



RECOMMENDATIONS FOR FILLING OF CYLINDERS AND BUNDLES WITH CARBON DIOXIDE

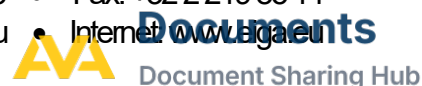
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Prepared by WG-8 Food Gases and CO₂

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Table of Contents

1	Introduction	1
2	Scope and purpose	1
2.1	Scope	1
2.2	Purpose	1
3	Definitions	1
3.1	Publication terminology	1
3.2	Technical definitions	2
4	Sources of moisture contamination in carbon dioxide cylinders and bundles	3
4.1	Water from manufacturer's or gas companies hydraulic testing procedure	3
4.2	Water from product and prefill treatment	3
4.3	Water backflow during use	3
4.4	Customer misuse	3
5	Avoidance of corrosion of carbon dioxide cylinders and bundles	3
5.1	Materials selection	4
5.2	Prevention of water or liquid ingress	4
5.3	Moisture and corrosion detection methods	5
5.4	Guidance for corrosion prevention for carbon dioxide cylinders used in food applications	6
6	Avoidance of overfilling single cylinders with carbon dioxide	6
6.1	Prefill checks	6
6.2	Cylinder filling	7
7	Filling procedure for cylinders	8
8	Avoidance of overfilling of bundles with carbon dioxide	8
8.1	Preparation for filling bundles	9
8.2	Filling procedure for carbon dioxide bundles	9
9	Weigh scales	9
9.1	Accuracy of the weigh scales	9
9.2	Maintenance and inspection of the weigh scales	9
10	Bursting discs	9
11	References	10

Table of Figures

Figure 1 – Standard cylinder valve, inline RPV, off-centre RPV comparison	4
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Amendments from 83/08

Section	Change
	Editorial to align style with EIGA Style Manual
All	Major re-write and update to reflect current practices

NOTE Technical changes from the previous edition are underlined

1 Introduction

Although very few carbon dioxide cylinder incidents are reported by EIGA Members, approximately 30% of these incidents are the result of either:

- internal corrosion, due to ingress of water or other liquids into carbon dioxide cylinders or bundles; or
- overfilling and subsequent failure of carbon dioxide cylinders.

The number of failures represents a fractional percentage compared to the overall number of cylinders in use.

This publication aims to give recommendations and an overview of the gas industry's current practices to prevent and detect internal corrosion and to avoid overfilling carbon dioxide cylinders and bundles. Filling of carbon dioxide cylinders and bundles differ from other industrial gases in that they are filled with liquefied carbon dioxide rather than gas, as a result they are filled by weight rather than pressure.

2 Scope and purpose

2.1 Scope

This publication applies to the filling of gas cylinders and bundles containing carbon dioxide as a single product. The recommendations given in this publication do not replace national regulations, where they exist. This publication does not cover the entire filling process.

This publication does not address the additional requirements resulting from the implementation of Good Manufacturing Practices for medical or for food gases, see EIGA Doc 125, *Guide to the Supply of Gases for Use in Foods*, EIGA Doc 99 Part 1, *Good Manufacturing Practice Guide Part I for Medical Gases* and EIGA Doc 99 Part 2, *Good Manufacturing Practice Guide Part II for Medical Gases: Basic Requirements for Active Substances Used as Starting Materials* [1, 2, 3].¹

Other EIGA publications relating to carbon dioxide filled in cylinders and bundles include, EIGA Doc 62, Methods to Avoid and Detect Internal Gas Cylinder Corrosion, EIGA Doc 67, Carbon dioxide cylinders at users' premises and EIGA Doc 95, Avoidance of Failure of CO and of CO/CO₂ Mixtures Cylinders [4, 5, 6].

2.2 Purpose

To provide specific guidelines for the safe filling of carbon dioxide in either single cylinders or bundles. It is intended to be followed by the industrial gases industry to eliminate incidents involving both cylinders and bundles containing carbon dioxide.

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.

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