



Standard Practice for Safe Filling of Low-Pressure Pressurized Products¹

This standard is issued under the fixed designation D 3091; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

^{ε1} NOTE—Section 6 was revised editorially in September 1997.

1. Scope

1.1 This practice covers the filling of low-pressure pressurized products, either in the laboratory or in production.

1.2 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* For specific precautionary statements, see Section 2.

2. General Safety Precautions

2.1 Suitable storage should be supplied, both in the plant and laboratory, for toxic or flammable substances. Manufacturers' labels should be observed for toxicity or flammability information.

2.2 Adequate fire extinguishers should be located at vital points in the plant and laboratory. For small laboratory fires an extinguisher such as carbon dioxide is probably more suitable, since it is cleaner in operation.

2.3 Suitable first aid equipment should be available in both the plant and laboratory. Personnel should be instructed in proper first aid treatment to be used for different types of injuries that may occur.

2.4 Safe practices should be encouraged by lectures and constant reminders, such as posters, on the value of safety procedures.

2.5 New operations should be inspected closely for any possible hazards, and necessary means should be devised to guard against such hazards.

3. Laboratory Research and Experimental Work

3.1 Storage of Propellants and Chemicals:

3.1.1 *Propellants*—Cylinders should be stored in cool, dry, accessible places. Care should be exercised in handling cylinders so that they do not drop or strike each other violently. When cylinders are tapped, all connectors should be leak-free.

3.1.2 *Chemicals*—Suitable storage for flammable chemicals and concentrates should be available. Any glass containers should be handled with care to avoid breakage.

3.2 Handling Propellants and Concentrates:

3.2.1 *Propellants*—Laboratory personnel should be carefully instructed in preventing burns and freezing when handling propellants with low boiling points. Precautions should be taken for the possible accumulation of propellants to a point where the normal oxygen content is decreased. Adequate vents should be supplied. When venting the propellants from pressure burets or cold filling lines, precautions should be taken to prevent over accumulations of propellant vapors, and to minimize flammability hazards.

3.2.2 *Concentrates*—Proper ventilation should be provided for the handling of highly toxic liquids. Manufacturers' instructions should be observed for toxicity information concerning the raw materials used. Personnel should be instructed not to smoke or have any burners working in the vicinity of the use of flammable liquids.

3.3 Handling of Sealing Machinery:

3.3.1 All laboratory machinery, such as crimpers and seamers, should have adequate protection at those portions where accidents may occur. For example, all moving belts on seamers should have guards or protective shields, or a device should be installed on crimpers to eliminate the possibility of getting hands caught between the crimping head and the can.

3.3.2 When sealing valves onto glass containers, care should be taken so that the machinery does not damage the bottle, thereby causing possible future hazards when the bottle and contents are examined at elevated temperatures. All crimps and seams should be carefully inspected before the units are brought to higher temperatures, thereby minimizing future accidents due to defective containers.

3.3.3 All crimping of both glass and metal containers should be measured in accordance with industry standards as to depth, diameter (in the case of cans), and depth and run-out (in the case of glass), to assure adequacy of the crimp prior to the insertion of the unit in a hot-water bath or high-temperature storage program.

3.4 Handling of Containers:

3.4.1 All aerosol containers can be hazardous in laboratory work, regardless of whether the containers are of plain glass,

¹ This practice is under the jurisdiction of ASTM Committee D10 on Packaging and is the direct responsibility of Subcommittee D10.33 on Mechanical Dispensers. This practice was originally developed by the Chemical Specialties Manufacturers Association.

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