

# Transportation Information Bulletin

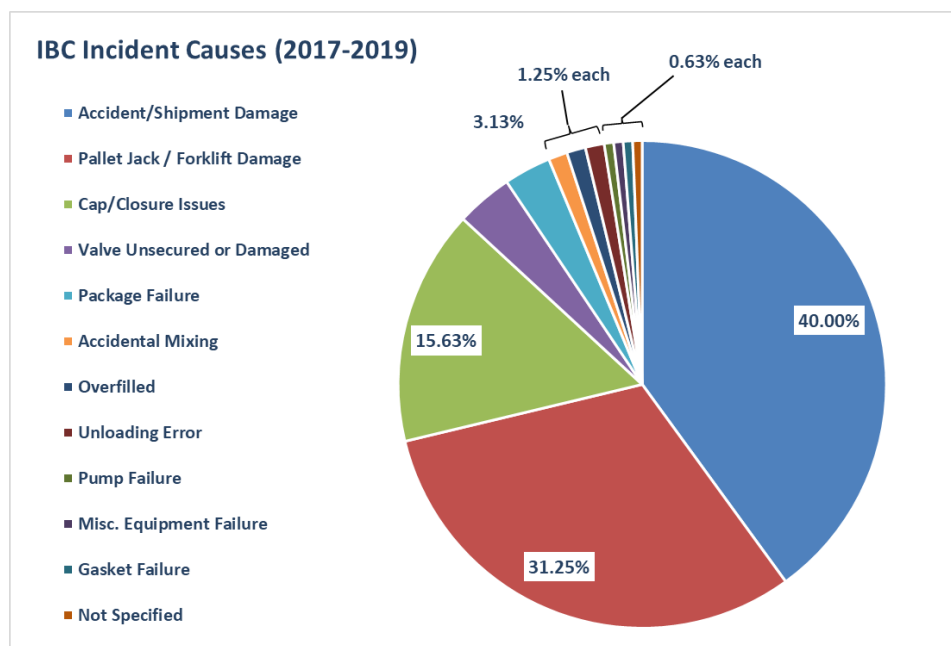
**Issue Date: December 18, 2020**

**Subject: Best Practices for the Proper Closure of Intermediate Bulk Containers**

**Background:** CI’s Transportation Issue Team (TRN IT) continually analyzes transportation incident data involving CI mission chemicals<sup>1</sup> to identify areas of improvement in order to achieve the long-term goal of zero mission chemical releases during transportation. In 2020, the TRN IT established a goal that focuses specifically on analyzing and reducing the number of transportation incidents involving intermediate bulk containers (IBCs) used to transport mission chemicals. The purpose of this information bulletin is to highlight recommended best practices for properly closing IBCs that were previously developed by the TRN IT.

**What does the IBC transportation incident data show?**

The TRN IT downloads transportation incident data from DOT’s publicly available Form 5800.1 hazardous materials transportation incident reporting database.<sup>2</sup> The following chart represents IBC-related incidents pulled from the DOT database involving the transport of caustic (sodium hydroxide and potassium hydroxide), hydrochloric acid, and sodium hypochlorite (bleach) during 2017-2019. This data reflects that a significant portion of reported IBC releases were caused by issues involving the container cap or improper closure of the container. Additional best practice highlights for preventing accident/shipment damage and pallet jack/forklift damage can be found in a separate [Information Bulletin](#).



<sup>1</sup> CI’s mission chemicals: chlorine, sodium and potassium hydroxides, sodium hypochlorite, the distribution of vinyl chloride monomer (VCM), and the distribution and use of hydrogen chloride.

<sup>2</sup> PHMSA Incident Statistics website: <https://www.phmsa.dot.gov/hazmat-program-management-data-and-statistics/data-operations/incident-statistics>

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### What best practices can help ensure the proper closure of IBCs to prevent releases?

Included in CI's guidance document for safely handling IBCs, the following best practices are recommended for ensuring proper closure of IBCs to prevent releases during transportation.

- Avoid storing IBCs in extreme temperatures, exposure to sun/UV light, improper stacking, and uneven surfaces to prevent unintentional damage to the package.
- Consider using dedicated or restricted service of IBCs for certain products to help maintain package integrity.
- Follow regulatory requirements in 49 CFR Part 180 Subpart D for period inspection and testing of IBCs.
- Verify that the service equipment and components, including valves, gaskets, caps, and pressure relief devices, are operational and in good condition. If any equipment is determined to be in inadequate condition, they should be replaced.
- Verify that the product to be filled is compatible with the container's material of construction to avoid chemical reactions that could result in pressure build-up or other damage to the package.
- Verify the IBC has enough capacity and is filled with the specified amount of material to prevent overfilling.
- Verify the recommended temperature range for package use and ensure the product to be filled is within this range. Use caution when blending or diluting products in the IBC to avoid degradation or over-pressurization of the container.
- Verify that the package valve and cap are fully closed and not leaking product. Close the IBC per the package manufacturer's instructions.

### Where can I find related CI resources that are focused on the transport of IBCs?

More comprehensive guidance on safely handling IBCs can be found in CI's guidance document titled, "[Practice Guidance for the Safe Handling of Intermediate Bulk Containers \(IBCs\)](#)." This guidance document also has been or will be incorporated into the following CI pamphlets:

- Pamphlet 88, *Recommended Practices for Handling Sodium Hypochlorite Solution and Potassium Hydroxide Solution (Caustic) Cargo Tanks* (incorporate in next edition)
- [Pamphlet 96, Sodium Hypochlorite Manual](#) (incorporated in Edition 5)
- [Pamphlet 150, Recommended Practices for Handling Hydrochloric Acid in Bulk Highway Transports](#) (incorporated in Edition 4)

Additional guidance may be available through the IBC packaging manufacturer. U.S. and Canadian requirements can be found in U.S. DOT's [49 CFR Parts 171-180](#), Transport Canada's [Transportation of Dangerous Goods Regulations](#), and Canadian General Standards Board's IBC standard [CAN/CGSB-43.146](#).