

1978

GGG-M-131C
February 7,SUPERSEDING
(See 6.4)

FEDERAL SPECIFICATION

MASK, GAS (INDUSTRIAL)

This specification was approved by the Commissioner,
Federal Supply Service, General Services Administration,
for the use of all Federal Agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers gas masks used to protect the wearer from gases only, or gases and particulate matter commonly encountered in industrial application.

1.1.1 Federal specification coverage. This specification provides for all types of industrial gas masks which are subject to prior inspection and testing in accordance with either Title 30 Code of Federal Regulations (30CFR), Part 11- Respiratory Protective Devices, Test for Permissibility: Fees, or Schedule 14F, April 23, 1955, US Department of the Interior, Bureau of Mines, Respiratory Protective Apparatus Tests for Permissibility: Fees, Part 13 - Gas Masks, before use by the Federal Government.

1.2 Classification.

1.2.1 Type. Gas masks shall be of the following types or combination of types, as specified (see 6.2). When specified (see 6.2), type A masks shall afford protection against a specific acid gas as specified (see 6.2). When specified (see 6.2), type D masks shall be for self-rescue use only.

Type A - Acid gases.

Type B - Organic vapors.

Type C - Ammonia.

Type D - Carbon monoxide.

Type E - Particulate matter (this type shall only be used as a suffix to one of the other types, except type N,

- or a combination of other types.)
- Type F - Alkaline gases (except ammonia).
 - Type G - Pesticides other than fumigants.
 - Type H - Rocket propellants.
 - Type N - Combination type for protection against all of the above contaminants.

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2. APPLICABLE DOCUMENTS

2.1 The following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

Federal Specifications:

PPP-B-601 - Box, Wood, Cleated-Plywood.
PPP-B-621 - Box, Wood, Nailed and Lock-Corner.
PPP-B-636 - Box, Shipping, Fiberboard.

Federal Standard:

Fed. Std. No. 123 - Marking for Shipment (Civil Agencies).

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlined under General Information in the Index of Federal Specifications and Standards and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, US Government Printing Office, Washington, DC 20402).

(Single copies of this specification and other Federal Specifications required by activities outside the Federal Government for bidding purposes are available without charge from Business Service Centers at the General Services Administration Regional Offices in Boston, New York, Washington, DC, Atlanta, Chicago, Kansas City, MO, Fort Worth, Denver, San Francisco, Los Angeles, and Seattle, WA).

(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks and the Index of Federal Specifications and Standards from established distribution points in their agencies).

Military Standards:

MIL-STD-105 - Sampling Procedures and Tables for Inspection by
Attributes.

MIL-STD-129 - Marking for Shipment and Storage.

(Copies of Military Specifications and Standards required by
contractor's
in connection with specific procurement functions should be obtained
from the
procuring activity or as directed by the contracting officer.)

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Laws and Regulations:

30 CFR 11: Respiratory Protective Devices, Tests for
Permissibility, Fees.

Schedule 14 F: Respiratory Protective Apparatus Tests for
Permissibility, Fees, Part 13 - Gas Masks.

(The Code of Federal Regulations (CFR) and the Federal Register (FR) are for sale on a subscription basis by the Superintendent of Documents, US Government Printing Office, Washington, DC 20402. When indicated reprints of certain regulations may be obtained from the Federal agency responsible for issuance thereof).

(Application for copies of Schedule 14F should be addressed to the Bureau of Mines, Department of Interior, Pittsburgh, PA 15213).

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless a specific issue is identified, the issue in effect on date of invitation for bids or request for proposal shall apply.

National Motor Freight Traffic Association, Inc., Agent:

National Motor Freight Classification.

(Application for copies should be addressed to the American Trucking Associations, Inc., Traffic Department, 1616 P Street, N. W., Washington, DC 20036.)

Uniform Classification Committee, Agent:

Uniform Freight Classification.

(Application for copies should be addressed to the Uniform Classification Committee, Tariff Publishing Officer, Room 1106, 222 South Riverside Plaza, Chicago, IL 60606.)

