

OTHER
RECOGNIZED
DOCUMENT

ULC/ORD-C1349-13

GUIDE FOR THE INVESTIGATION OF LP-GAS VAPORIZERS



**Underwriters
Laboratories of Canada®**

Underwriters Laboratories of Canada (ULC) was established in 1920 by letters patent issued by the Canadian Government. It maintains and operates laboratories and certification services for the examination, testing and certification of appliances, equipment, materials, constructions and systems to determine their relation to life, fire and property hazards as well providing inspection services.

Underwriters Laboratories of Canada is accredited by the Standards Council of Canada as a Certification Organization, a Testing Organization, and an Inspection Body under the National Standards System of Canada.

ULC Standards develops and publishes standards and other related publications for building construction, security and burglar protection, environmental safety, electrical equipment, fire protection equipment, gas and oil equipment, thermal insulation products, materials and systems, energy use in the built environment and electrical utility safety.

ULC Standards is a not-for-profit organization and is accredited by the Standards Council of Canada as a Standards Development Organization.

Other Recognized Documents (ORD) developed by Underwriters Laboratories of Canada are developed in accordance with the procedure outlined in the documents CAN-P-3, "General Requirements for Bodies Operating Product Certification Systems"; and CAN-P-1500, "Additional Requirements for Accreditation of Certification Bodies", published by the Standards Council of Canada.

ULC is represented across Canada as well as many countries worldwide. For further information on ULC services, please contact:

CORPORATE HEADQUARTERS

Underwriters Laboratories of Canada
7 Underwriters Road
Toronto, Ontario M1R 3A9
Telephone: (416) 757-3611
Fax: (416) 757-9540
Customer Service: 1-866-937-3852

REGIONAL OFFICES

EASTERN OFFICE

6505, Rte Transcanadienne, Suite 330
St-Laurent, Québec H4T 1S3
Telephone: (514) 363-5941
Fax: (514) 363-7014
Customer Service: 1-866-937-3852

PACIFIC OFFICE

13775 Commerce Parkway, Suite 130
Richmond, British Columbia V6V 2V4
Telephone: (604) 214-9555
Fax: (604) 214-9550
Customer Service: 1-866-937-3852

For further information on ULC standards, please contact:

ULC STANDARDS

440 Laurier Avenue West, Suite 200
Ottawa, Ontario K1R 7X6
Telephone: (613) 755-2729
Fax: (613) 231-5977
Customer Service: 1-866-937-3852

E-mail: customerservice@ulc.ca
Web site: www.ulc.ca

The intended primary application of this Other Recognized Document is stated in its scope. It is important to note that it remains the responsibility of the user of the Other Recognized Document to judge its suitability for this particular application.

Copies of this Other Recognized Document may be ordered from ULC Standards.

The Standards Council of Canada (SCC) is the coordinating body of the National Standards System, a coalition of independent, autonomous organizations working towards the further development and improvement of voluntary standardization in the national interest.

The principal objects of the SCC are to foster and promote voluntary standardization as a means of advancing the national economy, benefiting the health, safety and welfare of the public, assisting and protecting the consumer, facilitating domestic and international trade, and furthering international cooperation in the field of standards.

The National Standards System of Canada accepts the use of Other Recognized Documents (ORD) as defined in CAN-P-3, "General Requirements for Bodies Operating Product Certification Systems"; and CAN-P-1500, "Additional Requirements for Accreditation of Certification Bodies", published by the Standards Council of Canada.

The Standards Council of Canada is located at:

270 Albert Street
Suite 200
Ottawa, Ontario K1P 6N7
Telephone: (613) 238-3222

GUIDE FOR THE INVESTIGATION OF LP-GAS VAPORIZERS

ICS 75.160.30

Prepared and Published by
UNDERWRITERS LABORATORIES OF CANADA



FIRST EDITION.....FEBRUARY 2013

Copyright © 2013

ULC Standards

No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without prior permission.

Currently in preview, click buy full version

Currently in preview, click buy full version

TABLE OF CONTENTS

FOREWORD	i
PREFACE	ii
1 SCOPE	1
2 REFERENCE PUBLICATIONS	2
3 GLOSSARY	2
4 CONSTRUCTION	3
4.1 GENERAL REQUIREMENTS – ALL VAPORIZERS	3
4.2 DIRECT FIRED VAPORIZERS	4
4.3 CONTAINERS AND PIPING	5
4.4 MATERIALS	5
5 PERFORMANCE	6
5.1 GENERAL	6
5.2 PRESSURE AND TEMPERATURE RATING	6
5.3 DEFORMATION TEST	6
5.4 EXTERNAL LEAKAGE TEST	7
5.5 OPERATION TEST	7
5.6 SEAT LEAKAGE AND ENDURANCE TESTS	8
5.7 HYDROSTATIC PRESSURE TEST	8
5.8 INPUT TEST	8
5.9 TEMPERATURE TEST	8
5.10 DIELECTRIC VOLTAGE WITHSTAND TEST	9
5.11 ACCELERATED AGING TEST	9
5.12 LP-GAS COMPATIBILITY TEST	9
5.13 LOW TEMPERATURE TEST	10
5.14 10-DAY MOIST AMMONIA AIR STRESS CRACKING TEST	10
6 MANUFACTURING AND PRODUCTION TESTS	10
6.1 GENERAL	10
7 MARKINGS	11
7.1 GENERAL	11
7.2 INSTALLATION AND OPERATING INSTRUCTIONS	12
T. TABLES	13

