

**REGULATION NO. 11  
APPENDIX B**





**STATE OF COLORADO**  
**DEPARTMENT OF PUBLIC HEALTH & ENVIRONMENT**  
**COLORADO A.I.R. PROGRAM**

**STANDARDS AND SPECIFICATIONS FOR CALIBRATION/SPAN GAS SUPPLIERS**  
**INCLUDING**  
**GAS REQUIREMENTS FOR THE BASIC AND ENHANCED INSPECTION**  
**TEST PROGRAMS**

1997



## INTRODUCTION

This appendix B describes the standards and specifications for the suppliers of span and calibration gases to the Colorado A.I.R. Program, including facility requirements and documentation required of potential suppliers.

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**SECTION 1**

**DEFINITIONS**

**A.I.R.:** Colorado's "Automotive Inspection & Readjustment" Program.

**ANALYTICAL ACCURACY:** The relative percent deviation of the stated concentration of the components of a gas blend from the "true" value as determined by comparison with Colorado A.I.R. Program standards.

$$(\% \text{ DEV} = \text{STATED CONC} - \text{"TRUE" CONC} / \text{"TRUE" CONC} \times 100)$$

**AUDIT GAS:** Reference gas standards with direct traceability to NIST and/or EPA, to be used by A.I.R. Program QA/QC personnel.

**APCD:** Colorado "Air Pollution Control Division".

**AUTHORIZED GAS BLENDER:** A blender of precision gas products selected to provide such products pursuant to the requirements of 42-4-306(3)(A)(1)(C).

**BALANCE GAS:** The balance or makeup gas for Colorado A.I.R. Program gases shall be as follows: for basic program tri-blend span gases, nitrogen shall be the balance gas. For the enhanced I/M240 program standards and span gases, air shall be the balance gas. The balance gas for mixtures containing nitric oxide (NO) shall be nitrogen.

**B.A.R.:** California "Bureau of Automotive Repair"

**BLEND TOLERANCE:** Deviation between the requested or nominal concentration and the measured or certified concentration of a gas mixture.

**CALIBRATION STANDARD:** A precision blended gas used to generate calibration curves, with an analytical accuracy of +/- 1%, traceable to NIST gas standards. (Enhanced Program)

**CALIBRATION/SPAN GAS:** A blend of carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>), and propane, with a balance gas of nitrogen (NO<sub>2</sub>), which is used to calibrate the Colorado 94 test analyzers. (Basic program)

**CALIBRATION ZERO AIR:** The gas used as a diluent for gas dividers or to establish analyzer zero during calibration curve generation. Impurities shall not exceed 0.1 ppm carbon response, 0.5 ppm CO, 1 ppm CO<sub>2</sub>, 0.1 ppm NO<sub>x</sub>, and 1 ppm moisture. Blended air shall have an oxygen content between 20.6% And 21%

**CALIBRATION ZERO NITROGEN:** The gas used as a diluent for gas dividers or to establish analyzer zero during calibration curve generation shall have a minimum purity of 99.997% with impurities not to exceed 0.1 ppm carbon response, 0.5 ppm CO, 1 ppm CO<sub>2</sub>, 0.1 ppm NO<sub>x</sub>, 1 ppm moisture and 0.5 ppm O<sub>2</sub>.

**CAPSL:** Colorado AIR Program Standards Lab.



**CDPHE:** Colorado Department of Public Health & Environment.

**CERTIFIED GAS BLENDER:** A blender of precision gas products, approved by the Colorado AIR Program. A certified blender has met or exceeded the requirements set forth by the CDPHE to provide a consistently high quality calibration and span gas to both the Basic and Enhanced Air Program.

