



Designation: D8061 – 21

Standard Practice for Handling, Transportation, and Storage of 2-Bromo-3,3,3-Trifluoro-1-Propene (CF₃CB_r=CH₂)¹

This standard is issued under the fixed designation D8061; 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.

1. Scope

1.1 This practice covers guidance and direction to suppliers, reclaimers, purchasers, and users in the handling, transportation, and storage of 2-Bromo-3,3,3-Trifluoro-1-Propene (“2-BTP”).

1.2 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.3 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

[D8060 Specification for 2-Bromo-3,3,3-Trifluoro-1-Propene \(CF₃CB_r=CH₂\)](#)

2.2 *U.S. Government Standards:*³

[49 CFR Part 172 Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, Training Requirements, and Security Plans](#)

¹ This practice is under the jurisdiction of ASTM Committee D26 on Halogenated Organic Solvents and Fire Extinguishing Agents and is the direct responsibility of Subcommittee D26.09 on Fire Extinguishing Agents.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard’s Document Summary page on the ASTM website.

³ Code of Federal Regulations (CFR) documents are available from U.S. Government Publishing Office (GPO), 732 N. Capitol St., NW, Washington, DC 20401, <https://www.gpo.gov>.

[49 CFR Part 172.101 Purpose and Use of Hazardous Materials Table](#)

[49 CFR Part 173 Shippers—General Requirements for Shipments and Packagings](#)

[49 CFR Part 178 Specifications for Packagings](#)

[49 CFR Part 180 Continuing Qualification and Maintenance of Packagings](#)

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *2-BTP, n*—2-Bromo-3,3,3-Trifluoro-1-Propene (CF₃CB_r=CH₂); a compound used to inert, extinguish, or suppress a fire or explosion hazard.

3.1.2 *containers, n*—storage vessels for 2-BTP.

3.1.3 *cylinders, n*—containers of 2-BTP.

3.1.4 *insulated, adj*—placed in an isolated situation to protect and prevent the transfer of damage.

4. Significance and Use

4.1 This practice provides requirements for the handling, transportation, and storage of 2-BTP encountered in distribution through both commercial and military channels. It is intended to ensure that 2-BTP is handled, transported, and stored in such a way that its physical property virtues are not degraded. Transport may be by various means, such as, but not limited to, highway, rail, water, and air.

5. Practice

5.1 To ensure safe handling, loading, unloading, storing, and transporting of material, personnel shall be trained in the 49 CFR regulations as listed in 2.2 and trained to follow guidance contained within the manufacturer’s Safety Data Sheet for this substance.

5.2 *Handling:*

5.2.1 Handling shall be in accordance with the current manufacturer’s Safety Data Sheet for this substance.

5.2.1.1 Personnel who handle or store, or both, containers of 2-BTP shall be trained properly to recognize and identify the characteristics of the product and the proper methods of safely handling full, partially full, and empty containers.

5.2.2 All 2-BTP transfers between storage containers and recycling processes shall be performed by personnel trained in handling procedures.

5.2.3 The 2-BTP recycling and transfer processes shall be in conjunction with the equipment specified by the manufacturer.

5.2.4 The handling of 2-BTP shall be in nonsmoking, heater-free, ventilated areas to preclude product accumulation. Provisions shall be made to ensure that service area 2-BTP concentrations do not exceed 1.0 % by volume for 1 min.

5.2.5 Containers shall not be overfilled. The liquid portion of the 2-BTP must not completely fill the container's internal volume at any temperature up to and including 130 °F (54 °C). The maximum permitted filling density for 2-BTP shall be 87 lb/ft³ (1400 kg/m³).

5.2.6 Handling of materials should be done in a manner that prevents contamination or comingling of materials other than 2-BTP.

5.2.7 Containers shall be free of dirt and contamination that would contribute to or would cause deterioration of product during shipment or storage. Precautions should be taken to prevent the entry of oil, water, or any other foreign matter into containers. Unique coatings or preservatives applied prior to shipment to protect the containers are not considered contamination.