3. REQUIREMENTS

3.1 Approval. Gas masks furnished under this specification shall be complete masks bearing approval markings indicating conformance to the requirements of 30 CFR 11, subpart I, or US Bureau of Mines approval under Schedule 14F.

3.1.1 Certification. The manufacturer shall certify in writing to the contracting officer or his representative that the gas mask he

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proposes to furnish the Government has been approved in accordance with
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CFR Part 11, subpart I or US Bureau of Mines Schedule 14F. The
certification
shall include the National Institute of Occupation Safety and Health
(NIOSH)/Mining Enforcement and Safety Administration (MESA) approval
number
or the US Bureau of Mines Schedule 14F approval number.

3.2 Material. The material used in the manufacture and assembly of
the
gas masks shall be new and of a quality to meet the requirements
described
herein. Components that come into contact with the skin must be of a
nonirritating composition.

3.3 Sanitization. When subjected to the sanitization test
specified in
4.6.1, facepieces and breathing tubes shall show no visible signs of
deterioration.

3.4 Lenses. Lenses shall be glass or plastic with smooth finished
edges
and corners. Lenses shall be free from inclusions, striae, waves, or
other
visible defects which may impair their optical quality when tested in
accordance with 4.6.2.1. Lenses shall transmit not less than 85 percent
of
the incident visible light when tested in accordance with 4.6.2.2.
After
subjection to the impact test of 4.6.2.3, lenses of solid plate glass or
plastic shall not fracture or chip; lenses of laminated glass shall show
no
separation of glass from the plastic interlayer.

3.5 Design. Gas masks furnished under this specification shall be
designed to provide safety, freedom of movement, a satisfactory field
and
clearness of vision, and comfort under all conditions of use.

3.5.1 Facepiece. The facepiece shall be so constructed as to
assure a
quick, gastight fit on persons of widely varying facial shapes and
sizes.
Air shall enter the facepiece in a manner that will inhibit the
accumulation
of moisture on the inside surface of the lens or lenses. The exhalation
valve in the facepiece shall be suitably guarded to prevent distortion

and
injury.

3.5.2 Head harness. The head harness shall be adjustable and replaceable and shall be designed to retain the facepiece firmly and comfortably against the face of the wearer.

3.5.3 Breathing tube. The breathing tube shall be flexible and of adequate length to permit free head movement and shall not close off by kinking or by ordinary chin or arm pressure, or unduly disturb the wearer.

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3.5.4 Canister harness. The canister harness shall retain the canister securely and comfortably against the body of the wearer. It shall permit canisters to be replaced readily, and shall provide for holding the facepiece in the "ready" position when the facepiece is not being used.

3.5.5 Canister. The canisters shall be of the size and fill for the type of protection required and color coded in accordance with 30 CFR 11, subpart I, or US Bureau of Mines, Schedule 14F.

3.6 Design options. When specified (see 6.2), gas masks shall be furnished with specific design options such as quantity of lenses in facepiece, location of canister harness, head harness design, spectacle mounting provisions, and speaking system. Masks furnished with required options in design shall meet the requirements of 3.1.

3.7 Performance. Each mask shall protect the wearer against the type of gas or gases for which it is designed, and dust, fumes, mists, fogs, and smoke when applicable, for a period of time and in concentrations as specified in 30 CFR 11, subpart I, or US Bureau of Mines, Schedule 14F.

3.8 Carrying case. Each mask shall be furnished in a case suitable for protecting the mask while being carried and stored. The overall size of the case shall be the minimum consistent with the interior space required for stowing the mask with the canister in its carrier, and a spare canister, in a normal wearing position without deformation and ready for immediate use. Unless otherwise specified (see 6.2), the spare canister shall be furnished.

3.9 Replaceable parts. All replaceable parts shall be constructed so that any such part may be replaced without requiring modification. All parts where practicable, shall be marked with the manufacturer's part or identification number. Replaceable parts to be furnished shall be as specified (see 6.2).

