

CHLORINE CYLINDER & TON CONTAINER CUSTOMERS GENERIC SAFETY AND SECURITY CHECKLIST

Edition 2, Revision 1
May 2009



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1. INTRODUCTION

1.1 Purpose and Use

This checklist has been prepared to help evaluate the capability of North American customers of packaged chlorine (one ton container or smaller) to safely unload and otherwise handle chlorine at the facility where the chlorine is used. The checklist is intended only to provide limited information to assist both the supplier of chlorine and its customer. The checklist emphasizes key chlorine specific recommendations as developed by the Chlorine Institute. The checklist is intended to supplement Institute publications, not replace them. It is not meant to incorporate regulatory or other requirements that may be applicable at the facility. In the United States, facilities using or otherwise handling chlorine may be affected by OSHA's Process Safety Management Rule for Highly Hazardous Chemicals (PSM) and/or EPA's Accidental Release Prevention Requirement; Risk Management Programs (RMP). Canadian and Mexican facilities may have similar or other regulatory requirements.

This checklist should be completed by either representative(s) of the chlorine customer facility or by representative(s) of the chlorine supplier. Both the customer and the supplier should agree in advance who will complete the checklist and how it will be used. The completed checklist should be kept confidential between the parties unless it is mutually agreed to release it to other parties. The chlorine supplier and customer should have a record retention policy for this checklist and should advise the other party what the policy is. The Institute recommends the checklist be completed and used as follows:

- (1) Complete the information as indicated in Section 2.
- (2) For Sections 3-9, answer each question with a yes, no, or not applicable (N/A) response. A N/A response is indicated, when the item is not applicable to the facility.
- (3) Each item in Sections 3-10, includes a space for comments. It is not intended that each item in the completed checklist has a comment written in this section. It is expected that most answers will not require that comments be included. Comments should be included where necessary to clarify a response. Such clarification may be helpful to a subsequent reviewer if the response is negative. Comments should be fact-based.
- (4) Each item includes a reference where the item is discussed in more detail in specific Chlorine Institute publications. Section 11 provides a complete listing of such references. It is recommended that the pamphlets referenced be consulted when completing the checklist to insure the item is fully understood.
- (5) Upon completion of the checklist, the chlorine supplier and customer should discuss it and agree to any needed actions that would enhance the capability of the chlorine customer to safely unload and otherwise handle chlorine at the involved facility, and determine a timetable for corrective implementation.

1.2 Chlorine Institute Stewardship Program

The Chlorine Institute, Inc. exists to support the chlor-alkali industry and serve the public by fostering continuous improvements to safety and the protection of human health and the environment connected with the production, distribution and use of chlorine, sodium and potassium hydroxides, and sodium hypochlorite; and the distribution and use of hydrogen chloride. This support extends to giving continued attention to the security of chlorine handling operations.

Chlorine Institute members are committed to adopting CI's safety and stewardship initiatives, including pamphlets, checklists, and incident sharing, that will assist members in achieving measurable improvement. For more information on the Institute's stewardship program, visit CI's website at www.chlorineinstitute.org.

1.3 Description of the Question Format

All items in this checklist are important for enhancing safety, health, environmental protection and security. To help facilitate continuous improvement, the Chlorine Institute's Customer Stewardship Issue Team wanted to provide guidance to checklist users by highlighting certain items to focus attention in the event deficiencies are found.

1.4 Approval

The Institute's Customer Stewardship Issue Team approved this checklist on December 13, 2007.

1.5 Revisions

Changes to Edition 2 in Revision 1 were reference updates, particularly CI Pamphlets

Suggestions for revisions should be directed to the Secretary of the Institute.

2. GENERAL CUSTOMER INFORMATION

Company Name:

Facility Address:

Contact Name:

Phone:

E-mail:

Checklist completed by:

Date:

1. Does this facility participate in Responsible Care ®, Responsible Distributions ®, or similar program?

If not, list any comparable initiatives in which the facility participates.

2. Is this facility an OSHA, VPP Star, or Merit site? Has this facility received any other recognition for safety or environmental performance?

