

CATALOG

of Chlor-Alkali Technical and Safety Resources



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2011

CATALOG

of Chlor-Alkali Technical and Safety Resources

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Disclaimer

Information and suggestions contained in the pamphlets, drawings and other materials listed are drawn from sources believed to be reliable, and are based on the experiences of a number of members of the Chlorine Institute. The Institute and its members, jointly and severally, make no guarantee and assume no liability for information in the publications. **Prices are subject to change without prior notification.**

HOW TO CONTACT CI

For more information about the Chlorine Institute's technical resources and training programs, visit the Institute's web site at www.chlorineinstitute.org.

CI Bookstore

PO Box 1020
Sewickley, PA 15143-1020
Toll free telephone: (800) 662-3916
Int'l calls: (412) 741-1289
Fax: (412) 741-0609
Email: ChlorineBooks@abdintl.com

CI Headquarters

1300 Wilson Boulevard
Suite 525
Arlington, VA 22209
Telephone: (703) 894-4140
Fax: (703) 894-4130
Email: pubs@CL2.com
Website: www.chlorineinstitute.org

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ABOUT CI

The Chlorine Institute, Inc. was founded in 1924 to represent companies and other entities that are involved or interested in the safe production, distribution and use of chlorine, sodium and potassium hydroxides, and sodium hypochlorite, and the distribution and use of hydrogen chloride.

Today the Institute has approximately 200 member companies located in the U.S., Canada, Mexico, Central and South America, and overseas countries. Institute members account for a majority of the U.S. production of chlorine and related chlor-alkali chemicals.

Because of chlorine's nature and its widespread and varied use, the promotion of its safe handling has long been an accepted responsibility of its producers, packagers, distributors and users. The Institute is the focal point for their joint efforts.

A major challenge today for the chlor-alkali industry is to enhance the public's trust that the industry safely delivers the benefits of chlorine while successfully managing any associated risks. Meeting the challenge goes beyond just complying with regulations. Trust is built through dedicated stewardship.



MISSION

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.

The Institute strives to meet these obligations by maintaining a scientific and technical organization that fully meets the needs and expectations of its members and the public.

The Institute works with government agencies, its members, and other stakeholders to encourage the use of credible science and proven technology in the development of voluntary actions and regulations to enhance safety and security in operations involving its mission chemicals.

The Institute believes that its mission chemicals are essential to society and can be produced and used safely.

Goals

The Chlorine Institute sets out to accomplish its mission by:

- I. Improving the performance of safety, human health and environmental protection programs for chlor-alkali producers, packagers, distributors and users.
- II. Fostering the development of regulations that support the achievement of continuous improvement and voluntary mechanisms that preclude the need for new government regulations.
- III. Positioning the Institute as an authoritative and credible source of technical, safety and security-related information and emergency response procedures to prevent and mitigate the release of chlorine and other mission chemicals.



FREE PUBLICATIONS!

- In an effort to promote safety stewardship within the chlor-alkali industry, The Chlorine Institute is now offering free download access to pamphlets through the online bookstore. *(Pamphlets 10 and 72 are not included in this program but are still available for purchase through the bookstore.)*

THE VALUE of CI Membership

Companies who join the Institute benefit from:

- « Technical expertise and consensus standards on procedures, practices, materials, equipment, training and emergency response for the Institute's mission chemicals
- « Chlorine emergency response planning, training programs and equipment
- « Performance recognition awards for safety, environmental and leadership practices
- « Timely reports on regulatory developments relevant to your operations
- « The Institute's liaison work with government agencies to provide technical information and emphasize the need for sound science and credible technology in the development of federal regulations on safety, health, environmental protection and security
- « Compliance assistance resources for federal government regulations
- « Industry statistics on chlorine/caustic production and shipment
- « Safety and environmental data and best practices
- « Member discounts on the Institute's technical manuals and training programs
- « Online directory of CI member companies
- « Assistance developing plant security vulnerability assessment tools & security plans
- « Media relations assistance and resources
- « Leadership development opportunities for employees serving on CI issue teams and Board of Directors
- « Networking opportunities at CI meetings
- « Exclusive sponsorship opportunities

OUR COMMITMENT TO Chlorine Stewardship

All Chlorine Institute member companies that produce, distribute, or use chlorine must sign an annual commitment to implement and maintain the following safety and security practices:

1. Promote and demonstrate safety and security in the production, distribution, and use of chlorine in accordance with the Chlorine Institute's mission;
2. Comply with all relevant regulations;
3. Implement and comply with the Institute's Policy on Chlorine Safety and Security Stewardship with the ultimate goal of eliminating all chlorine incidents;
4. Perform annual safety and security audits, and emission and hazard evaluations of our operations;
5. As chlorine suppliers, we assure that each chlorine customer has a risk management program in place for the proper handling of chlorine including a documented training program and an emergency response plan, and that:
 - a. Bulk chlorine (tank trucks or larger) customers comply with the Chlorine Customer Generic Safety and Security Checklist or a comparable document or have a process in place to timely correct any deficiencies; and
 - b. Packaged chlorine (100 pounds or larger) customers comply with the Chlorine Customer Generic Safety and Security Checklist or a comparable document by the end of 2009 or have a process in place to timely correct any deficiencies;
6. As chlorine users, we work with our chlorine suppliers to ensure that we are in compliance with the Chlorine Customers Generic Safety and Security Checklist or comparable documents developed by our suppliers in accord with the above timelines;

