GUIDELINES FOR CHLORINE TANK CAR PIPE CONNECTOR INSPECTIONS

TECHNICAL BULLETIN

Introduction

At Olin, safety and environmental protection are top priorities. This technical bulletin provides information to help customers safely inspect chlorine tank car pipe connectors. Every customer and facility should evaluate their operations and assure that all safety regulations are met to protect employees, the community and the environment.

Pipe Connectors

Chlorine tank car angle valves are connected to the piping system using a 1" National Pipe Thread (NPT) externally threaded connector. Proper inspection and maintenance of the pipe connectors, sometimes called 'nipples,' 'sticks,' or 'stabbers,' are essential to prevent leaks from the threaded angle valve connection. Through cycles of repetitive use and tightening, these threads will become worn. Over time, this will result in the connector being inserted further into the body of the valve before the threads tighten. Eventually this can lead to the connector bottoming out in the angle valve socket before the threads engage, which can damage the valve port and cause leaks from the angle valve connection.

Chlorine Tank Car Connector

To prevent this, the pipe connector should be inspected and tested before connecting it to a chlorine tank car:

1. Discard or destroy any rejected connectors so that they cannot be used by accident. Inspect each connector for loose or flaking rust (inside and out), corrosion, thinning of its wall thickness, etc. Rust may become trapped in the seats of the tank car angle valve or other downstream process valves and prevent the valves from completely closing.
2. Remove exterior residues including thread tape or lubricant and other debris before conducting a detailed inspection of the threads. Once cleaned of debris, examine for obvious defects such as broken or bent threads. If these or any other visual defects are found, such as an 'egg-shaped' or out-of-round connector, do not use the connector.
3. As a last step, perform a mechanical thread inspection using a 1" NPT Go/No Go ring gauge. If the threads pass this test, then the connector can be used. If not, it should be replaced. Once the connector is inserted into the angle valve, at least two full threads should be visible outside the valve or the connector should not be used. Between uses, connectors should be capped to protect the threads and minimize moisture exposure.

Threads on a new connector passing the thread inspection

Threads on a worn connector failing the thread inspection

Ring and Thread Gauges

Ring gauges are commercially available from many suppliers. When purchasing a thread gauge, verify the gauge is specified as L1, 1" NPT with 11.5 threads per inch. To use the ring gauge, follow these steps:

1. First, confirm that the threads on the gauge and the connector being tested are clean and undamaged. If there is any damage to the gauge, it should be replaced. Handle the gauge with care and avoid dropping it or subjecting it to any type of impact to prevent damage to its accuracy.
2. Thread the connector being tested into the marked side of the ring gauge by hand until it is tight. Never force the gauge or use tools to tighten the connection when testing, as this can skew the results and could damage the connector or the gauge.
3. If the end of the connector is +/- 1 turn from flush with the unmarked side of the gauge, then the connector passes the test and can be used. If not, then it should be replaced.
4. After use, lightly coat the gauge with a chlorine-compatible grease like those used for the connector threads to protect it from corrosion.

NOTE: Only chlorine-compatible lubricants should be applied, as residue could be transferred from the gauge to the connector where it could come into contact with chlorine. If incompatible lubricants are used, the gauge must be cleaned before use to prevent transfer to the connector.

Additional Guidelines for Storage and Testing of Gauges

When not being used, the gauge should be securely stored in a dry location separate from other components to protect the gauge from damage. Most gauges are shipped in a protective case that can also be used to help protect the gauge during storage. The gauge should be checked periodically to ensure that it meets the specified tolerances. This can be done by sending the gauge off for verification, or by testing against a master gauge. Alternatively, ring gauges can be replaced on a periodic basis in lieu of testing them.

Product Safety Questions? Contact Us

At Olin, safety and environmental protection are top priorities. We provide technical assistance and resources for our customers to ensure the safe and environmentally sound use and handling of our products. Please contact your Olin representative for further information and support.

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