



Designation: **G 93 – 9603**

Standard Practice for Cleaning Methods and Cleanliness Levels for Material and Equipment Used in Oxygen-Enriched Environments¹

This standard is issued under the fixed designation G 93; 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 the selection of methods and apparatus for the cleaning of materials and equipment intended for service in oxygen-enriched environments. Contamination problems encountered in the use of enriched air, mixtures of oxygen with other gases, or any other oxidizing gas may be solved by the same cleaning procedures applicable to most metallic and nonmetallic materials and equipment. Cleaning examples for some specific materials, components, and equipment, and the cleaning methods for particular applications, are described given in detail in the appendixes.

1.2 This practice includes levels of cleanliness used for various applications and the methods used to obtain and verify these levels.

1.3 This practice discourages the use of chlorinated fluorocarbon solvents in cleaning operations applies to chemical-, solvent-, and encourages the use of alternate methods. A substitute method for the use of solvents in the verification methods is in development and will be issued as a separate standard, aqueous-based processes.

1.4 This practice describes nonmandatory material for choosing the required levels of cleanliness for systems exposed to oxygen or oxygen-enriched atmospheres.

1.5 This practice proposes a practical range of cleanliness levels that will satisfy most system needs, but it does not deal in quantitative detail with the many conditions that might demand greater cleanliness or that might allow greater levels of contamination levels to be present, exist. Furthermore, it does not propose specific ways to measure or monitor these levels from among the available methods. ~~Note 1—Although this practice has been found applicable for assisting qualified technical personnel to establish necessary cleanliness levels, each system is unique and departures from these suggestions may be warranted.~~

1.6 The values stated in both inch-pound and SI units are to be regarded separately as the standard unit. The values given in parentheses are for information only.

1.7 *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.* Federal, state and local safety and disposal regulations concerning the particular hazardous materials, reagents, operations, and equipment being used should be reviewed by the user. The user is encouraged to obtain the Material Safety Data Sheets (MSDS) from the manufacturer for any material incorporated into a cleaning process. Specific cautions are given in Section 8.

¹ This practice is under the jurisdiction of ASTM Committee ~~G-4~~ G04 on Compatibility and Sensitivity of Materials in Oxygen Enriched Atmospheres and is the direct responsibility of Subcommittee G04.02 on Recommended Practices.

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