Company MEMBERSHIP Criteria

Any company engaged in the production, packaging, distribution or use of chlorine, caustic soda, caustic potash, sodium hypochlorite; the distribution and use of hydrogen chloride; or any company interested in the development and improvement of the chlor-alkali industry is eligible for membership. The four categories of membership are:

North American Producer membership is open to companies that produce chlorine, caustic soda or caustic potash in the United States, Canada and Mexico.

Packager/Bleach Producer membership is open to companies located in North America that produce bleach and package chlorine in 100- or 150-pound cylinders or one-ton containers or cargo tanks.

Overseas Producer membership is open to companies located outside the United States, Canada and Mexico that produce chlorine, caustic soda or caustic potash.

Associate membership is open to all other companies with an interest in the chlor-alkali industry, including makers of equipment for producing, handling, shipping and dispensing chlorine; salt suppliers; chlorine consumers; water and wastewater treatment facilities; pool chlorinators; and designers and builders of chlorine plants.

7. Minimize and mitigate the effects of any release to ensure that a timely and appropriate response is made at the scene of any transportation and/or storage and handling incident involving chlorine;
8. Conduct periodic test drills of a comprehensive, in-house emergency response plan at all locations where we produce, store, handle or use chlorine; and
9. Work with local officials to establish and maintain effective emergency response plans for their communities.

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CI Membership = Bottom Line Benefits

In addition to the many benefits of membership listed on page 5, new CI member companies enjoy immediate bottom-line value with:

- 60% discount on all publications, drawings and A/V Materials.
- 6 FREE hard copy technical pamphlets of your choice from the 2011 Catalog.
- ONE COMPLIMENTARY meeting registration to the CI meeting of your choice.
- Annual subscription to the Institute's Monthly U.S. Chlorine & Caustic Production & Shipment Report—see page 13.

SUMMARIES

Safe Production, Handling & Packaging

Pamphlet 1)

Chlorine Basics

Edition 7, October 2008

Contains basic information including properties and physiological effects of chlorine, description and rules for handling chlorine containers, emergency measures and first aid, and chemical and physical characteristics.

Members \$28.00

Non-members \$70.00

Pamphlet 5)

Bulk Storage of Liquid Chlorine

Edition 7, October 2005

Recommends design, construction, location, installation and inspection of non-refrigerated liquid chlorine storage systems.

Members \$36.00

Non-members \$90.00

Pamphlet 6)

Piping Systems for Dry Chlorine

Edition 15, May 2005

Contains information on selected pipe, valves and fittings suitable for use with dry chlorine (gas or liquid) within the range of 150°F and 300°F. Includes Drawings 118 and 136.

Members \$56.00

Non-members \$140.00

Pamphlet 9)

Chlorine Vaporizing Systems

Edition 6, October 2002

Contains information intended to assist in the selection, design and safe operation of vaporizers.

Members \$26.00

Non-members \$65.00

Pamphlet 17)

Packaging Plant Safety and Operational Guidelines

Edition 4, Revision 1, October 2009

Contains recommendations for receiving, inspecting, testing and reconditioning chlorine cylinders, ton containers, valves and fusible plugs at packaging plants. It also covers procedures for filling these containers. Includes drawings 110, 111, 112, 113, 121, 130, 131, 189 and 195.

Members \$36.00

Non-members \$90.00

Pamphlet 21)

Nitrogen Trichloride - A Collection of Reports and Papers

Edition 5, October 2002

A compilation of reports and discussions on the subject at past Chlorine Institute Plant Operations Seminars.

Members \$36.00

Non-members \$90.00

Pamphlet 49)

Recommended Practices for Handling Chlorine Bulk Highway Transports

Edition 9, January 2009

Contains general information useful to anyone concerned with chlorine in tank trucks. Includes information on driver qualifications and vehicle routing; loading, in-transit and unloading practices; excerpts of pertinent DOT regulations; and tank truck loading check list. Includes drawings 101, 102, 103, 104, 105, 106, 119, 137, 168, 201, H-51970 and H-50155.

Members \$28.00

Non-members \$70.00

Pamphlet 57)

Emergency Shut-Off Systems for Bulk Transfer of Chlorine

Edition 5, Revision 1, March 2009

Recommends practices for emergency shut-off protection against chlorine transfers involving bulk tanks.

Members \$20.00

Non-members \$50.00

Pamphlet 60)

Chlorine Pipelines

Edition 6, August 2007

Contains information on the transportation of gaseous and liquid chlorine in pipelines. Includes drawing 136.

