



Chlorine: Ensuring Rail Transportation Safety

Americans Depend on Chlorine

Today, Americans expect clean, safe drinking water from their tap, innovative medicines and medical technologies when they visit their doctors, safe foods when they shop or go to a restaurant, state-of-the-art transportation and communications systems when they fly or talk on cell phones, and products that clean and disinfect their homes, schools and businesses. These expectations and many more are fulfilled everyday because of chlorine chemistry. Chlorine is essential to the quality of life in America and across the globe.

In addition, chlorine is helping to fulfill Americans' expectations for a greener, more sustainable tomorrow. Solar cells, wind-powered generators, hybrid cars, fiber optic cables, low-energy appliances and light bulbs, energy-saving insulation, lightweight building materials and much more depend on chlorine chemistry. Frequently, there are no alternatives to the use of chlorine for making these vital products, and even when there are, chlorine-based processes are often safer and more effective.

Chlorine Must Be Transported, and Rail Is the Safest Way

Because chlorine is used everywhere but only made in a few locations, it must be shipped and rail is the safest mode of transportation for chlorine. Almost all bulk chlorine, that is chlorine shipped from the manufacturers to the end user or repackager, is shipped by rail.¹ This amounts to approximately 30,000 tank car shipments per year.² Some chlorine moves via pipeline, generally within facilities or over very short distances. Chlorine also travels by truck, generally as repackaged 150 lb. cylinders or one-ton containers for smaller-scale use.

In 2007, former Federal Railroad Administrator Joseph A. Boardman summed up the chlorine rail safety record by noting that from 1965 through 2007, there were "at least 2.2 million tank car shipments of chlorine – only 788 of which were involved in accidents (0.036 percent of all the shipments). Of those accidents, there were 11 instances of a catastrophic loss (i.e., a loss of all, or nearly all) of the chlorine lading (0.0005 percent of all the shipments). Of the 11 catastrophic losses, four resulted in fatalities (0.00018 percent of all the shipments)."³ While no accident is ever acceptable, this strong safety record reflects an effective partnership between chlorine producers and the railroads.

Rail Safety – A Process of Continual Improvement

The chlorine industry is committed to the safe and secure transport of its products and works with rail partners and government to constantly improve safety performance.

¹ CI data

² AAR data cited by TSA

³ FRA Testimony, Senate Commerce Committee, January 2007



Rail safety involves many factors including train operations, car placement, track condition, equipment maintenance and car design. Chlorine producers and the railroads constantly enhance safety through training programs for rail and chemical facility personnel, and through TRANSCAER® *, which provides training to emergency responders. Railroads today also work more transparently with local security officials, providing timely information about shipments as needed.

Within the last two years, six new federal regulations and programs were implemented by the U.S. Department of Homeland Security and the U.S. Department of Transportation (DOT) to enhance the security of chemical production, transportation and use, including chlorine. Today, approximately 6,000 tank cars must meet tough DOT performance standards to be certified to carry chlorine. But, chemical producers, railroads, rail car manufacturers and DOT are working on an even-more crashworthy tank car design.

In January, 2009, DOT required the development of this “next generation” tank car, with the full support of the chemical industry. The new tank car will have enhanced side impact puncture resistance. In addition, each end of the tank car must be protected with a full head shield and strengthened valves, top fittings and nozzles are required to prevent a release in a rollover accident.

The chemical industry also strongly supports new federal legislation that calls for the use of Positive Train Control technology for hazmat trains by the year 2015. The same legislation requires railroads to review the routing of hazmat trains to minimize the danger to densely populated areas.

Chlorine producers advocate “track and trace” programs to identify the location of tank cars at all times, and have begun an experimental program with CHEMTREC® ** to demonstrate how this can be implemented. In addition, chlorine producers actively support CHEMTREC and CHLOREP® ***, industry programs that assist communities and emergency responders prepare for and respond to potential hazardous material transportation incidents.

Chlorine Transportation by Rail - Working for America

Through collaborative efforts among chemical companies, transportation partners, employees from both sectors and the federal government, America has developed a safe and effective system to bring chlorine by rail from where it is made to where it is needed. The chemical industry remains fully committed to making the nation’s chlorine transportation system as safe as possible. This will allow the industry to continue to provide essential products that benefit society while also employing thousands of Americans.

*TRANSCAER – A joint chemical and rail industry training program for emergency responders along hazmat rail rights of way.

**CHEMTREC – The American Chemistry Council’s 24/7 hotline for emergency responders

***CHLOREP – The Chlorine Institute’s 24/7 program to provide an organized and effective system for responding to chlorine emergencies in the United States and Canada.

