

UL 971

ISBN 1-55989-910-7

Nonmetallic Underground Piping For Flammable Liquids

ULNORM.COM : Click to view the full PDF of UL 971 2006

ULNORM.COM : Click to view the full PDF of UL 971 2006

Underwriters Laboratories Inc. (UL)
333 Pfingsten Road
Northbrook, IL 60062-2096

UL Standard for Safety for Nonmetallic Underground Piping For Flammable Liquids, UL 971

First Edition, Dated October 30, 1995

Revisions: This Standard contains revisions through and including March 2, 2006.

Summary of Topics

These revisions are being issued to correct the requirements that were published on February 22, 2006. Corrections to paragraphs 15A.12 and 15A.13 are being published to delete the references to reverse extrapolations.

UL Standards for Safety are developed and maintained in the Standard Generalized Markup Language (SGML). SGML -- an international standard (ISO 8879-1986) -- is a descriptive markup language that describes a document's structure and purpose, rather than its physical appearance on a page. Due to formatting differences resulting from the use of UL's new electronic publishing system, please note that additional pages (on which no requirements have been changed) may be included in revision pages due to relocation of existing text and reformatting of the Standard.

Text that has been changed in any manner is marked with a vertical line in the margin. Changes in requirements are marked with a vertical line in the margin and are followed by an effective date note indicating the date of publication or the date on which the changed requirement becomes effective.

The revisions dated March 2, 2006 include a reprinted title page (page1) for this Standard.

The UL Foreword is no longer located within the UL Standard. For information concerning the use and application of the requirements contained in this Standard, the current version of the UL Foreword is located on ULStandardsInfoNet at: <http://ulstandardsinfo.net/ulforeword.html>

The master for this Standard at UL's Northbrook Office is the official document insofar as it relates to a UL service and the compliance of a product with respect to the requirements for that product and service, or if there are questions regarding the accuracy of this Standard.

UL's Standards for Safety are copyrighted by UL. Neither a printed copy of a Standard, nor the distribution diskette for a Standard-on-Diskette and the file for the Standard on the distribution diskette should be altered in any way. All of UL's Standards and all copyrights, ownerships, and rights regarding those Standards shall remain the sole and exclusive property of UL.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form by any means, electronic, mechanical photocopying, recording, or otherwise without prior permission of UL.

Revisions of UL Standards for Safety are issued from time to time. A UL Standard for Safety is current only if it incorporates the most recently adopted revisions.

UL provides this Standard "as is" without warranty of any kind, either expressed or implied, including but not limited to, the implied warranties of merchantability or fitness for any purpose.

In no event will UL be liable for any special, incidental, consequential, indirect or similar damages, including loss of profits, lost savings, loss of data, or any other damages arising out of the use of or the inability to use this Standard, even if UL or an authorized UL representative has been advised of the possibility of such damage. In no event shall UL's liability for any damage ever exceed the price paid for this Standard, regardless of the form of the claim.

UL will attempt to answer support requests concerning electronic versions of its Standards. However, this support service is offered on a reasonable efforts basis only, and UL may not be able to resolve every support request. UL supports the electronic versions of its Standards only if they are used under the conditions and operating systems for which it is intended. UL's support policies may change from time-to-time without notification.

UL reserves the right to change the format, presentation, file types and formats, delivery methods and formats, and the like of both its printed and electronic Standards without prior notice.

Purchasers of the electronic versions of UL's Standards for Safety agree to defend, indemnify, and hold UL harmless from and against any loss, expense, liability, damage, claim, or judgement (including reasonable attorney's fees) resulting from any error or deviation introduced while purchaser is storing an electronic Standard on the purchaser's computer system.

If a single-user version electronic Standard was purchased, one copy of this Standard may be stored on the hard disk of a single personal computer, or on a single LAN file-server or the permanent storage device of a multiple-user computer in such a manner that this Standard may only be accessed by one user at a time and for which there is no possibility of multiple concurrent access.

If a multiple-user version electronic Standard was purchased, one copy of the Standard may be stored on a single LAN file-server, or on the permanent storage device of a multiple-user computer, or on an Intranet server. The number of concurrent users shall not exceed the number of users authorized.

Electronic Standards are intended for on-line use, such as for viewing the requirements of a Standard, conducting a word search, and the like. Only one copy of the Standard may be printed from each single-user version of an electronic Standard. Only one copy of the Standard may be printed for each authorized user of a multiple-user version of an electronic Standard. Because of differences in the computer/software/printer setup used by UL and those of electronic Standards purchasers, the printed copy obtained by a purchaser may not look exactly like the on-line screen view or the printed Standard.