Members \$24.00

Non-members \$60.00

Pamphlet 65)

Personal Protective Equipment for Chlor-Alkali Chemicals

Edition 5, February 2008

Provides information pertaining to personal protective equipment (including Respiratory Protection and Equipment) used in the manufacture or handling of chlorine and sodium hydroxide.

Members \$26.00

Non-members \$65.00

Pamphlet 66)

Recommended Practices For Handling Chlorine Tank Cars

Edition 4, Revision 1, April 2009

Provides guidelines, recommended practices and other useful information to personnel involved in the shipping, receiving, and/or tank testing of single unit chlorine tank cars. Includes drawings 102, 107, 167 and 201. (49 pages)

Members \$28.00

Non-members \$70.00

Pamphlet 73)

Atmospheric Monitoring Equipment for Chlorine

Edition 7, June 2003

Discusses experiences of CI members with ambient chlorine monitors and techniques involved in installing a successful chlorine monitoring system. Provides listing of known monitoring equipment vendors. (27 pages)

Members \$28.00

Non-members \$70.00

Pamphlet 76)

Guidelines for the Safe Motor Vehicular Transportation of Chlorine Cylinder and Ton Containers

Edition 4, December 2007

Provides guidelines and practices based on packagers' consensus recommendations for shipping chlorine cylinders and ton containers on the highways. Includes drawings showing various container fastening techniques. A program for training drivers in safe handling and emergency procedures is presented. (21 pages)

Members \$24.00

Non-members \$60.00

Pamphlet 80)

Recommended Practices for Handling Sodium Hydroxide Solution and Potassium Hydroxide Solution (Caustic) Barges

Edition 3, January 2001

Intended to be the safety information source for training personnel handling unmanned barges containing caustic soda or caustic potash solution. (28 pages)

Members \$24.00

Non-members \$60.00

Pamphlet 82)

Recommendations for Using 100 & 150 Pound Chlorine Cylinders at Swimming Pools

Edition 2, October 2008

Designed to provide basic information for the safe handling and use of chlorine cylinders kept on site at swimming pools.

Members \$28.00
Non-members \$70.00

Pamphlet 85)

Recommendations for Prevention of Personnel Injuries for Chlorine Production and Use Facilities

Edition 5, November 2010

Discusses the core elements of a comprehensive safety program for individuals involved in producing and using chlorine and caustic soda.

Members \$34.00
Non-members \$85.00

Pamphlet 86)

Recommendations To Chlor-Alkali Manufacturing Facilities for the Prevention of Chlorine Releases

Edition 5, October 2010

Provides guidelines for manufacturing facilities to help prevent the occurrence of uncontrolled releases of chlorine.

Will assist chlor-alkali manufacturers in implementing ACC's Responsible Care Process Safety Management of Highly Hazardous Chemical Rule.

Members \$22.00
Non-members \$55.00

Pamphlet 87)

Recommended Practices for Handling Sodium Hydroxide Solution and Potassium Hydroxide Solution (Caustic) Tank Cars

Edition 3, May 2005

Provides guidelines, recommended practices and other useful information for the safe shipping, handling and/or receiving of sodium hydroxide solution and potassium hydroxide solution in tank cars.

Members \$44.00
Non-members \$110.00

Pamphlet 88)

Recommended Practices for Handling Sodium Hydroxide Solution and Potassium Hydroxide Solution (Caustic) Cargo Tanks

Edition 3, March 2010

Provides guidelines, recommended practices and other useful information for the safe shipping, handling and receiving of sodium hydroxide solution and potassium hydroxide solution.

Members \$28.00
Non-members \$70.00

Pamphlet 89)

Chlorine Scrubbing Systems

Edition 3, Revision 1, October 2008

General guidance and source information for reference in the design of chlorine scrubbing systems. Not a design criteria, nor does it imply that scrubbers are necessary. Potential hazards and process engineering guidance are included.

Members \$24.00
Non-members \$60.00

Pamphlet 91)

Checklist for Chlorine Packaging Plants, Chlorine Distributors and Tank Car Users of Chlorine

Edition 3, April 2006

A checklist designed to help plants using or packaging chlorine from tank cars to evaluate their training, equipment and safety practices.

Members \$24.00
Non-members \$60.00

Pamphlet 94)

Sodium Hydroxide Solution and Potassium Hydroxide Solution (Caustic) Storage Equipment and Piping Systems

Edition 3, May 2007

Provides useful information concerning the storage and piping of sodium hydroxide and potassium hydroxide solutions and offers practical suggestions in the design, construction and operation of these systems.

Members \$30.00
Non-members \$75.00

Pamphlet 95)

Gaskets for Chlorine Service

Edition 4, October 2008

Now covers both dry and wet gaskets. Provides guidance to the industry and the public relative to practical materials that can be substituted for asbestos in gasket applications for chlorine service. Institute-developed test protocols are offered to facilitate consistent testing. Results of field tests by CI members, failures as well as successes, conducted under these protocols are listed.

