



# Reaching Impact, Saturation and Epidemic Control (RISE)

## CHECKLIST FOR PRE-COMMISSIONING/ PRE-STARTUP REVIEW OF LIQUID MEDICAL OXYGEN (LMO) STORAGE TANK SYSTEM

YOU ARE INSTRUCTED TO READ THE FOLLOWING THOROUGHLY BEFORE PROCEEDING TO UNDERTAKE THE METHODS DESCRIBED.

UNDER NO CIRCUMSTANCES ARE THESE INSTRUCTIONS TO BE AMENDED OR ALTERED IN ANY WAY OTHER THAN BY THE AUTHOR / APPROVER.

THIS CHECKLIST IS MEANT TO BE USED/ COMPLETED BY ANY TECHNICAL STAFF AVAILABLE AT HOSPITALS MANAGING MGPS, MANIFOLD, PSA PLANTS, AND LMO TANKS.

Date	Author	Reviewer	Version No.	Pages	Next Review
December 2021	Joydeep	Varun Manhas, Bikramjit Debnath	1		Dec 2022

S. No	Description	Yes	No	Remarks
1.	Installation layout (construction and dimensions) are as per approved drawings? List out deviations (if any) in the table below:			
2.	Tank foundation has been made as per Original Equipment Manufacturer (OEM) drawing?			
3.	Standard foundation bolts were selected as per OEM recommendation?			
4.	Storage tank and vaporizer Installation: No covered shed is installed?			

5.	LMO tank & vaporizer has been sourced from Petroleum and Explosives Safety Organization (PESO) approved manufacturer?			
6.	Installation civil work has been done as per approved construction drawings?			
7.	Civil drawing from the LOX tank manufacturer is available?			
8.	Minimum 3m area free-space all-around the tank and vaporizer has been made available with adequate ventilation?			
9.	Adequate lighting (natural or illumination) has been provided for smooth operation after sunset?			
10.	LMO installation area: access has been restricted to Authorized Personnel only: No free access to unauthorized personnel/patients/public?			
11.	Electrical power supply (for lighting) has been provided by approved certified fixtures (as per PESO norms)?			
12.	Electrical connection exists inside the PESO approved area? If yes, please comment in the remarks section.			
13.	Installation facility has been approved/licensed by PESO as per norms?			
14.	Installation has been constructed as per approved layout and process and instrumentation diagram (P&ID)?			
15.	Total system and pipelines are hydro-tested and certified by authorized inspection agency?			
16.	Fire Fighting system is available at site as per PESO norms			
17.	Name plate details of tank, vaporizer and pressure reducing system (PRS) are as per purchase order (PO) terms (Technical data sheet)?			
18.	Name plate details of Receiver Vessels are as			

	per PO terms (Technical data sheet)?			
19.	Pressure Vessels (Receiver Vessels) are tested, certified and verified as per statutory approvals?			
20.	Maintenance spares and tools are available at site?			
21.	Manufacturers' Document Register: Test Certificates, Drawings, P&ID, Data Sheets, Material Safety Data Sheets (MSDS), Operations and Maintenance (O&M) Manuals, Warranty Certificates, etc. are available with user?			
22.	Commissioning and capital spares are available with end user?			
23.	Painting quality is as per PO terms?			
24.	Entire pipeline and valves, regulators and other equipment has been cleaned and certified by Authorized Inspection Agency to be suitable for "Oxygen Service Cleaned"?			
25.	Electrical Wiring is safely executed as per PO terms?			
26.	Piping and instrumentation single line diagram (SLD) is displayed on the installation area?			
27.	No physical damage visible by naked eyes?			
28.	End user training has been conducted by OEM			
29.	OEM representative is available during start-up/commissioning of system?			
30.	Product Labels, Signage, Nameplates are available on the system as well as respective component?			
31.	Safety Signage are available in the LMO tank area?			
32.	Major electrical installation, overhead electrical cables exist are within 7.5m radius? If yes, please comment in the remarks section.			
33.	Personal protective equipment (PPE)			

	(safety goggles, face shield, cryogenic gloves, gown) and fire extinguishers are available with the designated operators?			
34.	Operating Procedures” and “Maintenance Procedures” are displayed prominently in English and local vernacular language?			
35.	OEM has submitted “Warranty/Guarantee” certificates?			
36.	Water connection with Hosepipe (5m length) is available within 2m radius of storage tank?			
37.	“Product Hazchem” with supplier contact details (emergency contacts) are accessible and prominently displayed?			
38.	LMO Tank: Pressure Gauge and Level Gauge is supported by Test Certificate and Calibration Certificate?			
39.	LMO Facility: All gauges, valves, regulators, etc. are adjusted and set as per user parameters?			
40.	No vegetation (viz. trees, bushes, shrubs, grass, etc.) and combustible materials (viz. wood, paper, plastic, rubber items, etc.) are within 3m radius of LMO storage tank?			
41.	Adequate earthing and lightning arrestor protection have been provided to the LMO tank installation?			
42.	Proper drainage system to avoid rain-water logging has been provided?			
43.	No drainage within 7.5m radius of installation			
44.	3m high fencing with wire mesh and have access doors with lock and Key system?			
45.	Pipeline are painted as per IS2379 color code for medical oxygen?			

Date:

Plant Location Name:

Plant Capacity/Model Number:

Name of OEM Vendor/Supplier:

Name & Signature of PATH/CHRI representative (auditor):