3. Does this facility meet the requirements of OSHA Process Safety Management (PSM)? **CI Pamphlet 85**

YES

NO

N/A

Comments

4. Does this facility meet the requirements of the EPA Risk Management Plan (RMP) and section 313 SARA Title III release reporting?
CI Pamphlets 64 & 162

YES

NO

N/A

Comments

Checklist Items	CI Pamphlet #(s) Other References	Yes	No	N/A	Comments
3. Security					
1 <i>Has your facility/company been required to complete a top screen analysis by the Department of Homeland Security (DHS)?</i>	Refer to DHS website for more information.				
2 <i>Has your facility/company developed a security plan?</i> a) <i>Site</i> b) <i>Transportation</i>	See your supplier for guidance.				
3 <i>Was your site security plan developed based on a recognized vulnerability assessment?</i>	Vulnerability Assessment Methodology (VAM) for Chemical Facilities, Sandia Laboratories Guidelines for Analyzing and Managing the Security Vulnerabilities of Fixed Chemical Sites, Center for Chemical Process Safety (CCPS) of the American Institute of Chemical Engineers (AIChE)				
4. Regulations					
1 <i>Does your facility/company meet the requirements of PSM (Process Safety Management, OSHA) and/or the RMP Rule (Risk Management Plan, EPA)?</i>	CI Pamphlet 64 CI Pamphlet 85 CI Pamphlet 162				
2 <i>What is the maximum number of chlorine cylinders or ton containers that are stored at this site?</i> a) <i>Cylinders (150lb or less):</i> b) <i>Ton Containers:</i>					

Checklist Items	CI Pamphlet #(s) Other References	Yes	No	N/A	Comments
<p>3 Does your facility/company transport chlorine containers?</p> <p>If yes, are you in compliance with DOT regulations for transporting chlorine?</p>	<p>CI Pamphlet 155</p>				
5. Personnel Safety and Training					
<p>1 Are all employees trained at least annually according to Chlorine Institute, DOT, OSHA, EPA, and any other federal or state regulations that are applicable to you? For example:</p> <ul style="list-style-type: none"> a) Hazard Communication Standard b) Hazardous Materials requirements of DOT c) Your Emergency Response Plan d) PPE Training e) Site Security 	<p>CI Pamphlet 1 Section 5: Employee Training & Safety CI Pamphlet 65, Section 12: Training in the use of personal protective equipment CI Pamphlet 155 Section 9: Employee Training</p>				
<p>2 Are accidents and incidents investigated and reviewed with operating personnel?</p>	<p>CI Pamphlet 85 Section 12: Incident Investigation</p>				
<p>3 Is a current MSDS available for chlorine?</p>	<p>CI Pamphlet 1 Section 5: Employee Training & Safety</p>				
<p>4 Are warning signs, Chlorine Wall Charts, and/or other safety information used and visible?</p>	<p>CI Pamphlet 1 Section 5: Employee Training & Safety</p>				
6. Emergency Response					
<p>1 Does the customer have a documented Emergency Response Plan?</p>	<p>CI Pamphlet 1 Section 4: Emergency Measures CI Pamphlet 64 Section 2: Organizational planning</p>				

Checklist Items	CI Pamphlet #(s) Other References	Yes	No	N/A	Comments
2 Do you utilize your employees to respond to and mitigate an onsite or offsite chlorine leak?					
3 Have emergency responders received training in accordance with local, state or provincial, and national requirements?	CI Pamphlet 64 Section 3: Planning for handling the emergency				
4 Do your responders routinely (quarterly minimum) drill on the use of the emergency equipment? a) If yes, have they been initially trained to the minimum technician level and annual refresher?	CI Pamphlet 64 Section 3: Planning for handling the emergency				
5 Has the plan been provided to the local fire department and the local emergency planning commission?	CI Pamphlet 64 Section 4: Planning for coordination with outside agencies				
6 Does the plan outline roles of authority and who would respond to and mitigate an on site chlorine leak and who would inform the local community on what to do in the event of an offsite impact of the release?					
7 Do you have emergency equipment (A or B Kit, containment vessel, and SCBA) on site? a) If yes, please specify the type of equipment.	CI Pamphlet 1 Section 4: Emergency Measures CI pamphlet 155 Section 10: Handling Emergencies CI Pamphlet 49 Section 3: Emergency Response CI Pamphlet 66 Section 3: Emergency Response				

Checklist Items	CI Pamphlet #(s) Other References	Yes	No	N/A	Comments
8 <i>Is the emergency responder equipment (SCBA, suits, etc.) inspected regularly and maintained in suitable condition?</i>	CI Pamphlet 65 Section 11: Maintenance of Personal Protective Equipment				
9 <i>Would you require offsite assistance to respond to a release of chlorine?</i> <i>a) If yes, who would you call?</i>					
10 <i>Have you verified that the offsite service that you would use has trained personnel to mitigate a chlorine release?</i>					
11 <i>Are wind socks or other means of determining wind direction appropriately located and easily visible from all areas of the facility?</i>	CI Pamphlet 1 Section 4: Emergency Measures CI Pamphlet 64 Section 3: Planning for handling the emergency				
12 <i>Does the Response Plan appropriately address communication with outside agencies, the media, and the neighboring public?</i>	CI Pamphlet 64 Section 4: Planning for coordination with outside agencies				
13 <i>Does the facility/company have chlorine monitoring and leak detection equipment in the cylinder and ton container storage and use areas?</i> <i>a) If yes, is monitoring equipment interfaced into an alarm system with appropriate detection set points?</i>	CI Pamphlet 64 Section 3: Planning for handling the emergency				