Members \$26.00
Non-member \$65.00

Pamphlet 96)

Sodium Hypochlorite Manual

Edition 3, Revision 1, November 2008

Contains information for the safe production, handling and use of both industrial and household strength solutions. Provides basic information on useful physical and chemical properties, as well as compatible materials, handling systems and pertinent analytical procedures.

Members \$30.00
Non-members \$75.00

Pamphlet 98)

Recommended Practices for Handling Hydrochloric Acid in Tank Cars

Edition 3, Revision 2, July 2007

Provides guidelines, recommended practices and other useful information for the safe loading, unloading, shipping, and handling of hydrochloric acid in railroad tank cars. Includes a new appendix on rubber lining.

Members \$30.00
Non-members \$75.00

Pamphlet 99)

Hydrogen Chloride, Anhydrous (Non-Refrigerated) - Use, Handling and Transportation of Cylinders and Tube Trailer

Edition 3, October 2008

Provides information for the recommended practices for the safe shipping, handling and receiving of non-refrigerated anhydrous hydrogen chloride in cylinders or tube trailers.

Members \$24.00
Non-members \$60.00

SUMMARIES

Pamphlet 139)

Electrical Safety in Chlor-Alkali Cell Facilities

Edition 4, April 2005

Provides information regarding electrical safety for those responsible for operations and maintenance in chlor-alkali facilities.

Members \$34.00
Non-members \$85.00

Pamphlet 150)

Recommended Practices for Handling Hydrochloric Acid in Cargo Tanks

Edition 2, Revision 1, October 2008

Recommends practices and other useful information for the safe shipping (loading), handling and/or receiving (unloading) of hydrochloric acid in tank motor vehicles.

Members \$28.00
Non-members \$70.00

Pamphlet 152)

Safe Handling of Chlorine Containing Nitrogen Trichloride

Edition 2, October 2005

Provides useful information to producers, distributors, repackagers, and users of chlorine. Discusses nitrogen trichloride, a trace impurity commonly found in chlorine that could lead to the explosive decomposition of nitrogen trichloride in chlorine containing systems.

Members \$30.00
Non-members \$75.00

Pamphlet 155)

Water and Wastewater Operators Chlorine Handbook

Edition 2, January 2008

Provides basic information on chlorine safety and handling necessary for treatment plant personnel and other users of cylinders or ton containers.

Members \$28.00
Non-members \$70.00

Pamphlet 163)

Hydrochloric Acid Storage and Piping Systems

Edition 2, August 2006

Provides useful information concerning the storage and piping of hydrochloric acid solutions and offers practical suggestions in the design, construction and operation of these systems.

Members \$28.00
Non-members \$70.00

Pamphlet 164)

Reactivity and Compatibility of Chlorine and Sodium Hydroxide with Various Materials

Edition 2, August 2007

Provides information concerning the compatibility of these two substances with a variety of materials and their reactivity with other chemicals. The pamphlet attempts to cover only those materials and chemicals typically found in facilities producing, using or otherwise handling chlorine and/or sodium hydroxide. This pamphlet is not meant to provide the detailed technical information that may be required by process engineers.

Members \$26.00
Non-Members \$65.00

Pamphlet 165)

Instrumentation for Chlorine Service

Edition 2, July 2009

Provides guidelines and practices for the selection of materials, selection of primary elements and control devices and the design of instrumentation, including sensing lines for gas and liquid chlorine service. The recommendations are based on current industry practices.

Members \$26.00
Non-members \$65.00

Pamphlet 166)

Angle Valve Guidelines for Chlorine Bulk Transportation

Edition 1, October 2002

Provides performance/selection criteria to identify valves other than the 'standard' suitable for use on bulk liquid chlorine transportation equipment. An appendix includes information on valves that meet these criteria. Includes drawings from four valve suppliers.

Members \$24.00
Non-members \$60.00

Pamphlet 167)

Learning From Experience

Edition 1, March 2002

Provides information concerning incidents that have occurred in chlorine production and use facilities. Fourteen incidents described. These relate to electrical shock or burn, chemical burns, explosions and fires. Two incidents pertaining to chlorine releases during loading/unloading operations are described. The pamphlet presents information describing the incidents, the corrective action undertaken, and the lessons learned. This pamphlet consolidates information about incidents that have occurred in the last twelve years into a single publication. All the information presented has been discussed in prior Institute committee meetings, workshops, seminars, etc.

Members \$20.00
Non-Members \$50.00

Health and the Environment

Pamphlet 125)

Guidelines: Medical Surveillance and Hygiene Monitoring Practices for Control of Worker Exposure to Mercury in the Chlor-Alkali Industry

Edition 4, January 2004

Members \$12.00
Non-members \$30.00

Pamphlet 137)

Guidelines: Asbestos Handling for the Chlor-Alkali Industry

Edition 5, October 2005

Includes excerpts from DOT, OSHA and EPA regulations.

Members \$26.00
Non-members \$65.00

Emergency Planning and Response

WC-1)

Wall Chart: Handling Chlorine Cylinders and Ton Containers *Edition 2, July 2001*

Contains recommendations for safe handling of chlorine cylinders and ton containers, emergency procedures and applicable principles of first aid.