**CGA:** Compressed Gas Association

**CRM:** Certified Reference Material

**DOT:** Department of Transportation

**FID:** HC analyzer using a flame ionization detector

**FID FUEL:** A mixture of 40% hydrogen (+/- 2%) and 60% helium

**FID OXIDIZER:** Zero grade air with an oxygen content between 20.6% And 21%

**GOLD STANDARDS:** NIST traceable air program standards named by EPA at the National Vehicle Fuels and Emission lab (NVFEL), Ann Arbor, Michigan

**NIST:** National Institute of Standards and Technology

**STATE:** The State of Colorado

**SRM:** Standard reference material. The highest integrity gas standard, prepared by, and only available from, NIST.

**VETC:** Vehicle Emission Technical Center, 15608 East 18th Avenue, Aurora, Colorado 80011.

**WORKING SPAN GAS:** Gases used in the enhanced I/M240 Air Program for high and mid-scale span checks and/or adjustments as well as analyzer cross-checks. These gases shall have an analytical accuracy of +/- 2%.

**WORKING ZERO GAS:** Air or nitrogen used in the daily zeroing of enhanced program analyzers. Impurities shall not exceed 1 ppm carbon response, 2 ppm CO, 0.04% CO<sub>2</sub>, 0.3 ppm NO<sub>x</sub>, and 1% moisture. Air shall have an oxygen content between 20.6% and 21%. Nitrogen shall contain a maximum of 0.5% O<sub>2</sub>.



## SECTION 2

### BASIC & ENHANCED IDLE AIR PROGRAM / TECHNICAL REQUIREMENTS

#### 2.0 GENERAL

This section describes the calibration/span gas requirements, specifications for these gases, and types of cylinders allowed. Such specifications shall be included in any request for bids issued pursuant to 42-4-306(3)(a)(1)(c).

#### 2.1 GAS REQUIREMENTS

The following identifies the calibration/span gas blends required for the Colorado basic & enhanced idle AIR Program:

##### CALIBRATION/SPAN GASES

###### AIR94LOW

300 ppm	Propane (as THC)
1.0 %	Carbon Monoxide
6.0 %	Carbon Dioxide
Balance	Nitrogen

###### AIR94MID

1200 ppm	Propane (as THC)
4.0 %	Carbon Monoxide
12.0 %	Carbon Dioxide
Balance	Nitrogen

#### 2.2 GAS BLEND ACCURACIES

The combined errors due to blending and naming of the above calibration/span gases shall not exceed +/- 2% for each component.

#### 2.3 ANALYTICAL ACCURACY

The analytical accuracies for idle air program gases are:

- (A) Calibration/span gas: +/- 2% of nominal value
- (B) Audit gases: +/- 1% of nominal value

#### 2.4 BLEND TOLERANCE



Zero blend tolerance is required for basic & enhanced idle AIR Program calibration span gases.

## 2.5 BLENDER REFERENCE STANDARDS

Each authorized gas blender shall present documentation of it's own internal standards for approval. The state provides two methods for standard documentation:

- (I) Blender may prepare a reference cylinder of each gas blend intended for the AIR Program to be named vs Colorado's gold standards. Cylinder(s) shall be sent to the state for naming and labeling. This standard will become the blender's reference standard for the analysis of production span gases.

**NOTE:** The associated costs of shipping reference cylinders to and from Colorado will be the responsibility of the blender. No shipping costs will be born by the state.

- (II) Blenders certified by the State of California, Bureau of Automotive Repair, may elect to submit copies of their current certification including a listing of all SRM's, CRM's, or other reference gases accepted by bar, as pertaining to the analysis of I/M span gases. BAR acceptance of these standards will be sufficient to obtain approval of same for the AIR Program.

## 2.6 CYLINDERS

The cylinders to be used in the Colorado 94 analyzers in the field shall be low pressure, non refillable, disposable canisters.

High pressure, refillable cylinders will be used by AIR Program audit/QC teams and, in some cases, by analyzer manufacturers. Approval of span gas in high pressure cylinders will be on an individual basis. (See section 3)

## 2.7 DISPOSABLE CYLINDERS

- (A) Disposable cylinders shall be in accordance with dot specification 39 for non refillable, disposable cylinders. (260 PSIG service pressure, 325 PSIG test pressure, 650 PSIG minimum burst pressure) [CFR Title 49, part 178, Sec. 178.65, Oct 1, 1996]
- (B) Nominal size shall not exceed 750 cubic inches +/- 5% (approximately 9 inches inside diameter by 16 inches high, providing an equivalent water capacity of 27 lbs.) As a minimum, cylinders shall contain 7.5 cubic feet of gas blend at 260 PSIG cylinder pressure.
- (C) Cylinders shall be designed with an integral stand to facilitate upright storage.