Checklist Items	CI Pamphlet #(s) Other References	Yes	No	N/A	Comments
7. Process Piping (liquid & gaseous service)					
1 Do piping, hoses and all other components comply with recommendations of CI, such as metallurgy, schedule (pipe thickness), welding requirements, etc?	CI Pamphlet 6 CI Pamphlet 95				
2 Are all components tested or replaced on a preventive maintenance basis?	CI Pamphlet 6 Appendix A, B. Installation & Maintenance				
3 Is the piping system well marked and clearly visible?	CI Pamphlet 6 Section 10: Piping Layout Design Considerations				
4 Are the piping and component systems protected from surrounding sources that could cause damage?	CI Pamphlet 6 Section 10: Piping Layout Design Considerations				
5 Does your facility/company utilize a vaporizer? a) If so, does it comply with CI Pamphlet 9?	CI Pamphlet 9 Section 3 : Design				
8. Process Equipment					
8.1 Scrubbing Equipment					
(A scrubber is defined as “a device for removal of chlorine from a stream via reaction adsorption or absorption.)					
1 Does your facility/company utilize a scrubber? a) If so, does it comply with CI Pamphlet 89?	CI Pamphlet 89 Section 1: Introduction; and section 4: System Design				

9. Storage and Use Areas					
1	<i>Are cylinders and ton containers segregated and properly secured as defined by the applicable fire and building codes?</i>				
2	<i>Are full ton containers stored so that each end is accessible in case a Kit B is needed?</i>	CI Pamphlet 155			
3	<i>Is the storage area free from debris and flammable materials?</i>	CI Pamphlet 1 Section 3 : Cylinders and Ton Containers CI Pamphlet 155			
4	<i>Are appropriate lifting devices being utilized to move ton containers?</i>	CI Pamphlet 1 Section 3 : Cylinders and Ton Containers CI Pamphlet 155			
5	<i>Are cylinders and ton containers stored away from any heat source?</i>	CI Pamphlet 1 CI Pamphlet 155			
6	<i>Are written operating procedures available and being utilized by employees that address the appropriate steps for hooking up and disconnecting cylinder and ton containers?</i>	CI Pamphlet 155			

10. REFERENCES

10.1 Chlorine Institute Pamphlets*

Chlorine Basics, ed. 7; Pamphlet 1; The Chlorine Institute: Arlington, VA, **2008**.

Piping Systems for Dry Chlorine, ed. 15; Pamphlet 6; The Chlorine Institute: Arlington, VA, **2005**.

Chlorine Vaporizing Systems, ed. 6; Pamphlet 9; The Chlorine Institute: Arlington, VA, **2002**.

Emergency Response Plans for Chlor-Alkali, Sodium Hypochlorite, and Hydrogen Chloride Facilities, ed. 6, revision 1; Pamphlet 64; The Chlorine Institute: Arlington, VA, **2008**.

Personal Protective Equipment for Chlor-Alkali Chemicals, ed. 5; Pamphlet 65; The Chlorine Institute: Arlington, VA, **2008**.

Atmospheric Monitoring Equipment for Chlorine, ed. 7; Pamphlet 73; The Chlorine Institute: Arlington, VA, **2003**.

Recommendations for Prevention of Personnel Injuries for Chlorine Production and Facilities, ed. 4, Pamphlet 85; The Chlorine Institute: Arlington, VA, **2005**.

Chlorine Scrubbing Systems, ed. 3, revision 1; Pamphlet 89; The Chlorine Institute: Arlington, VA, **2008**.

Gaskets for Chlorine Service, ed. 4; Pamphlet 95; The Chlorine Institute: Arlington, VA, **2008**.

Water and Wastewater Operators Chlorine Handbook, ed 2; Pamphlet 155; The Chlorine Institute: Arlington, VA 2008

Generic Risk Management Plan for Chlorine Packaging Plants and Sodium Hypochlorite Production Facilities, ed. 2, revision 1; Pamphlet 162; The Chlorine Institute: Arlington, VA, **2004**.

*These pamphlets refer to issues raised in this checklist. See CI's website for other pamphlets that are currently available: www.chlorineinstitute.org

10.2 Other References

Vulnerability Assessment Methodology (VAM) for Chemical Facilities; Sandia Laboratories, <http://www.ncjrs.gov/pdffiles1/nij/195171.pdf> , 2002

Guidelines for Analyzing and Managing the Security Vulnerabilities of Fixed Chemical Sites; Center for Chemical Process Safety (CCPS) of the American Institute of Chemical Engineers (AIChE), **2002**.