Members \$22.00
Non-members \$55.00

WC-1S)

Wall Chart: Manejo de Cilindros y de Envases de Una Tonelada Con Cloro *June 2002*

Members \$22.00
Non-members \$55.00

WC-2)

Wall Chart: Handling Sodium Hypochlorite *Edition 1, November 2009*

Designed to serve as general references for end users of sodium hypochlorite, this chart contains recommendations for safe handling of sodium hypochlorite, emergency procedures and applicable principles of first aid.

Members \$22.00
Non-members \$55.00

Pamphlet 63)

First Aid, Medical Management/ Surveillance and Occupational Hygiene Monitoring Practices for Chlorine *Edition 7, October 2003*

Provides information for the administration of first aid and medical treatment for anyone who has been exposed to gaseous or liquid chlorine. In addition, this pamphlet provides information pertaining to the administration of medical surveillance programs, exposure assessment programs, and industrial hygiene practices for persons who may be potentially exposed to chlorine.

Members \$22.00
Non-members \$55.00

Pamphlet 64)

Emergency Response Plans for Chlor-Alkali, Sodium Hypochlorite, and Hydrogen Chloride Facilities *Edition 6, Revision 1, October 2008*

Includes information essential to the preparation or updating of formal, written emergency control plans applicable to chlorine-producing, chlorine-packaging, and chlorine-consuming facilities.

Members \$26.00
Non-members \$65.00

Pamphlet 74)

Guidance on Complying with EPA Requirements Under the Clean Air Act by Estimating the Area Affected by a Chlorine Release *Edition 4, Revision 1, February 2006*

Provides graphs showing downstream chlorine plots at 25 and 10 ppm for 16 scenarios. Useful for small producers, users and local emergency planning committees for planning purposes. Three atmospheric conditions are shown for each scenario.

Members \$56.00
Non-members \$140.00

Pamphlet 160)

Estimating the Area Affected by a Hydrogen Chloride Release *Edition 1, May 1999*

Provides a simplified document to be used by the small producer(s) and user(s) of anhydrous hydrogen chloride and hydrochloric acid, local emergency planning committees, fire departments and municipalities to estimate the area affected by a hydrogen chloride release for emergency planning and hazard assessment purposes.

Members \$32.00
Non-members \$80.00

Pamphlet 162)

Generic Risk Management Plan for Chlorine Packaging Plants and Sodium Hypochlorite Production Facilities *Edition 2, Revision 1, December 2004*

Guidance document for preparing Risk Management Plans for chlorine packaging plants and sodium hypochlorite production facilities.

Members \$30.00
Non-members \$75.00

IB/A)

Instruction Booklet: Chlorine Institute Emergency Kit "A" for 100-lb. and 150-lb. Chlorine Cylinders *Edition 11, January 2009*

Provides instructions and illustrates the use of Chlorine Institute Emergency Kit "A." Includes complete parts list.

Members \$20.00
Non-members \$50.00

IB/B)

Instruction Booklet: Chlorine Institute Emergency Kit "B" for Chlorine Ton Containers *Edition 10, January 2009*

Provides instructions and illustrates the use of Chlorine Institute Emergency Kit "B." Includes complete parts list.

Members \$20.00
Non-members \$50.00

IB/C)

Instruction Booklet: Chlorine Institute Emergency Kit "C" for Chlorine Tank Cars and Tank Trucks *Edition 9, January 2009*

Provides instructions and illustrates the use of Chlorine Institute Emergency Kit "C." Includes complete parts list.

Members \$20.00
Non-members \$50.00

IB/RV)

Instruction Booklet: CI Recovery Vessels for 100-lb. and 150-lb. Chlorine Cylinders *Edition 2, March 2009*

Provides instructions and illustrates the use of Chlorine Institute Recovery Vessel. Includes complete parts list.

Members \$20.00
Non-members \$50.00

SUMMARIES

Properties of Chemicals and Analytical Techniques

Pamphlet 72)

Properties of Chlorine in SI Units

Edition 2, July 1986

Covers density, volume, vapor pressure, heat capacity ratio, compressibility, enthalpy, entropy fugacity coefficient, Joule Thompson coefficient, velocity of sound, surface tension, thermal conductivity and viscosity.

Members \$28.00

Non-members \$70.00

Pamphlet 100)

Dry Chlorine: Definitions and Analytical Issues

Edition 3, September 2002

Provides a technical definition of dry chlorine over a wide range of temperature and dissolved water content conditions. It contains charts showing the solubility of water in chlorine to determine if the moisture content is under control and corrosive conditions exist. Also includes a discussion of sampling techniques to avoid moisture contamination problems.

Members \$28.00

Non-members \$70.00

Pamphlet 121)

Explosive Properties of Gaseous Mixtures Containing Hydrogen and Chlorine

Edition 3, January 2009

Members \$22.00

Non-members \$55.00

ASTM Analytical Methods should be ordered directly through the ASTM in Conshohocken PA.