3.10 Marking. Marking shall be in accordance with 30 CFR 11,

subpart I
or US Bureau of Mines, Schedule 14F. In addition, the facepiece shall
be
marked to indicate the quarter and year of manufacture and the canister
shall
indicate the month and year of obsolescence. The obsolescence date
shall be
3 years after the canister is filled and sealed and not less than 30
months
from the date offered for acceptance.

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3.11 Instructions. Each mask furnished under this specification shall be provided with instructions covering the use, care, and operation of the mask, and a list of the component parts.

3.12 Workmanship. Workmanship shall be first class in every respect. All parts shall be finished smooth and free from sharp edges or irregularities.

4. QUALITY ASSURANCE PROVISIONS.

4.1 Responsibility for inspection. Unless otherwise specified in the contract or order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure that supplies and services conform to prescribed requirements.

4.1.1 Material. The contractor shall certify that all materials used in the various types are new and unused.

4.2 Classification of inspection. The inspection requirements specified herein are classified as follows:

- (a) Quality conformance inspection (see 4.2.1).
- (b) Preparation for delivery inspection (see 4.7).

4.2.1 Quality conformance inspection. Quality conformance inspection shall be performed on the sample masks selected in accordance with 4.4. This inspection shall include the examination of 4.5 and the tests of 4.6.

4.3 Inspection lot. All masks of the same type offered to the Government at the same time shall be considered a lot for purposes of inspection.

4.4 Sampling.

4.4.1 Sampling for examination. A random sample of masks shall be selected from each lot in accordance with MIL-STD-105 at inspection level II.

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4.4.2 Sampling for tests.

4.4.2.1 Sanitization test. One mask shall be selected at random from the lot. Failure to pass the sanitization test specified in 4.6.1 shall be cause for rejection of the entire lot.

4.4.2.2 Lens test. A random sample of masks shall be selected in accordance with MIL-STD-105 at inspection level S-2. Failure of any lens to pass the tests of 4.6.2 shall be cause for rejection of the entire lot.

4.4.2.3 Leakage test. All breathing tubes shall be tested for leakage in accordance with 4.6.3.

4.5 Examination. Each sample unit selected in accordance with 4.4.1 shall be examined for defects as listed in Table I. The Acceptable Quality Level (AQL) shall be 0 percent for major defects and 4.0 percent defective for minor defects.

TABLE I. Classification of defects.

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Classification Examine	Defect	Major
Minor))))))		
Major components	Not marked with required approval number.	X
Construction and workmanship	Missing or damaged component affecting serviceability. Missing or damaged component not affecting serviceability.	X
X	Components improperly assembled or loose and not capable of being properly reassembled or tightened.	X

X	Components improperly assembled or loose and capable of being properly reassembled or tightened.	
X	Improperly molded rubber component. Discoloration or scratches.	X
Marking for identification	Missing, incomplete, or not legible	
X		
Instruction manual	Missing, incomplete, or not legible.	
X		
Design options	Not as specified (see 3.6).	X
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4.6 Tests. Each sample selected in accordance with 4.4.2 shall be tested to determine compliance with this specification. Tests shall be conducted as specified in 4.6.1 through 4.6.3.

4.6.1 Sanitization test. The facepiece selected in accordance with 4.4.2.1 shall be subjected to sterilization by one of the following methods:

- (a) Immersion for 10 minutes in a solution of formalin made by placing one part of 40 percent formaldehyde solution into nine parts of water at room temperature.
- (b) Subjection to a moist atmosphere of antiseptic gas, preferably formaldehyde, for a period of 10 minutes at room temperature.
- (c) Subjection to use of a suitable sanitizing agent such as a quaternary ammonium salt solution.

The sanitization test shall be repeated five times. The facepiece shall be rinsed and dried between each sanitizing treatment. Any signs of deterioration shall be cause for rejection.

4.6.2 Lens tests. Lenses taken from sample masks selected in accordance with 4.2.2.2, shall be tested for optical quality, visible transmission, and impact resistance by methods specified in 4.6.2.1 through 4.6.2.3.

4.6.2.1 Optical quality. The test for inclusions, striae, waves, and other defects which impair optical quality of the lens shall be conducted by examining the light pattern of a point source on a screen with lens interposed between the light source and the screen. (A shadowgraph or a similar instrument may be used in this test.)