- (D) Cylinder outlet shall be CGA 165, 1/4" SAE flare, 45 degree male. Shutoff valves shall be of the non refillable type.
- (E) Cylinders shall be equipped with a safety relief device in accordance with DOT regulations [CFR 49, 173.34,(D), Oct, 1996]. The safety relief device must comply with the requirements of the compressed gas association pamphlet S-1.1, 8th edition, 1994.
- (F) Cylinders shall have a built in safety shield to protect the shut off valve.
- (G) No material shall be used in cylinder fabrication or assembly, or in cylinder charging equipment, which is incompatible with the gas blend as to cause contamination or degradation.
- (H) Blenders must comply with applicable DOT specifications for the shipment of cylinders.[CFR Title 49, volume 2, part 173, subpart B, Oct, 1996].

**2.8 HIGH PRESSURE REFILLABLE CYLINDERS**

- (A) Refillable cylinders must be aluminum and made in accordance with DOT specifications 3AA or 3AL [CFR Title 49, volume 2, part 178, subpart C, Oct, 1996], whichever is applicable.
- (B) All cylinders must comply with applicable DOT Regulations and requirements for safety and shipment. [CFR Title 49, volume 2, part 173, subpart B, Oct, 1996]

**2.9 LABELING**

- (A) Caution labels shall be affixed to all cylinders and shall comply with applicable DOT and OSHA regulations.
- (B) "Colorado Approved" labels will be provided by the Colorado AIR Program (section 3) and shall be affixed to the upper portion of the canisters.

**2.10 EXPIRATION**

Triblend span gas cylinders containing CO, CO2, and propane in nitrogen, shall have an expiration date of 36 months after date of fill.

**2.11 QUALITY ASSURANCE**

All gas blenders shall have in place a fully documented and implemented quality assurance program as a prerequisite to certification. This QA program shall include, but not be limited to:



- (A) Regular equipment maintenance and calibration, performed in accordance with manufacturer guidelines, as a minimum.
- (B) Documentation of the analysis of each batch or lot of gas produced. A copy of the certificate of analysis from each batch or lot shall accompany each approval request.
- (C) Blender may choose to retain a cylinder from each batch/lot for internal documentation. However, one cylinder from each batch/lot must accompany each request for "Colorado Approved" labels. This sample cylinder will not be returned.
- (D) Documentation of maintenance and calibration of equipment and instrumentation shall be made available upon request.

## 2.12 BREACH OF TERMS

Each contract entered into pursuant to 42-4-306(3)(a)(1)(C), shall authorize the APCD to suspend the blender's authority to supply precision gas products to inspection and readjustment stations, inspection-only facilities, fleet inspection stations, motor vehicle dealer facilities and enhanced inspection centers in the event the gas blender violates the terms of the contract and this appendix B. The APCD may terminate such a suspension once the blender corrects the problems that led to the violation. An on site inspection of the blender's facility by an APCD representative may be required to ensure that the relevant requirements are being observed.



**SECTION 3**

**CALIBRATION/SPAN GAS APPROVAL & LABELING**

**3.0 GENERAL**

Information in this section describes the calibration/span gas approval process as well as the procedure for obtaining "Colorado Approved" labels.

**3.1 CALIBRATION SPAN GAS APPROVAL PROCEDURE**

Batches or lots of span gas will be produced referencing procedures and specifications contained herein. Authorized blender shall analyze a representative number of cylinders from each batch or lot. Authorized blender shall then request from the CDPHE a number of Colorado approved labels corresponding to the number of cylinders in that batch or lot. The request for labels must include:

(I) Analytical report to contain:

- (A) Actual analysis of samples in batch
- (B) Number of cylinders in batch
- (C) Fill date
- (D) Number of labels required
- (E) Batch or lot number

(II) One representative cylinder from each batch or lot of span gas produced to be verified by analysis and retained for future reference.