Phone: (610) 832-9500

Fax: (610) 832-9555

Web: www.ASTM.org

APPLICATIONS OF CHLORINE

Over 200 years ago, a young Swedish researcher, Carl Wilhelm Scheele, discovered chlorine. Because of its reactivity and bonding characteristics, chlorine has become a popular building block in chemistry, and it is essential in everyone's life. Drinking water, agricultural abundance, disinfected wastewater, essential industrial chemicals, bleaches and fuels all depend on chlorine. Pharmaceuticals, plastics, dyes, cosmetics, coatings, electronics, adhesives, clothing and automobile parts are examples of product groups that depend on chlorine chemistry.



Automotive

Foam Seating
Paints
Plastic Bumpers
Molding Instruments
Floor Mats
Fabric
Seat Belts
Tire Cords
Dashboards
Hoses

Construction

Carpeting
Upholstery
Wire Insulation
Pipes
Siding
Flooring
Paints
Coatings

Defense

Bullet-Proof Vests
Helmets
Parachutes
Water Repellant Fibers
Shatter-Resistant Glass
Titanium Aircraft
Jet Engines
Missiles

Electronics

Semiconductors
Computer Disks
Wire Insulation

Food Production & Handling

Herbicides
Vitamins B1 & B6
Cleaners
Disinfectants
Thermal Insulation
Sterile Packaging

Health Care

Electronic Instruments
Sterile Packaging
Surgical Equipment
Cleaning Compounds
Prescription Eye Wear
Laboratory Reagents

Medicines

Antibiotics
Cancer Treatment
Pain Relievers
Local Anesthetics
Antihistamines
Decongestants

Metal Production

Magnesium
Nickel
Bismuth
Titanium
Zirconium
Zinc

Outdoor Recreation

Neoprene Wet Suits
Inflatable Rafts
Golf Grip
Surf Boards
Nylon Ropes
Tents
Sleeping Bags
Coats
Backpacks
Waterproof Clothing

Water Treatment

Safe Drinking Water
Wastewater
Treatment

Chlorine Manufacturing And Industry Data

Pamphlet 10)

North American Chlor-Alkali Industry Plants and Production Data Report for 2009

August 2010

Lists location of chlor-alkali plants and chlorine packaging facilities with types of cells and shipping containers loaded at each location. A new table added in 2001 lists Sodium Hypochlorite Production facilities in North America. Includes annual data on chlorine capacity, production and shipments in the U.S., Canada and Mexico, some by geographical distribution; summarizes chlorine production routes (1946 onward). Updated annually.

Members \$36.00
Non-members \$90.00

CCPSR-10)

Monthly US Chlorine & Caustic Production Statistics Report

CI offers a monthly report on industry production capacity for chlorine, and the quantity of chlorine actually produced, liquified, and shipped for each month. It also includes production data for sodium hydroxide. It does NOT contain any pricing or inventory data. CI issues each month's report before the end of the following month.

Members: included in annual dues
Non-members: \$125 annual subscription

INDEX)

Chronological Index of Health, Environment, Safety, and Security (HESS) Seminar Proceedings

March 2010

Lists titles of all papers and authors for seminars from 1957 onward. Provides details on purchase of Seminar Proceedings.

Free to download

SEMINAR)

Health, Environment, Safety, and Security (HESS) Seminar Proceedings

March 2010, 53rd meeting

PDF download only.

Members \$36.00
Non-members \$90.00

Audio-Visual Materials

A-DVD)

How to Use the Chlorine Institute Emergency Kit "A" for 100-lb. and 150-lb. Chlorine Cylinders

Edition 3, January 2009

Covers what to do in a chlorine emergency, where leaks occur on a chlorine cylinder and the proper use of tools and devices in the Emergency Kit A.

Members \$48.00
Non-members \$120.00

A-DVD-S)

Como Usar el estuche de emergencia "A" del Instituto del cloro, para cilindros de cloro de 45 y 68 kgs de capacidad, 1998

Spanish Version.

Members \$48.00
Non-members \$120.00

B-DVD)

How to Use the Chlorine Institute Emergency Kit "B" for Chlorine Ton Containers

Edition 2, June 2006

Covers what to do in a chlorine emergency, where leaks occur on a chlorine ton container and the proper uses of tools and devices in the Emergency Kit B.

Members \$36.00
Non-members \$90.00

C-DVD)

How to Use the Chlorine Institute Emergency Kit "C" for Chlorine Tank Cars and Tank Trucks

Edition 1, June 2005

13-minute sound/color DVD designed to train personnel in the proper use of tools and devices supplied in Emergency Kit C.

Members \$79.00
Non-members \$199.00

C-DVD-S)

Instrucciones para el uso del Kit "C" del Chlorine Institute para eliminar fugas de cloro en carros-tanque y autos-tanque, 1996

Spanish Version.

Members \$79.00
Non-members \$199.00

CL-DVD)

Chlorine Vapor Suppression Test Edition 1, 1991

Vapor Suppression (12 minutes). Chlorine-release tests at U.S. Energy Department's Mercury, Nevada test site, with commentary.

