

CGA C-14—2020

**PROCEDURES FOR FIRE TESTING
OF DOT CYLINDER PRESSURE
RELIEF DEVICE SYSTEMS**

FIFTH EDITION

CGA

Compressed Gas Association

The Standard For Safety Since 1913

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Work Item 16-005
Cylinder Specifications Committee

NOTE—Technical changes from the previous edition are underlined.

NOTE—Appendices A and B (Normative) are a requirement.

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Contents	Page
1 Introduction.....	1
1.1 United States.....	1
1.2 Canada.....	1
1.3 Testing conditions.....	1
2 Scope.....	1
3 Definitions.....	1
4 When fire testing is required.....	2
5 Selection of systems and methods for testing.....	3
6 Preparation of systems for testing.....	3
6.1 Carbon steel and aluminum alloy cylinders.....	3
6.2 Acetylene cylinders.....	4
7 Chimney test method.....	5
7.1 Equipment capabilities.....	5
7.2 Typical apparatus.....	5
7.3 Recording of design and performance characteristics.....	5
7.4 Burn rates.....	6
7.5 Insulation of exterior wall.....	6
7.6 Design of apparatus.....	6
7.7 Calibration of apparatus.....	6
7.8 Monitoring temperatures.....	6
8 Wood bonfire test method.....	6
8.1 Securing the cylinder.....	6
8.2 Bonfire design.....	6
8.3 Kerosene.....	7
8.4 Wind shield.....	7
8.5 Fire capabilities.....	7
9 Test procedure.....	7
10 Acceptance criteria for chimney and bonfire tests.....	8
11 References.....	8
 Appendix	
Appendix A—Burner and ignition system for chimney fire test (Normative).....	9
Appendix B—Method B (Normative).....	20
 Appendices Figures	
Figure A-1—Isometric view of fire test apparatus assembly.....	10
Figure A-2—Chimney assembly.....	10
Figure A-3—Top assembly for 8 in (20.3 cm) diameter cylinders.....	11
Figure A-4—Top assembly for 12 in (30.5 cm) diameter cylinders.....	11
Figure A-5—Draft deflector for 12 in (30.5 cm) diameter cylinders.....	12
Figure A-6—Draft deflector for 8 in (20.3 cm) diameter cylinders.....	12
Figure A-7—Center assembly.....	13
Figure A-8—Cylinder stand.....	13
Figure A-9—Bottom wind deflector.....	14
Figure A-10—Base.....	14
Figure A-11—Secondary wind deflector.....	15

Figure A-12—Gas flow deflector	15
Figure A-13—Gas flow deflection	16
Figure A-14—Wheel-type burner unit with base and fire brick cylinder support installed	16
Figure A-15—Burner unit with secondary wind deflector installed	17
Figure A-16—Spark igniter installed through base assembly	17
Figure A-17—Center chimney assembly installed	18
Figure A-18—Top chimney section and downdraft deflector installed	18
Figure A-19—Lower insulation, two flue gas and two cylinder surface thermocouples, spark igniter, and propane fuel line installed	19
Figure B-1—Wood bonfire test method A	20
Figure B-2—Wood bonfire test method B	21

WARNING: When performing testing in accordance with this publication, the user shall be fully knowledgeable of the specifics of cylinder design, cylinder failure modes, and operator safety precautions. Conducting tests as described in this publication without the full understanding of the cylinder design, cylinder failure modes, and operator safety precautions can result in property damage, personal injury, and/or death.

1 Introduction

1.1 United States

This publication provides procedures for fire testing of U.S. Department of Transportation (DOT) cylinder pressure relief device (PRD) systems. The requirements of DOT regulations are addressed in Title 49 of the U.S. *Code of Federal Regulations* (49 CFR) Parts 173.301 and 173.301b [1].¹

1.2 Canada

In Canada, CSA B340, *Selection and use of cylinders, spheres, tubes, and other containers for the transportation of dangerous goods, Class 2* and CSA B342, *Selection and use of UN pressure receptacles, multiple-element gas containers, and other pressure receptacles for the transport of dangerous goods, Class 2* require compliance with the requirements of CGA S-1.1, *Pressure Relief Device Standards—Part 1—Cylinders for Compressed Gases* and this standard except for certain specified exemptions [2, 3, 4].

1.3 Testing conditions

Although 49 CFR covers cylinders in transportation, the cylinder system (cylinder and PRD system) should be fire tested, if required, in conditions representative of actual transportation and use. These conditions include:

- normally charged;
- cylinder orientation;
- fully exposed to the fire; and
- equipped as it would be for transportation and use.

2 Scope

This publication defines test equipment and procedures that are applicable for fire testing cylinder systems having water capacities of 1000 lb (454 kg) or less and provides sufficient test data to verify the capability of the cylinder system to prevent rupture of a normally charged cylinder. For most cylinders, selection of the type and size of PRD required to safely discharge the contents of a cylinder can be achieved by the use of the information contained in CGA S-1.1 [4].

Fire testing is neither required nor recommended except as stipulated in Section 4.

3 Definitions

For the purpose of this publication, the following definitions apply.

3.1 Publication terminology

3.1.1 Shall

Indicates that the procedure is mandatory. It is used wherever the criterion for conformance to specific recommendations allows no deviation.

3.1.2 Should

Indicates that a procedure is recommended.

¹ References are shown by bracketed numbers and are listed in order of appearance in the reference section.