NOTE: This sample cylinder will not be returned. Cylinder will be archived by the state until the expiration date expires (36 months from fill date). This sample may be analyzed as a spot check or reference gas in matters concerning potential inquiries into batch integrity.

Upon approval, blender will be sent an appropriate number of "Colorado Approved" labels to be affixed to cylinders in that batch or lot.

Samples, along with request for "Colorado Approved" labels, should be sent to: CDPHE  
VEHICLE EMISSION TECHNICAL CENTER  
15608 E. 18TH AVENUE  
AURORA, COLORADO 80011  
ATTN: SPAN GAS VERIFICATION PROGRAM

**3.2 CALIBRATION/SPAN GAS APPROVAL / HIGH PRESSURE CYLINDERS**



Approval of calibration/span gases in high pressure cylinders will be done on an individual basis. Each cylinder seeking approval must be submitted for verification against AIR Program standards. A certificate of analysis shall accompany each cylinder and shall contain the following information:

- (A) Cylinder number
- (B) Components contained
- (C) Analytical results
- (D) Analytical accuracy
- (E) Statement of traceability
- (F) Analysis date
- (G) Fill date

Upon approval, blender will be notified that the cylinder is ready for pickup by the purchaser. Approved cylinder, with "Colorado Approved" label attached, may be picked up during normal business hours (8:00 am - 5:00 pm) Monday through Friday. Cylinders shall be sent to the above address. (See 3.1)

### 3.3 SHIPPING COSTS

Blenders shall provide for the shipping of all cylinders seeking Colorado approval for use in the AIR Program. The pick-up and delivery of individual high pressure cylinders is also the responsibility of the blender and/or the purchaser of that cylinder. These cylinders are expected to be picked-up within 30 days of notification of approval. No costs pertaining to the pick-up or delivery of span gases shall be born by the state.

### 3.4 LABELING

"Colorado Approved" labels will be provided by the State of Colorado. These label will include information necessary to track span gases throughout the system as well as identify each cylinder as Colorado approved. Information contained on the label will include:

- (A) Blender name
- (B) Blending facility
- (C) Batch or lot number
- (D) Identify "low" (yellow label) or "mid" (white label) SPAN GAS
- (E) Fill date
- (F) Expiration date
- (G) AIR Program number
- (H) Bar code containing cylinder tracking information

(For a sample of the "Colorado Approved" labels, see attachment II)

### 3.5 AIR PROGRAM NUMBER

"Colorado Approved" labels will contain an AIR Program number. Each certified blender will be assigned a letter code which will precede the numbering of batch cylinders. These coded numbers will be generated by the state and assigned to each



cylinder as batches of span gas are produced. Cylinder numbers will be held on file for the life span of the cylinder to assist in tracking, auditing and accounting purposes.



## SECTION 4

### CYLINDER TRACKING & RECALL

#### 4.0 GENERAL

This section describes the method of tracking calibration/span gas throughout the AIR Program area. This system protects the inspection stations and provides for a replacement, in an expedient manner, should a non-conforming calibration/span gas be discovered.

#### 4.1 TRACKING CYLINDERS VIA BAR CODE

Each "Colorado Approved" label will contain a bar code to be scanned whenever a cylinder of calibration/span gas is put into service on a Colorado '94 analyzer or Motor Vehicle Dealer Transient Mode Test Analyzer System. Scanned information will be stored in a file, accessible through a host computer linking all inspection stations. AIR Program QA/QC personnel will be able to locate individual cylinders, track batches of span gas, etc., Throughout the program area.

Label bar codes will be generated at the time of batch or lot approval and will contain information necessary to facilitate the tracking process. Blenders are required to continue to track internally, the whereabouts of "Colorado Approved" batches of calibration/span gas prior to retail sale. In the event of a recall of a batch of non-conforming calibration/span gas, the blender, through procedure described herein (see 4.2), will begin recall. In-use calibration/span gas affected will be identified by bar code information through system host and replacement procedures will begin.