5.2.8 Containers shall be vacuumed, minimum of 27 in. (686 mm) mercury at sea level, or purged with dry nitrogen to remove air and moisture contamination prior to being filled with this substance. This material is sensitive to air and moisture.

5.3 *Transportation:*

5.3.1 This substance is not classified as hazardous under 49 CFR regulations. A container super-pressurized with nitrogen above the inherent vapor pressure of the neat substance may require classification (for example, fire extinguisher sys-

tem bottle). Any classification will depend upon the specifications of the container and its fill pressure.

5.3.1.1 Shipment of materials between collectors, recyclers, and reclaimers should be in containers agreed upon between the collectors, recyclers, and reclaimers.

5.3.1.2 Typical container fill density variations do not impact the pressure enough to provide an isometric diagram. (See Figs. 1 and 2.)

5.3.2 Transportation shall be by suitable vehicles to preclude container damage by excessive mechanical vibration, shock, or deleterious low or high temperatures throughout the entire transport route.

5.3.2.1 If containers are expected to be subjected to unacceptable transport conditions, the containers should be placed under insulated conditions.

5.4 *Storage:*

5.4.1 Containers should be stored in areas that will protect vessels from physical and environmental damage and tampering from unauthorized personnel.

5.4.2 Containers shall be clearly marked and labeled to identify whether the 2-BTP contained does or does not conform to Specification D8060.

5.4.3 Insulation shall be placed on pallets or shoring, and provisions should be made to prevent excessive shock or thermal fluctuations to containers.

5.4.4 Containers shall be stored in a manner that will prevent contamination from external sources.

5.4.4.1 If 2-BTP meeting the standards of Specification D8060 is stored in the same area as material not meeting the standards, storage shall be segregated or clearly identifiable as not being similar.

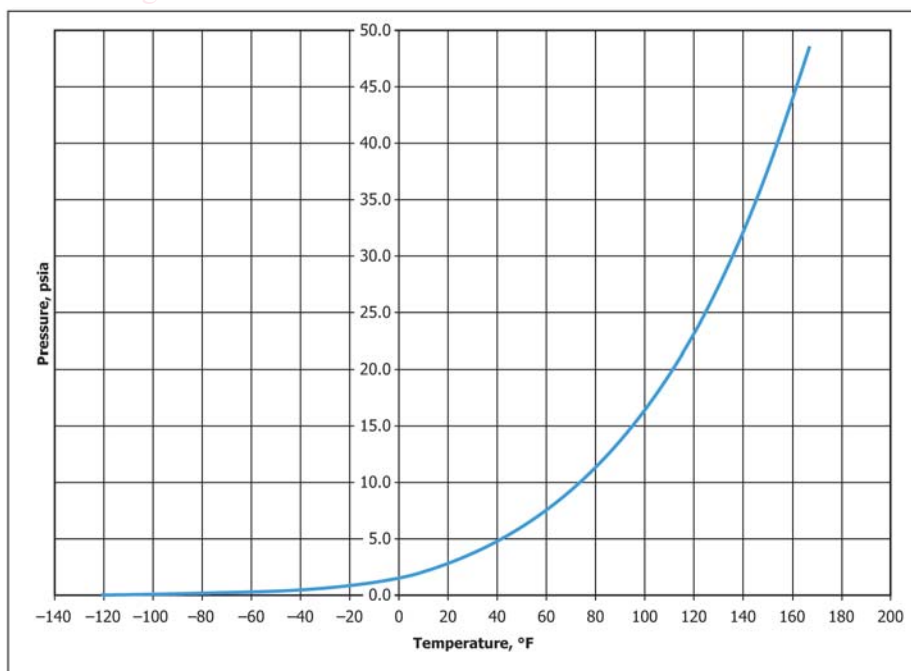


FIG. 1 Pressure Versus Temperature Diagram of 2-BTP, English Units