



Standard Terminology Relating to the Compatibility and Sensitivity of Materials in Oxygen Enriched Atmospheres¹

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1. Scope

1.1 This terminology defines terms related to the compatibility and sensitivity of materials in oxygen enriched atmospheres. It includes those standards under the jurisdiction of ASTM Committee G-4.

1.2 The terminology concentrates on terms commonly encountered in and specific to practices and methods used to evaluate the compatibility and sensitivity of materials in oxygen. This evaluation is usually performed in a laboratory environment, and this terminology does not attempt to include laboratory terms.

2. Referenced Documents

2.1 ASTM Standards:

- G 63 Guide for Evaluating Nonmetallic Materials for Oxygen Service²
- G 72 Test Method for Autogenous Ignition Temperature of Liquids and Solids in a High-Pressure Oxygen-Enriched Environment²
- G 74 Test Method for Ignition Sensitivity of Materials to Gaseous Fluid Impact²
- G 86 Test Method for Determining Ignition Sensitivity of Materials to Mechanical Impact in Pressurized Oxygen Environments²
- G 88 Guide for Designing Systems for Oxygen Service²
- G 93 Practice for Cleaning Methods for Material and Equipment Used in Oxygen-Enriched Environments²
- G 94 Guide for Evaluating Metals for Oxygen Service²
- G 114 Practice for Aging Oxygen-Service Materials Prior to Flammability Testing²
- G 120 Practice for Determination of Soluble Residual Contamination in Materials and Components by Soxhlet Extraction²
- G 121 Practice for Preparation of Contaminated Test Coupons for the Evaluation of Cleaning Agents²
- G 122 Test Method for Evaluating the Effectiveness of Cleaning Agents²
- G 124 Test Method for Determining the Combustion Be-

havior of Metallic Materials in Oxygen-Enriched Atmospheres²

- G 125 Test Method for Measuring Liquid and Solid Material Fire Limits in Gaseous Oxidants²
- G 127 Guide for the Selection of Cleaning Agents for Oxygen Systems²
- G 128 Guide for Control of Hazards and Risks in Oxygen Enriched Systems²
- G 131 Practice for Cleaning of Materials and Components by Ultrasonic Techniques²
- G 136 Practice for Determination of Soluble Residual Contaminants in Materials by Ultrasonic Extraction²
- G 144 Test Method for Determination of Residual Contamination of Materials and Components by Total Carbon Analysis Using a High Temperature Combustion Analyzer²
- G 145 Guide for Studying Fire Incidents in Oxygen Systems²

3. Terminology

3.1 Definitions:

autoignition temperature (AIT), *n*—the lowest temperature at which a material will spontaneously ignite in an oxygen-enriched atmosphere under specific test conditions.

G 63, G 72, G 94, G 128

contaminant, *n*—unwanted molecular or particulate matter that could adversely affect or degrade the operation, life, or reliability of the systems or components upon which it resides.

G 93, G 120, G 121, G 131, G 136, G 144

contaminate, *v*—to make unfit for use, either intentionally or unintentionally, by introduction of a contaminant.

G 131, G 136

contamination, *n*—(1) the amount of unwanted molecular or particulate matter in a system; (2) the process or condition of being contaminated.

DISCUSSION—Contamination and cleanliness are opposing properties: increasing cleanliness implies decreasing contamination.

G 93, G 120, G 121, G 131, G 136, G 144

control coupon (also witness coupon), *n*—(1) a coupon made from the same material and prepared in exactly the same way as the test coupons which is used to verify the validity of the method or part thereof (G 120, G 131); (2) a coupon made from the same material as the test coupons but in this test

¹ This terminology is under the jurisdiction of ASTM Committee G4 on Compatibility and Sensitivity of Materials in Oxygen Enriched Atmospheres and is the direct responsibility of Subcommittee G04.03 on Nomenclature and Definitions.

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² Annual Book of ASTM Standards, Vol. 14.04.