Members \$32.00
Non-members \$80.00

H-DVD)

First Response to Short-Term Chlorine Exposures

Edition 2, November 2006

Overview of medical symptoms and treatment of chlorine exposure.

Members \$32.00
Non-members \$80.00

HCL-DVD)

Handling Hydrochloric Acid Safely Edition 2, 2010

Provides guidelines, recommended practices and other information for the safe handling, loading and unloading of hydrochloric acid tank cars and tank trucks.

Members \$32.00
Non-members \$80.00

HYPO-DVD)

Handling Sodium Hypochlorite Safely Edition 2, 2010

21-minute DVD intended for all who handle or may handle NaOCl.

Members \$32.00
Non-members \$80.00

SUMMARIES

P-DVD)

Packager Training Program

Edition 2, 2001

DVD Program designed for use by chlorine packaging plants as a training tool for new and established employees. It provides an overview of the steps involved with tank car unloading, cylinder and ton container inspections and valve reconditioning.

Members \$48.00

Non-Members \$120.00

W-DVD)

Chlorine Safety for Water and Wastewater Operators

Edition 2, February 2009

Although produced with water & wastewater operators in mind, this DVD provides information about chlorine useful to everyone handling the chemical and especially for end users of cylinders and ton containers.

Members \$28.00

Non-members \$70.00

Drawings

DWG 101-7)

Excess Flow Valve with Removable Seat - 7000 Lbs./Hr. 1993. \$15.00

DWG 102-10)

Studs, Nuts and Gaskets for Chlorine Tank Manway Covers and Valves. 2001. \$15.00

DWG 103-8)

Manway Cover for Chlorine Tanks Cars and Cargo Tanks - 18" Manway. 2001. \$15.00

DWG 106-6)

Excess Flow Valve with Removable Basket. 1993. \$15.00

DWG 107-9)

Typical Manway Arrangement - Chlorine Tank Car. 2001. \$15.00

DWG 114-6)

Excess Flow Valve with Removable Seat - 15,000 Lbs./Hr. 1993. \$15.00

DWG 119-3)

Chlorine Tank Car Air Padding. 1993. \$15.00

DWG 122-2)

Ton Container Lifting Beam. 1993. \$15.00

DWG 127-2)

Testing Equipment for CI Standard Safety Valve, Type 4 JQ. 1995. \$15.00

DWG 128-2)

Tools for CI Standard Safety Valve, Type 4 JQ. 1995. \$15.00

DWG 132-2)

Test Stand for CI Standard Safety Valve, Type 4 JQ. 1995. \$15.00

DWG 136-8)

Chlorine Expansion Chambers. 2007. \$15.00

DWG 137-5)

Typical Manway Arrangement - Chlorine Cargo Tank. 1996. \$15.00

DWG 162-4)

Excess Flow Valve with Removable Seat - 30,000 Lbs./Hr. 1991. \$15.00

DWG 166-2)

Tool for Removing Seat Holder in Excess Flow Valve per Drawing 162. 1994. \$15.00

DWG 167-5)

Chlorine Tank Car Marking. 2001. \$15.00

DWG 168-5)

Chlorine Cargo Tank Marking and Placarding. 1998. \$15.00

DWG 171-2)

Small Union Connection. 1994. \$15.00

DWG 182-3)

A Locking Lug Arrangement for Valve Protective Housing on Ton Container. 1994. \$15.00

DWG 183-3)

Manifolding Ton Containers for Liquid Chlorine Withdrawal. 1994. \$15.00

DWG 184-3)

Gaskets for Cylinder and Ton Container Valve. 1997. \$15.00

DWG 185-6)

Cylinder and Ton Container Valves Packing Specifications. 2002. \$15.00

DWG 188-2)

Chlorine Cylinder Recovery Vessel. 1993. \$15.00

DWG 189-2)

Closed Yoke Chlorine Container Valve. 1997. \$15.00

DWG 190-3)

Condemning Limits Angle Valve Parts. 2002. \$15.00

“BY INDUSTRY, FOR INDUSTRY”



THE CHLORINE INSTITUTE

The Chlorine Institute takes a holistic approach to chlorine safety and stewardship by maintaining relationships across the chlor-alkali

industry to develop its technical resources. All technical pamphlets and resources are developed and reviewed by a team of experienced industry leaders from CI's member companies who serve on CI's five main issue teams and various advisory groups. The new issue teams are listed below:

DWG 194-4)

Optional Chlorine Cylinder Valve and Valve Details. 1997. \$15.00

DWG 195-2)

Fuse Plugs for Cylinder Valves. 1994. \$15.00

DWG 196-2)

Alternate Manway Cover for Chlorine Tank Cars. 1996. Set of 2. \$25.00

DWG 197-1)

Chlorine Ton Containers. 2001. \$15.00

DWG 201-3)

Maximum Internal Tank Pressure for Padding Chlorine Bulk Transports. 2001. \$15.00

DWG H-38572)

Pressure Relief Device for Chlorine Service, Metallic Seat Design, Styles 4 JQ300 and 4 JQ375. Rev. "G". Crosby Valve and Gage Co. 2001. \$15.00