4.6.2.2 Visible transmission. The standard source of radiant energy used in the measurement of the transmission of visible radiation (light) of lenses shall be a 500-watt (or other high-powered) gas-filled tungsten filament electric incandescent lamp, operated at rated voltage. The visible radiation shall be determined photometrically by an observer, having

normal
color vision, as determined by the Holm-gren test for color vision, or
with a
physical photometer consisting of a thermopile (or other radiometer),
and a
luminosity solution having spectral transmission curve which coincides
with
the visibility curve of the average eye.

4.6.2.3 Impact test. Lens shall be placed on a wooden block,
recessed
under the lens, except for a supporting margin 1/4-inch wide, with a
1/16-inch rubber gasket placed between the lens and supporting margin.
A
7/8-inch diameter steel ball weighing approximately 1.56 ounces shall be
dropped on the center of the lens from a height of 30 inches.

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4.7 Inspection of preparation for delivery. An inspection shall be made to determine that the packaging, packing, and marking comply with the requirements of Section 5 of this specification. Defects shall be scored in accordance with Table II. For examination of interior packaging, the sample unit shall be one shipping container fully prepared for delivery, selected at random just prior to the closing operations. Defects of closure listed shall be examined on shipping containers fully prepared for delivery. The lot size shall be the number of shipping containers in the end item inspection lot. Sampling shall be in accordance with MIL-STD-105, inspection level S-2 with an AQL of 4.0 defects per hundred units.

TABLE II. Classification of preparation for delivery defects.

))))))))	Examine	Defects
))))))))	Markings (exterior and interior) application.	Omitted, incorrect, illegible, improper size, location, sequence, or method of application.
))))	Materials	Any component missing or damaged.
))))	Workmanship	Inadequate application of components such as incomplete closure of container flaps, loose strapping, or distortion of container.
))))	Contents (exterior and interior)	Number per container not as specified.
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5. PREPARATION FOR DELIVERY

5.1 Packaging. Packaging shall be level A, B, or C as specified (see

6.2).

5.1.1 Level A. Each carrying case, containing the mask and canisters; the replacement parts, when furnished (see 3.9 and 6.2), shall be packaged in a snug-fitting fiberboard box conforming to PPP-B-636, class weather-resistant. Cushioning shall be provided to prevent movement. The box shall be closed and sealed in accordance with Method IV of the appendix to the box specification.

5.1.2 Level B. Each carrying case, containing the mask and canisters; the replacement parts when furnished, shall be packaged as specified in 5.1.1 except the fiberboard box shall be class domestic.

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5.1.3 Level C. Each carrying case, mask, canisters, and replacement parts shall be packaged in accordance with the supplier's standard practice.

5.2 Packing. Packing shall be level A, B, or C as specified (see 6.2).

5.2.1 Level A. The masks shall be packed in close-fitting boxes conforming to PPP-B-601, overseas type; PPP-B-621, class 2; or PPP-B-636, V2s. The contents shall be blocked and braced to prevent movement inside the container or damaging of the contents.

5.2.2 Level B.

5.2.2.1 Military agencies. The masks shall be packed as specified for level A except the boxes shall conform to PPP-B-601, domestic type; PPP-B-621, class 1; or PPP-B-636, V3c or V3s. When specified (see 6.2), fiberboard boxes conforming to PPP-B-636 shall be class domestic. Closure of the boxes shall be in accordance with the appendix to the applicable box specification.

5.2.2.2 Civil agencies. Ten masks shall be packed in a snug-fitting fiberboard box conforming to PPP-B-636, class domestic. Closure of boxes shall be in accordance with Method II of the appendix to PPP-B-636.

5.2.3 Level C. The masks shall be packed in a manner which will ensure arrival at destination in satisfactory condition. Containers and packing shall comply with Uniform Freight Classification rules or National Motor Freight Classification rules.

5.3 Marking.

5.3.1 Civil agencies. In addition to any special markings required by the contract, interior packages and shipping containers shall be marked in accordance with Fed. Std. No. 123.

