineers, Production supervisors, Quality engineers
- Operators and Technicians currently working or aspiring to work in composite manufacturing.
- Freshers and Graduate Engineers from Mechanical, Chemical, Polymer, Materials, Production, and related disciplines.
- New employees or trainees entering the composite manufacturing industry.
- Students and trainees from schools, colleges, and ITIs aspiring to build a career in the composites industry.

Course Prerequisites

This course requires **"No any technical background or industrial experience"** Participants with no prior exposure to composites or any other industry can also comfortably attend.
However, the following basic skills are recommended:

- Understanding of any language (Hindi or English) along with Regional language
- Familiar with basic general safety practices

Course Contents :

Day-1 (First Day)

Module-1	Module -2	Module-3
• **Introduction to Composites & Vacuum Bagging** What are composite? – - definition, essential concepts - Basic terminology (fibre, matrix, resin, reinforcement, lay-up, cure, laminate, ply, etc.) • Why Composites - Advantages & Limitations of composites over Metals, Plastics • Conventional bagging vs silicone vacuum bagging • Key applications/ sectors Applications in aerospace, automotive, wind energy, marine • Advantages of silicone reusable bagging systems	**COMPOSITES MATERIAL** **a) Reinforcements** • Types of fibres Glass fibre (E-Glass, S-Glass) Carbon fibre (grade/ class) • Fiber architecture: CSM Woven, Multiaxial-UD,BX.TX.QX, **b) Matrix / Resin Systems** • Thermoset resins: Polyester, Vinyl Ester, Epoxy • Thermoplastic resins (PP, PE) **c) Additives, Fillers & Gelcoat** • Fillers, pigments, catalysts, hardeners **d) Core Materials** • Foam cores (PVC, PET, PU) • Sandwich construction basics **e) Silicone membranes** – • Types, properties, selection criteria • Sealants, breather, peel ply, release films • Sealants, breather, peel ply, release films	**Process Principles** • Silicon bagging • Vacuum fundamentals (pressure, flow, leak paths) • Resin infusion basics • Air evacuation and compaction principles • Importance of airtight sealing • Common defects and root causes **Equipment & Setup** • Vacuum pumps and accessories • Connectors, valves, hoses • Leak detection tools • Safety precautions

Module-4	Module-5
Thermotical Demonstration: • Tool preparation and cleaning • Layup preparation & sequencing • Placement of consumables • Silicone membrane handling techniques • Silicone bag placement and sealing techniques • Vacuum line setup & stabilization • Initial vacuum pull and leak checking • Sealing best practices • Vacuum stabilization	**Process Optimization & Troubleshooting** • Leak detection techniques (practical) • Wrinkles, bridging, dry spots – causes & prevention • Resin flow control issues • Reusability and maintenance of silicone bags

Day-2

Module-6	Module-7	Module-8
Full Hands-on Exercise Participants will perform: • Complete layup preparation • Silicone bag installation • Vacuum line connection • Leak testing and troubleshooting • Process monitoring • Vacuum Resin infusion • Demoulding (base on curing cycle)	**Quality Assurance & Inspection** • Visual inspection techniques • Dimensional checks • Void content awareness • Documentation and process control **Recap, Award & Certificate :** • Quiz	**Best Practices & Industrial Case Studies** • Cost comparison vs disposable bagging • Productivity improvement techniques • Real industrial examples • Do's and Don'ts checklist

Learning Outcomes

By the end of this 2-day training program, participants will gain;

- Understanding of silicone vacuum bagging principles
- Select appropriate materials and consumables
- Perform complete setup independently
- Identify and troubleshoot defects
- Improve process efficiency and reduce consumable costs

Training Methodology :

- Classroom sessions + Hands on training
- Customizable based on depth required, participants need & expectations
- Presentations, videos, demonstrations, sample handling
- Group activities, Question & Answers sessions
- End-of-program quiz / examination to check knowledge gain
- Awards & Certificates for Participation based on successful completion

Meet our Trainers :

Our training programs are delivered by highly qualified trainers with strong academic credentials and extensive industrial experience. Each trainer offers over a decade of practical expertise in composites, manufacturing processes, quality systems, and advanced engineering practices, strengthened by exposure to diverse industries and global best practices.

With deep technical mastery and a disciplined, results-focused teaching approach, our trainers deliver clear, high-value learning that emphasizes practical application and skill development. Their global perspective, professional competence, and strong instructional capability ensure participants gain relevant, impactful, and workplace-ready competencies.

Course Certificate :

Based on successful evaluation, an LICT certificate will be issued to participants.

Accommodations & Food arrangements :

Our training facilities feature over **2,000 sq. ft. of learning space** equipped with smart classrooms, projectors, screens, and audio-visual systems to support blended and interactive delivery for up to **50 participants per session**. We operate dedicated workshop spaces, including a **2,000 sq. ft. facility with** specialized labs for composites testing. The center is equipped with industry-grade simulation molds & manufacturing processes.

To support residential programs for up to **50 trainees**, we provide accommodation facilities, cafeteria services, and a physical library with books and technical journals.

We provide Cafeteria / pantry services for the participants.

Fees Structure :

Course fees without accommodation

Course with accommodation

Register Program :

Link for registration

Fees instruction-scanner, bank details

Contacts person name, mob no., email id…