Currently in preview, click buy full version

FOREWORD

Certification organizations are periodically requested to promptly provide certification services for devices, constructions, materials and systems where Canadian recognized Standards do not currently exist or are not entirely applicable. Accordingly, the certification organization utilizes its experience, existing specifications and requirements in related areas, together with assistance from its advisory councils to develop and prepare Other Recognized Documents (ORDs) for use in conducting the necessary tests and evaluation investigation.

Underwriters Laboratories of Canada has prepared many ORDs in response to requests from, and in conjunction with, industry, code writing bodies, regulatory agencies and others prior to promulgating a certification program. In many instances such documents have become published ULC Standards and subsequently National Standards of Canada. It is the intention of Underwriters Laboratories of Canada to continue this practice, as appropriate.

Comments on the content of this ORD should be directed to the Head Office of Underwriters Laboratories of Canada, 7 Underwriters Road, Toronto, Ontario, CANADA, M1R 3A9.

NOTE: These Other Recognized Documents are accepted under the National Standards System of Canada. Reference may be made to the Document CAN-P-3, "General Requirements for Laboratories Operating Product Certification Systems"; and CAN-P-1500, "Additional Requirements for Accreditation of Certification Bodies", published by the Standards Council of Canada located at 270 Albert Street, Suite 200, Ottawa, Ontario, CANADA, K1P 6N7.

GUIDE FOR THE INVESTIGATION OF LP-GAS VAPORIZERS

PREFACE

This is the 1st Edition of the Other Recognized Document (ORD) Guide for the Investigation of LP-Gas Vaporizers, ULC/ORD-C1349.

All values for measurement are stated in SI and may be followed by yard poundage equivalents in parentheses. The first value is a soft conversion of the units in parenthesis. The first stated value is the requirement.

In Canada, there are two official languages, English and French. All safety warnings must be in French and English. Attention is drawn to the possibility that some Canadian authorities may require additional markings and/or installation instructions to be in both official languages.

Requests for interpretation of this ORD should be sent to the ULC Mark Program, Owner of Underwriters Laboratories of Canada. The requests should be worded in such a manner as to permit a “yes” or “no” answer based on the literal text of the requirement concerned.

This ORD is intended to be used for conformity assessment.

1 SCOPE

1.1 These requirements cover liquefied petroleum gas (LP-Gas) vaporizers of the stationary type.

1.2 Vaporizers covered by these requirements are intended for use, and installation in propane systems and applications covered by the Natural Gas and Propane Installation Code, CAN/CSA-B149.1, the Canadian Propane Storage and Handling Code, CAN/CSA-B149.2 and electrical components installed in accordance with the Canadian Electrical Code, CSA C22.1, Part I. or accessories as covered in this ORD.

1.3 Except as indicated in 1.4, a component of a product covered by this other recognized document shall comply with the requirements for that component.

1.4 A component shall be used in accordance with its rating established for the intended conditions of use.

1.5 Specific components are incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions.

2 REFERENCE PUBLICATIONS

The documents shown below are referenced in the text of this ULC Other Recognized Document (ORD). Unless otherwise stated elsewhere in this ORD, such reference shall be considered to indicate the edition and/or revisions of the documents available at the date on which this ULC ORD is published.

Documents Published by the American Society for Testing and Materials (ASTM)
100 Barr Harbour Drive, PO Box C700, West Conshohocken, PA 19428-2959 U.S.A.
Telephone: (610) 832-9585
www.astm.org

- ASTM D471, Standard Test for Rubber Property - Effect of Liquids

Standards Published by the CSA Group
5060 Spectrum Way, Mississauga, ON L4W 5N6 Canada
Telephone: (416) 747-4000 or (905) 879-469-6727
www.csa.ca

- CAN/CSA-B149.1 , Natural Gas and Propane Installation Code
- CAN/CSA-B149.2 , Canadian Propane Storage and Handling Code
- CSA C22.1, Part I , Canadian Electrical Code
- CSA B51 , Boiler, Pressure Vessel, and Pressure Piping Code
- CSA-C22.2 No. 139-1982, Electrically Operated Valves
- CSA-C22.2 No. 24, Temperature-Indicating and -Regulating Equipment
- CAN/CSA-C22.2 No. 199 , Combustion Safety Controls and Solid State Igniters for Gas- and Oil-Burning Equipment