

Ammonia Refrigeration PSM Compliance Checklist

Site / Project	_____	Address	_____
Inspector name	_____	Company	_____
Date	_____	Time	_____

Documentation aid only. Adapt this resource to the site, manufacturer instructions, and applicable local requirements. It does not replace a competent person, professional judgment, legal advice, or a required statutory form.

Inspection checklist

Refrigeration Engine Room - General Condition

☐ Are all engine room access points clearly marked with 'Anhydrous Ammonia - Authorized Personnel Only' signage?	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐ Verify the engine room ventilation system is operational and providing adequate air changes per hour (min. 6 ACH). Check airflow with an anemometer.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐ Confirm the emergency shutdown (ESD) switch is easily accessible, clearly labeled, and functional. Test the ESD monthly and record results.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐ Check that ammonia sensors are properly calibrated (within the last 6 months) and positioned at appropriate locations (e.g., near potential leak sources, low points).	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐ Inspect for any signs of ammonia leaks (odor, white vapor, oil spots) around flanges, valves, and equipment. Use an ammonia leak detector to verify.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐ Ensure adequate lighting (minimum 50 foot-candles) is provided throughout the engine room for safe operation and maintenance.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐ Verify the engine room is free of obstructions, debris, and combustible materials. Maintain clear walkways and access to equipment.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐ Confirm that appropriate warning signs (e.g., 'Danger - Anhydrous Ammonia', 'PPE Required') are prominently displayed.	☐ Pass	☐ Fail	☐ N/A	Notes: _____

☐	Inspect the emergency eyewash station and safety shower for proper function (minimum 15 minutes of continuous flow). Ensure the water is tepid (60-100°F).	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Verify the wind sock is in good condition and clearly visible to indicate wind direction in case of a release.	☐ Pass	☐ Fail	☐ N/A	Notes: _____

Piping and Vessels

☐	Visually inspect all ammonia piping for signs of corrosion, pitting, or thinning. Pay close attention to areas near welds and supports.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Verify that pipe supports are properly installed and maintained to prevent excessive stress on piping.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Inspect insulation on cold piping for damage or deterioration. Damaged insulation can lead to ice formation and corrosion under insulation (CUI).	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Confirm that pressure relief valves (PRVs) are properly sized, installed, and have current certification tags. Verify discharge piping is directed to a safe location.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Inspect ammonia vessels (e.g., receivers, accumulators) for signs of bulging, dents, or other damage. Review vessel inspection records for compliance.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Operate critical valves (e.g., isolation valves, control valves) to ensure they function smoothly and do not leak. Lubricate valve stems as needed.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Check all flanged connections for leaks using an ammonia leak detector. Tighten bolts as necessary, following proper torque specifications.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Ensure that all equipment nameplates are legible and contain accurate information (e.g., pressure rating, serial number).	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Verify oil pots on compressors are at the correct level and the oil is clean. Document oil changes.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Confirm the non-condensable gas purge system is functional and properly removing air from the system.	☐ Pass	☐ Fail	☐ N/A	Notes: _____

Personal Protective Equipment (PPE) and Emergency Response

☐	Verify that appropriate PPE (e.g., ammonia-rated respirators, gloves, eye protection, chemical suits) is readily available and in good condition.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
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☐	Confirm that all personnel who may need to use respirators have been properly fit-tested within the last year.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Review the emergency response plan for ammonia releases. Ensure it is up-to-date and readily accessible.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Verify that first aid supplies specific to ammonia exposure (e.g., sterile saline solution for eye irrigation) are available.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Check that the communication system (e.g., radios, alarms) is functional and can be used to alert personnel in case of an emergency.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Ensure that evacuation routes are clearly marked and unobstructed.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Inspect fire extinguishers for proper charge and current inspection tags. Ensure personnel are trained in their use.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Verify that spill control materials (e.g., absorbent pads, neutralizing agents) are readily available in case of an ammonia release.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Confirm that emergency drills are conducted regularly (at least annually) to practice the emergency response plan.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Verify that contact information for the local HAZMAT team is readily available.	☐ Pass	☐ Fail	☐ N/A	Notes: _____

Documentation and Training

☐	Verify that the PSM program is up-to-date and includes all required elements (e.g., process safety information, hazard analysis, operating procedures).	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Review operating procedures for all phases of operation (startup, shutdown, normal operation, emergency operation). Ensure procedures are readily available to operators.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Inspect maintenance records for all critical equipment (e.g., compressors, pumps, valves). Verify that maintenance is performed according to schedule.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Verify that all personnel involved in the operation and maintenance of the ammonia refrigeration system have received adequate training. Review training records.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Review the most recent Process Hazard Analysis (PHA) for the ammonia refrigeration system. Ensure that recommendations from the PHA have been implemented.	☐ Pass	☐ Fail	☐ N/A	Notes: _____

☐	Verify that a Management of Change (MOC) process is in place and followed for any changes to the ammonia refrigeration system.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Review the mechanical integrity program for the ammonia refrigeration system. Ensure that inspections and tests are performed according to schedule.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Verify that contractors working on the ammonia refrigeration system are aware of the hazards and have received appropriate training.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Confirm that a Pre-Startup Safety Review (PSSR) is conducted after any significant modifications to the ammonia refrigeration system.	☐ Pass	☐ Fail	☐ N/A	Notes: _____
☐	Review incident investigation reports for any incidents involving the ammonia refrigeration system. Ensure that corrective actions have been implemented.	☐ Pass	☐ Fail	☐ N/A	Notes: _____

Findings

#	Item	Location	Severity	Action required
1				
2				
3				
4				
5				
6				
7				
8				

Signature

Inspector signature _____

Name _____

Date _____