DWG H-50155)

Pressure Relief Device for Chlorine Service - Elastomeric Seat Seal Design, Styles 1-1/2 JQ225 and 1-1/2 JQ375. Rev. "H". Crosby Valve and Gage Co. 1996. \$15.00

DWG H-51970)

Pressure Relief Device for Chlorine Service - Metallic Seat Design, Styles 1-1/2 JQ225 and 1-1/2 JQ375. Rev. "F". Crosby Valve and Gage Co. 2001. \$15.00

DWG H-86008)

Pressure Relief Device for Chlorine, Elastomeric Seat Seal Design, Styles 4 JQ300 and 4 JQ375. Rev. "A". Crosby Valve and Gage Co. 2001. \$15.00

Customer Stewardship Issue Team, established in 2006, serves as a forum for the industry's safety concerns and promotes zero releases, injuries and process safety incidents involving mission chemicals among our customers. This team enables the responsible use of mission chemicals among our customers.

Emergency Preparedness Issue Team, established in 2006, serves as a forum for CI's members who strive to minimize the impact of a chlorine or AHCl release by enabling the first responders to react in an effective manner. This team is responsible for ensuring that CHLOREP remains an effective emergency response tool.

Health, Environment, Safety and Security Issue Team, established in 2006, serves as a forum for members who work to achieve zero releases, injuries and process safety incidents. This team stays abreast of industry standards and regulations and keeps members informed of new developments that affect the health, environment, safety and security of the chlor-alkali industry.

Sustainable Technology Issue Team, established in 2006, serves as a forum for members who support the continued use and development of sustainable chlor-alkali technologies. This team keeps members informed of new developments that may affect the industry.

Transportation Issue Team,

established in 2006, is concerned with the ability to transport chlorine and other mission chemicals in a safe and secure manner. This team focuses on various facets of chlorine transportation by rail, highway and barge. The ultimate goal is to eliminate transportation accidents and releases.



ORDERING INFORMATION

Discounts

A quantity discount of 10% is available to CI member companies for orders of 20 or more of the same title.

Non-profit emergency response organizations and water and wastewater municipalities may order materials at the Institute's member prices. Emergency response organizations include fire, police and sheriff's departments, civil defense and medical authorities who need to train responders and use Institute materials on-site during chlorine incidents.

Ways to Order

The Chlorine Institute accepts product orders via Web, fax, phone and mail. Order online via credit card and download your publications from www.chlorineinstitute.org to save shipping and handling fees.

CI Bookstore

PO Box 1020
Sewickley, PA 15143-1020
Phone: 1-800-662-3916
Fax: 412-741-0609
www.chlorineinstitute.org
Email: ChlorineBooks@abdintl.com

Payment

All orders must be accompanied by payment. Checks or drafts must be payable in U.S. funds and drawn on a bank in the United States. Charges to VISA, Mastercard or American Express are accepted.

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Publications will be shipped via First Class Mail or UPS Ground unless otherwise requested and paid for by purchaser (e.g., overnight shipment). If express shipment is required, please specify on order form. A \$10.00 service fee plus the extra cost of express shipment will be added to your order.

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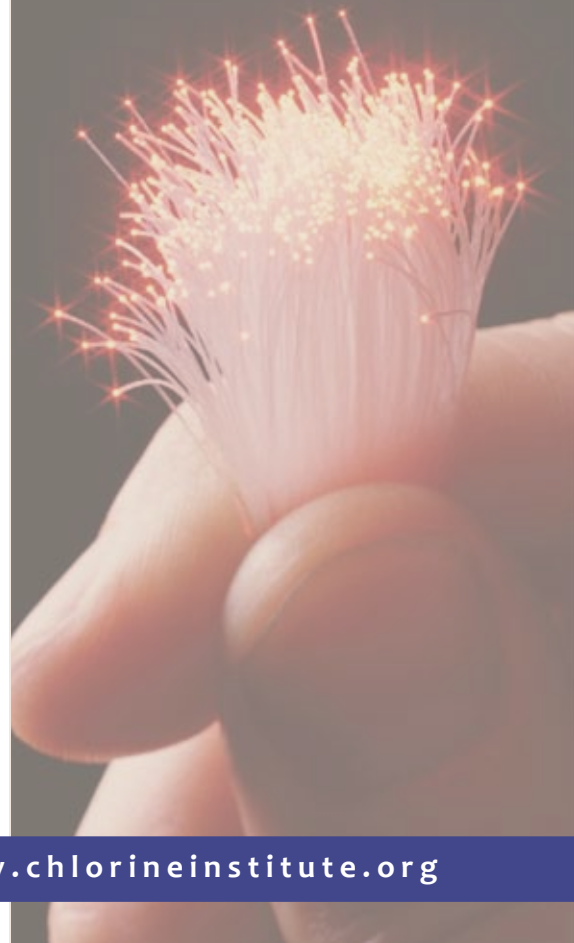
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* Prices are subject to change without prior notification.



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