



AEROSPACE STANDARD

AS1046™

REV. C

Issued	1967-11
Revised	2006-12
Reaffirmed	2021-08

Superseding AS1046B

(R) Minimum Standard for Portable Gaseous, Oxygen Equipment

RATIONALE

AS1046C has been reaffirmed to comply with the SAE five-year review policy.

1. SCOPE

This standard is intended to apply to portable compressed gaseous oxygen equipment. When properly configured, this equipment is used either for the administration of supplemental oxygen, first aid oxygen or smoke protection to one or more occupants of either private or commercial transport aircraft.

This standard is applicable to the following types of portable oxygen equipment:

- a. Continuous flow
 1. Pre-set
 2. Adjustable
 3. Automatic
- b. Demand flow
 1. Straight-demand
 2. Diluter-demand
 3. Pressure-demand
- c. Combination continuous flow and demand flow.

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<https://www.sae.org/standards/content/AS1046C>

1.1 Purpose

This standard defines the general minimum performance standards for the design specifications; testing and packaging of portable oxygen breathing equipment, incorporating an integral compressed gas oxygen supply (refer to AS1303 for Portable Chemical Oxygen).

NOTE: This document does not contain specific information on the safe handling of Portable Oxygen Equipment containing a Compressed Gas container. Unsafe handling or stowage of such equipment could lead to tragic consequences especially during turbulence or other disruptive in-flight conditions. Airline operators should refer to the Compressed Gas Association (CGA) pamphlet P-1, "Safe Handling of Compressed gases in Containers" available from CGA, 1221 Walney Road, 5th Floor, Chantilly, VA 20151. Airline operators should include such safe handling procedures as part of their initial and recurrent training programs for cabin crew and maintenance personnel, and develop programs to ensure safe handling practices by passengers carrying and using such equipment on board their airplanes.

2. REFERENCES

The requirements set forth in AS861 shall be considered as part of this standard, except that in event of conflict, this standard shall take precedence.

2.1 Applicable Documents

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

AIR825	Oxygen Equipment for Aircraft
AS861	Minimum General Standards for Oxygen Systems
AS916	Oxygen Flow Indicators
AIR1059	Transfilling & Maintenance of Oxygen Cylinders
AS1065	Quality and Serviceability Requirements for Aircraft Cylinder Assemblies
ARP1176	Oxygen System and Component Cleaning and Packaging
AS1219	Aircraft Oxygen Replenishment Coupling for Civil Transport Aircraft
AS1224	Continuous Flow General Aviation Oxygen Masks
AS1248	Minimum Standard for Oxygen Pressure Reducers
AS1303	Portable Chemical Oxygen
AS8010	Aviators Breathing Oxygen Purity Standard
AS8025	Passenger Oxygen Mask

AS8026 Crewmember Oxygen Demand Mask for Transport Category Aircraft

AS71051 Pipe Threads, Taper, Aeronautical National Form, Symbol ANPT

2.1.2 Other References

A-A-59503 Nitrogen, Technical

BB-A-1034 Compressed Air

MIL-S-7742 Screw Threads Standard, Aeronautical

MIL-PRF-27210 Oxygen, Aviator's Breathing, Liquid and Gas

A-A-58092 Tape, Antiseize, Tetrafluoroethylene, with Dispenser

FAR PART 21 Certification Procedures for Products and Parts, 14 CFR Part 21

FAR PART 25 Airworthiness Standards Transport Category Airplanes, 14 CFR Part 25

FAR PART 23 Airworthiness Standards Normal, Utility and Acrobatic, 14 CFR Part 23

FED-STD-595 Federal Standard Colors

ATA Spec 2000

CGA S-1.1 Pressure Relief Device Standards - Part 1 Compression Gas Association

CGA P-1 Safe Handling of Compressed Gases in Containers

TARIFF BOE 6000 Hazardous Materials Regulations of the Department of Transportation (DOT) 49 CFR 170

TSO-C64a Oxygen Mask Assembly, Continuous Flow, Passenger

TSO-C89 Oxygen Regulators, Demand

TSO-C99 Protective Breathing Equipment

2.2 Definitions

NTPD: Normal temperature and Pressure, Dry; (at 21 °C (70 °F), 760 mm Hg (0.101325 MPa) and p_{H₂O} = 0).

BTPS: Body Temperature, Pressure, Saturated; (37 °C (98.6 °F), ambient pressure, saturated with water vapor at 37 °C p_{H₂O} at 37 °C = 47 mm Hg (6.27 kPa)).

STRAIGHT-DEMAND REGULATOR: A regulator that supplies gas when subjected to a slightly negative pressure as a result of each inspiration; the flow normally ceasing on exhalation.

DILUTER-DEMAND REGULATOR: A regulator with a device for diluting the oxygen with air. This device is usually an aneroid controlled valve that decreases the air added to the oxygen automatically as altitude increases.

PRESSURE-DEMAND REGULATOR: A regulator which by virtue of either mechanical or pneumatic loading of the sensing diaphragm or element, delivers gas at a slightly positive pressure during each inspiration, and maintains a positive pressure, with no oxygen delivery, during expiration.

CONTINUOUS FLOW PRE-SET REGULATOR: A regulator that delivers a defined quantity of oxygen at a constant flow typically through a fixed orifice calibrated to provide a minimum desired flow at a specific altitude. The flow will vary with altitude due to the change in differential pressure across the orifice.