#### 4.2 RECALL PROCEDURE

In the event a non-conforming cylinder of calibration/span gas is discovered at an AIR Program inspection station, the following recall procedure will begin:

- (A) Suspected non-conforming span gas confiscated by AIR Program Q/C personnel;
- (B) Cylinder brought to the Colorado AIR Program Standards Lab (CAPSL) for analysis;
- (C) Exposed non-conforming cylinder cross referenced by air number to blender and batch;
- (D) Archived sample retrieved and analyzed vs suspected non-conforming cylinder. Blender advised of results;



(E) Through host system, the state identifies whereabouts of any non-conforming cylinders on line. Blender provided with a listing of affected inspection stations;

(F) Blender shall immediately begin recall of all remaining unsold cylinders from batch in question and, simultaneously, begin process of supplying known conforming cylinder(s) to affected inspection stations by overnight service;

(G) A total recall and replacement of all cylinders in affected batch must be completed within 10 days. A detailed report of the recall procedure, and analysis of cause of the non-conforming product entering the system, will be provided to the state within 15 days.

(H) The state may elect to withhold certification of future batches until such time as blender shows problems have been corrected.

(I) The state may also suspend the contract with the blender if information obtained suggests blending procedures were violated, pending a correction of the problems that caused the violation.



SECTION 5

ENHANCED I/M & IG240 AIR PROGRAM / TECHNICAL REQUIREMENTS

5.0 GENERAL

This section addresses the calibration gases, technical requirements, cylinder specifications and documentation required for I/M & IG/240 testing.

5.1 GASES

Gases used in the calibration and support of I/M & IG240 testing shall conform to the provisions outlined in CFR Title 40, part 86, subpart B, 114, as revised July 1, 1992, for exhaust emission testing. Concentrations for IM/240 gases are as follows:

5.2 CALIBRATION GASES / CURVE GENERATION

(I) High tri-blends: (+/-1% analytical accuracy)

CO : 9000 ppm  
CO2 : 3.6 %  
Propane : 600 ppm  
Balance : Air

(II) High NOx: (+/-1%)

NOx : 450 ppm  
Balance : Nitrogen

5.2.1 MID-SCALE CALIBRATION GASES / CURVE CONFORMATION

(I) Mid tri-blend: (+/-1%)

CO : 4500 ppm  
CO2 : 1.8 %  
Propane : 300 ppm  
Balance : Air

(II) Mid NOx tri-blend: (+/-1%)

NOx : 225 ppm  
Balance : Nitrogen

5.2.2 CALIBRATION ZERO GASES

(I) Calibration zero AIR

HC : < 0.1 ppm  
CO : < 0.5 ppm



CO2 : < 1.0 ppm  
NOX : < 0.1 ppm  
Moisture : < 1.0 ppm  
O2 : 20.6 % - 21.0 %

**(II) Calibration zero Nitrogen**

Purity : 99.997 %  
HC : < 0.1 ppm  
CO : < 0.5 ppm  
CO2 : < 1.0 ppm  
NOx : < 0.1 ppm  
Moisture : < 1.0 ppm  
O2 : < 0.5 ppm

**5.3 DAILY SPAN GASES**

**(I) High tri-blend span (+/-2% analytical accuracy)**

CO : 8000 ppm  
CO2 : 3.2 %  
Propane : 535 ppm  
Balance : Air

**(II) NOx mid span (+/-2%)**

NOx : 75 ppm  
Balance : Nitrogen

**5.4 WORKING ZERO GASES**

**(I) Working zero AIR**

HC : < 0.1 ppm  
CO : < 2.0 ppm  
CO2 : < 400 ppm  
NOx : < 0.3 ppm  
Moisture : < 1.0 ppm  
OY2 : 20.6 - 21.0 %

**(II) Working zero Nitrogen**

Purity : 99.997 %  
HC : < 1.0 ppm  
CO : < 2.0 ppm  
CO2 : < 400 ppm  
NOX : < 0.3 ppm  
Moisture : < 1.0 ppm  
O2 : < 0.5 ppm

**5.5 SUPPORT GASES**



A variety of miscellaneous support gases is required for I/M & IG240 testing. Among these are:

<u>GAS</u>	<u>USAGE</u>
Propane : 99.5% (min)	CVS system flow checks
Methane : 50 ppm/AIR	FID check gas
FID Fuel: 40% H2 / 60% HE	FID burner fuel
NO2 : 200 ppm/N2	NOx converter efficiency test gas
AIR : 18%-21%	NOx ozonator gas

#### 5.6 IG240 GASES

Calibration, span, working and support gases required by IG240 systems, are among the gases listed (5.2 thru 5.5). Additional gases of specific concentrations and blend make-up may be required pending final configuration of the IG system.

#### 5.7 CYLINDERS

Calibration and working gas tri or quad-blends used for IM & IG240 testing, must be supplied in aluminum cylinders as well as all no or NOx blends. Other gases may be supplied in steel or aluminum cylinders as appropriate.

High pressure refillable cylinders shall be manufactured in accordance with DOT specifications 3AL or 3AA [CFR Title 49, volume 2, part 178, subpart C, Oct 1, 1996], whichever is applicable.

Approved valves and relief devices, appropriate for the intended use, shall be used on all high pressure cylinders. [CFR Title 49, volume 2, subpart B, Sec. 173.124, Oct 1, 1996]

All cylinders shall have appropriate labeling to comply with all DOT regulations concerning transportation and safety. [CFR 49, volume 2, part 173, subpart B, Oct 1, 1996].

#### 5.8 MISCELLANEOUS

A full line of gas products shall be made available to the enhanced AIR Program contractor(s) to insure safe handling and storage of gas cylinders, such as regulators, carts, restraints, and leak detection equipment. The contractor(s), as well as state QA/QC personnel, may also request a variety of gas blends, tri-blends, and other specialty gas products associated with automotive emission testing. Blender must demonstrate the



ability to provide the above gases, equipment and associated products, in order to be designated as an approved blender to the Colorado enhanced AIR Program.

## 5.9 CERTIFICATES OF ANALYSIS

Each calibration gas, working span gas, and calibration zero gas shall be documented by a certificate of analysis to include; cylinder number, components, analytical results, accuracy, traceability and analysis date. Zero grade air and nitrogen may be documented by a batch analysis certificate stating purity. (Zero AIR certificate must also provide documentation of oxygen content.)

The enhanced program contractor(s) must produce documentation of cylinder contents of the above upon request of state QA/QC personnel.

### 5.9.1 TRACKING CYLINDERS VIA BAR CODE

Each "Colorado Approved" label will contain a bar code to be scanned whenever a cylinder of calibration/span gas is put into service on a Colorado '94 analyzer or Motor Vehicle Dealer Transient Mode Test Analyzer System scanned information will be stored in a file, accessible through a host computer linking all inspection stations. AIR Program QA/QC personnel will be able to locate individual cylinders, track batches of span gas, ect., throughout the program area.

Label bar codes will be generated at the time of batch or lot approval and will contain information necessary to facilitate the tracking process. Blenders are required to continue to track internally, the whereabouts of "Colorado Approved" batches of calibration/span gas prior to retail sale. In the event of a recall of a batch of non-conforming calibration/span gas, the blender, through procedure described herein (see 4.2), will begin recall. In-use calibration/span gas affected will be identified by bar code information through system host and replacement procedures will begin.



## SECTION 6

### COLORADO APPROVAL PROCESS

#### 6.0 CALIBRATION STANDARDS AND AUDIT GASES

All calibration standards used in the Colorado Enhanced IM & IG240 AIR Program must be submitted by the contractor to the state for approval and labeling as "Colorado Approved". In addition, all audit gases utilized by AIR Program QA/QC teams will undergo the same verification and/or renaming process which will take place at the Colorado AIR Program standards lab (CAPSL) in Broomfield, Colorado. At CAPSL, each standard and/or audit gas will be read vs program gold standards, named by EPA's NVFEL, in an effort to tie all primary gases to one source, regardless of manufacturer.