An employee of an organization purchasing a UL Standard can make a copy of the page or pages being viewed for their own fair and/or practical internal use.

The requirements in this Standard are now in effect, except for those paragraphs, sections, tables, figures, and/or other elements of the Standard having future effective dates as indicated in the note following the affected item. The prior text for requirements that have been revised and that have a future effective date are located after the Standard, and are preceded by a "SUPERSEDED REQUIREMENTS" notice.

New product submittals made prior to a specified future effective date will be judged under all of the requirements in this Standard including those requirements with a specified future effective date, unless the applicant specifically requests that the product be judged under the current requirements. However, if the applicant elects this option, it should be noted that compliance with all the requirements in this Standard will be required as a condition of continued Listing and Follow-Up Services after the effective date, and understanding of this should be signified in writing.

This Standard consists of pages dated as shown in the following checklist:

Page	Date
1	March 2, 2006
2-4	February 22, 2006
5-14	January 2, 2004
15	August 16, 2005
16-18	January 2, 2004
19	August 16, 2005
20-20B	February 22, 2006
21	August 16, 2005
22	January 2, 2004
23-24	March 2, 2006
24A-24B	February 22, 2006
25	August 16, 2005
26-30	January 2, 2004
SR1-SR10	January 2, 2004

ULNORM.COM : Click to view the full PDF of UL 971 2006

No Text on This Page

ULNORM.COM : Click to view the full PDF of UL 971 2006

OCTOBER 30, 1995
(Title Page Reprinted: March 2, 2006)

1

UL 971

Standard for Nonmetallic Underground Piping For Flammable Liquids

First Edition

October 30, 1995

An effective date included as a note immediately following certain requirements is one established by Underwriters Laboratories Inc.

Revisions of this Standard will be made by issuing revised or additional pages bearing their date of issue. A UL Standard is current only if it incorporates the most recently adopted revisions, all of which are itemized on the transmittal notice that accompanies the latest set of revised requirements.

ISBN 1-55989-910-7

COPYRIGHT © 1995, 2006 UNDERWRITERS LABORATORIES INC.

ULNORM.COM : Click to view the full PDF of UL 971 2006

No Text on This Page

ULNORM.COM : Click to view the full PDF of UL 971 2006

CONTENTS

INTRODUCTION

1 Scope	5
2 General	6
2.1 Units of measurement	6
2.2 Undated references	6
2.3 Glossary	6

CONSTRUCTION

2A General	8
------------------	---

PERFORMANCE

3 General	9
4 Cyclic Pressure Test – Primary Piping	11
4A Short Term Pressure Tests	11
4A.1 General	11
4A.2 Leakage test	12
4A.3 Hydrostatic test	12
4A.4 Breakdown test	12
5 Leakage Test – Primary and Secondary Containment Piping	13
5A Long Term Pressure Tests	13
5A.1 General	13
5A.2 Sustained pressure test	13
5A.3 Cyclic pressure test	14
6 Hydrostatic Pressure Strength Test – Primary Piping	14
6A Vacuum Tests	14
6A.1 General	14
6A.2 Static vacuum test	14
6A.3 Cyclic vacuum test	15
7 Fitting Torque Test	15
8 Fitting Bending Test	15
9 Pipe Bending Test	16
10 Drop Test	16
11 Drop Test After Conditioning	17
12 Ball Impact Test	17
13 Ball Impact Test After Conditioning	18
14 Crush-Strength Test – Primary and Secondary Containment Piping	18
14A Pipe Burial Tests	18
14A.1 General	18
14A.2 Pull strength test	19
14A.3 Puncture resistance test	19
14A.4 Crush resistance test	20
15 Immersion Tests – Primary and Secondary Containment Piping	20
15A Long Term Compatibility Test	20
16 Air-Oven-Aging Test – Primary and Secondary Containment Piping	24
16A Interstitial Communication Test	24
16B UV Compatibility Test	24A
16C Nonmetallic Fitting Stress Crack Test	25

16D Metallic Fitting Stress Crack Test25
17 Permeation Test25

MANUFACTURING AND PRODUCTION TESTS

18 General26
19 Leakage Test27

MARKING

20 General27

INSTRUCTIONS

21 General29

ULNORM.COM : Click to view the full PDF of UL 971 2006