CGA

Compressed Gas Association

The Standard For Safety Since 1913

CGA G-5.7—2014

CARBON MONOXIDE AND SYNGAS PIPELINE SYSTEMS

SECOND EDITION

PREFACE

As a part of a program of harmonization of industry standards, the European Industrial Gases Association (EIGA) and the Compressed Gas Association (CGA) formed an ad hoc task force and developed CGA G-5.7, *Carbon Monoxide and Syngas Pipeline Systems*. This standard is intended as a joint EIGA/CGA international harmonized standard for the use and application of all members of EIGA and CGA worldwide. The CGA edition is identical in technical content to the EIGA edition except for regional regulatory requirements (noted), and it has changes in formatting and spelling.

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This document is subject to periodic review, and users are cautioned to obtain the latest edition. The Association invites comments and suggestions for consideration. In connection with such review, any such comments or suggestions will be fully reviewed by the Association after giving the party, upon request, a reasonable opportunity to be heard. Proposed changes may be submitted via the Internet at our web site, www.cganet.com.

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Work Item 09-023
HYCO Committee

NOTE—Technical changes from the previous edition are underlined.

NOTE—Appendices C and F (Normative) are a requirement.

NOTE—Appendices A, B, E, G, and H (Informative) are for information only.

SECOND EDITION: 2014
FIRST EDITION: 2005

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1 Introduction

This publication has been prepared by a group of specialists in pipeline systems representing major industrial gases producers in various countries of Western Europe and North America and is based on the technical information and experience currently available to the authors.

The industrial gases companies have engaged, through the Compressed Gas Association (CGA) and the European Industrial Gases Association (EIGA), in a process of developing harmonized safety practices, and this publication is one of them.

It must be recognized, however, that pipeline systems developed over 40 years in the various European countries and North America have shown good and comparable safety records, although national practices show many differences in design and operations. Some national authorities have also introduced legislation that is mandatory for the operators in those countries.

Thus, the information contained in this document applies only to future installations and not to existing installations or those in the project phase as of the date of this publication. Furthermore, to the extent that they exist, federal, state, provincial/territorial, and local laws supersede the suggested practices listed in this publication. It should not be assumed that every local standard, test, safety procedure, or method is contained in these recommendations or that abnormal or unusual circumstances may not warrant additional requirements or procedures. CGA makes no representations or warranties on the information in or the completeness of this publication and disclaim all warranties, express or implied including, but not limited to, the warranty of merchantability and the warranty of fitness for a particular use or purpose.

SI units and corresponding customary U.S. units in brackets are used in this publication. Corresponding values can be approximate.

Those involved in the safe design, operation, and maintenance of gaseous transmission and distribution systems should be aware of various documents, guidance, publications, and standards prepared by various multinational organizations that can be pertinent to such systems. These are listed in Appendix H. In addition to these documents, there are a number of pertinent publications, technical papers, bulletins, etc., that provide useful information on materials of construction, metallurgy, environmental degradation mechanisms, etc., found also in Appendix H. While the cited references provide valuable background, it cannot be stated that these are all of the standards documents or technical papers published by international organizations that could be pertinent to the subject of this publication.

2 Scope and purpose

The scope of this publication is for transmission and distribution piping systems for carbon monoxide and hydrogen and carbon monoxide mixtures (referred to as Syngas in the remainder of this publication). Typical arrangements for these pipeline systems are shown in Figure 1 of Appendix A. It is limited to gaseous products with a temperature range between –40 °C and 150 °C (–40 °F and 302 °F), pressures from 0.1 MPa up to 15 MPa (14.5 psi up to 2250 psi), and the purity criteria defined in Appendix F.

This publication does not apply to the following processes:

- cylinder filling plants;
- producing plants;
- compressor units;
- bulk facilities (liquid or high pressure gas) at the customer's site up to the point where gas enters the distribution systems; or
- piping on specialized equipment and machines.

These systems have many specialized needs and requirements. However, this publication may provide useful background information in other processes where carbon monoxide is present.