Each calibration standard and audit gas will receive a "Colorado Approved" label displaying the concentration of each major component as determined by analysis comparing such calibration standard or audit gas to the program gold standards. Labeled values are to be used in curve generation by the contractor and by audit teams to verify analyzer accuracy.

#### 6.1 ZERO AIR / OXYGEN CONTENT

On a random basis, cylinders of zero air will be analyzed at CAPSL to verify oxygen content. As previously stated, the oxygen content of artificial blended air shall be 20.6 to 21%. This is necessary to insure that an air cylinder used as a backup to a zero air generator (zag), will provide air as close to ambient in O<sub>2</sub> as possible, should a zag be taken offline. FID response has been shown to be greatly affected by the O<sub>2</sub> content of oxidizer air. Random analysis will provide verification that O<sub>2</sub> content in zero air is within specifications.



SECTION 7

**BLENDER FACILITY REQUIREMENTS & DOCUMENTATION**

**7.0 GENERAL**

- (A) A gas blender who intends to supply calibration/span gas to the Colorado AIR Program basic inspection stations and/or enhanced program contractor(s), must be selected by the Colorado Department of Public Health & Environment pursuant to 42-4-306(3)(A)(1)(C).
- (B) If a company has more than one facility that will be providing gases to Colorado, each must be included in the selection. The selection of one blending facility owned by a company does not imply or impart authority to other facilities within that company to supply precision gas products in Colorado.
- (C) The CDPHE shall be notified of a pending sale of a blending facility at least 60 days prior to change of ownership.
- (D) Contracts shall be for a one year period, but may be renewed annually.

**7.1 CONTRACT PROPOSAL PACKET**

The certification request packet shall contain information described in the following paragraphs. Information submitted should be as complete as possible. However, should some information be unavailable, so indicate and provide reasons, therefore, for AIR Program consideration.

**7.2 CONFIDENTIAL AND COMMERCIAL INFORMATION**

To the extent authorized by 24-72-101, C.R.S., the Colorado Department of Public Health & Environment shall maintain the confidentiality of any information which is included in the blender's bid and which is clearly marked as proprietary or confidential.

**7.3 APPLICATION**

The following items are to be included in blenders request for air program approved status:

- (A) **COVER SHEET** - An application cover sheet must be signed by the President or Chief Financial Officer of the gas blending company.



- (B) **BLENDING FACILITY DESCRIPTION** - Provide a complete description of the blending facility to include:
- Facility location
  - Physical dimensions of lab and production areas
  - Number of employees
  - General description of blending facility and procedures
- (C) **INSTRUMENTATION** - Provide description of all instrumentation utilized in the blending and analysis of AIR Program calibration/span gases. Provide instrumentation brand, model, type (NDIR, FID, GC, etc.). As well as calibration and maintenance schedules and personnel responsible.
- (D) **REFERENCE STANDARDS** - Indicate the cylinder numbers, SRM/CRM numbers, concentrations and expiration dates for each NIST traceable reference standard to be used in the preparation and/or naming of AIR Program gases.
- (E) **BUSINESS STATUS REPORT** - Application for certification shall contain information to verify blending facility's status as a bona fide blender of precision gases. Include evidence that applicant is a registered corporation in Colorado and/or a registered out-of-state corporation.
- (F) **DISTRIBUTORS AND MARKETING** - Applicant shall provide a description of expected distribution and marketing plans for providing calibration/span gas to the basic AIR program. Include a current listing of the names, addresses and phone numbers of the distributors used by the applicant. Such information shall be updated as necessary and notification of any change provided to the state in a timely manner. Lists of distributors will be made available to AIR Program inspection stations.
- (G) **RECALL OF NON-CONFORMING GASES / BASIC PROGRAM** - Certified blenders shall be responsible for the recall and replacement of non-conforming calibration/span gases. Blenders will be required to replace suspected non-conforming cylinders by overnight service. Should such a discovery extend past a single cylinder to a batch or lot, a total recall of all cylinders will take place. (See section 4).
- Applicant shall provide procedures intended for use should such a recall be necessary.
- (H) **QUALITY ASSURANCE** - Applicant shall include information regarding internal quality assurance program(s). Provide details of techniques, methodology and documentation utilized in QA program. Include calibration and maintenance schedules for all equipment and instrumentation used.