5.3.2 Military agencies. In addition to any special markings

required
by the contract, interior packages and shipping containers shall be
marked in
accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. The gas masks covered by this specification are
intended for use in industrial applications in atmospheres containing no
less
than 19.5 percent oxygen, and where most toxic gases do not exceed 2
percent
or 3 percent of ammonia.

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6.1.1 Type A masks. Type A masks are for protection against acid gases such as chlorine, formic acid, hydrogen chloride, hydrogen cyanide, hydrogen sulfide, phosgene, and sulfur dioxide. Type A masks are sometimes approved for protection against a single specific acid gas.

6.1.2 Type B masks. Type B masks are for protection against organic vapors, such as acetone, alcohol, aniline, benzene, carbon disulfide, carbon tetrachloride, chloroform, ether, formaldehyde, gasoline and petroleum distillates, toluene, and similar volatile organic compounds.

6.1.3 Type C masks. Type C masks are for protection against ammonia.

6.1.4 Type D masks. Type D masks are for protection against carbon monoxide, and shall be for either regular service or for self-rescue. The self-rescue type is to enable the wearer to escape if dangerous concentrations of carbon monoxide should occur, as in a mine fire, or explosion.

6.1.5 Combination use. Combination use masks are types AB, ABC, etc., and are for protection against combinations of gases and vapors as indicated by the type letters.

6.1.6 Type E masks. Type E masks shall always be in combination with type letters A, B, C, or D (AE, BE, CE, DE). They shall provide protection against the gas or vapor indicated by type letters A, B, C, or D and against dusts, fumes, mists, fogs, and smokes.

6.1.7 Type F masks. Type F masks are for protection against alkaline gases other than ammonia gas.

6.1.8 Type G masks. Type G masks are for protection against pesticides that include organic phosphates, chlorinated hydrocarbons, carbonates, but

are not to be used for protection against fumigants.

6.1.9 Type H masks. Type H masks are for protection against rocket fuels including unsymmetrical dimethyl hydrazine, nitrogen tetroxide and organic vapors.

6.1.10 Type N masks. Type N masks are for protection against all the contaminants listed under the preceding types, but protect (except for ammonia) for shorter periods than the types A, B, and D masks.

6.2 Ordering data. Purchasers should select the preferred options permitted herein, and include the following information in procurement documents:

- (a) Title, number, and date of this specification.
- (b) Type of mask required (see 1.2.1).

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- (c) Design options required (see 3.6).
- (d) When spare canister is not required (see 3.8).
- (e) Name, part number, and quantity of replaceable parts to be furnished (see 3.9).
- (f) Level of packaging and level of packing required (see 5.1, 5.1.1, and 5.2). Level B preservation and packaging is intended to provide economical but limited protection

and

should be specified only when it is determined the masks will be held in covered storage.

- (g) When class domestic fiberboard boxes are to be used (see 5.2.2.1).

6.3 Contract data requirements. When this specification is used in a procurement which incorporates a DD Form 1423 and invokes the provisions of paragraph 7-104.9(n) of the Armed Services Procurement Regulation, the data requirements will be developed as specified by an approved Data Item Description (DD Form 1664) and delivered in accordance with the Contract Data Requirements List (DD Form 1423) incorporated into the contract. When the provisions of ASPR 7-104.9(n) are not invoked, the data shall be delivered in accordance with the contract requirements.

6.4 Supersession data. This specification supersedes GGG-M-131, dated September 11, 1951, and the Amendment-1 dated February 24, 1954; and Interim GGG-M-00131B(GSA-FSS) dated November 26, 1974.

MILITARY CUSTODIANS:

Navy - YD
Air Force - 99

Review activity:

DLA - GS

User activities:

Army - MI
Navy - AS, OS
Air Force - 26

Civil Agency Coordinating Activity:

GSA-FSS

Preparing activity:

Navy - YD

Project No. 4240-0386

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Orders for this publication are to be placed with General Services Administration, acting as an agent for the Superintendent of Documents. See section 2 of this specification to obtain extra copies and other documents referenced herein.