- (I) **SAFETY REGULATIONS** - Certification application must include assurance the applicant is in compliance with all applicable DOT and OSHA regulations and standards.
  
- (J) **LIABILITY** - Provide a copy of product liability insurance demonstrating adequate protection (minimum \$300,000) exists for catastrophic failure situations (e.g., cylinder or valve rupture, noxious gas leakage, etc.). Evidence of bonding coverage shall be provided upon request.



**ATTACHMENT I TO THE  
CALIBRATION AND SPAN GAS  
CERTIFICATION PROCEDURES  
APPENDIX B**



**ATTACHMENT I**

**PROGRAM CONTACT / ADDRESSES / PHONE NUMBERS**

**PROGRAM CONTACT:** The main contact on matters concerning air program gases, requirements and specifications is:

COLORADO DEPARTMENT OF PUBLIC HEALTH & ENVIRONMENT  
VEHICLE EMISSION TECHNICAL CENTER  
15608 EAST 18TH AVENUE  
AURORA, COLORADO 80011  
(303) 364-4135

ATTN: SPAN GAS VERIFICATION PROGRAM

OR

COLORADO AIR PROGRAM STANDARDS LAB  
11609 TELLER STREET  
BROOMFIELD, COLORADO 80020  
(303) 404-0268



**ATTACHMENT II TO THE  
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ATTACHMENT II

"COLORADO APPROVED" LABEL SAMPLES

(A) Basic AIR Program:

"AIR94LOW" Label  
(yellow w/black)

"AIR94MID" Label  
(white w/black)

COLORADO AIR PROGRAM  
APPROVED CALIBRATION GAS

COLORADO AIR PROGRAM  
APPROVED CALIBRATION GAS

BLENDER: A GAS CO  
FACILITY: ANYTOWN  
BATCH/LOT: 98785  
FILL DATE: 11/25/95  
EXPIRES: 11/98  
AIR#: CAG95L00251

BLENDER: A GAS CO  
FACILITY: ANYTOWN  
BATCH/LOT: 58789  
FILL DATE: 11/25/95  
EXPIRES: 11/98  
AIR#: CAG95M00325



GAS TYPE  
AIR '94  
LOW



GAS TYPE  
AIR '94  
MID



(B) ENHANCED IM240 AIR Program:

"Triblend Calibration Std"  
(white w/black)

"Nox Calibration Std"  
(white w/black)

	<b>COLORADO AIR PROGRAM APPROVED</b>					
<b>HI TRIBLEND / CAL STD</b>						
BLENDER: A GAS CO CYL #: ABC 12345						
<table border="1"> <tr><td><b>CYLINDER CONTENTS:</b></td></tr> <tr><td>CO: 9000 PPM</td></tr> <tr><td>CO2: 3.60 %</td></tr> <tr><td>THC: 1800 PPM</td></tr> <tr><td>BALANCE: AIR</td></tr> </table>		<b>CYLINDER CONTENTS:</b>	CO: 9000 PPM	CO2: 3.60 %	THC: 1800 PPM	BALANCE: AIR
<b>CYLINDER CONTENTS:</b>						
CO: 9000 PPM						
CO2: 3.60 %						
THC: 1800 PPM						
BALANCE: AIR						
DATE CERTIFIED: 10/30/95						

	<b>COLORADO AIR PROGRAM APPROVED</b>			
<b>HI NOx / CAL STD</b>				
BLENDER: A GAS CO CYL #: XY 98765				
<table border="1"> <tr><td><b>CYLINDER CONTENTS:</b></td></tr> <tr><td>NOx: 450 PPM</td></tr> <tr><td>BALANCE: NITROGEN</td></tr> </table>		<b>CYLINDER CONTENTS:</b>	NOx: 450 PPM	BALANCE: NITROGEN
<b>CYLINDER CONTENTS:</b>				
NOx: 450 PPM				
BALANCE: NITROGEN				
DATE CERTIFIED: 11/17/95				

