

Pool Water Quality

Superseding NZS 5826:Parts 1–5:1985 and 1986

NZS 5826:2000

COMMITTEE REPRESENTATION

This Standard was prepared by the Pool Water Quality Committee (P 5826) for the Standards Council established under the Standards Act 1998.

The committee consisted of representatives from the following organizations:

Environmental Science and Research Ltd, New Zealand
Ministry of Education, New Zealand
Ministry of Health, New Zealand
New Zealand Recreation Association
New Zealand Spa and Pool Industry Interests
New Zealand Chemical Industry Council
Water Safety New Zealand

ACKNOWLEDGEMENT

The voluntary contribution of time and expertise by the committee representatives is acknowledged.

This project was commissioned by the Ministry of Health as part of its strategy to improve, promote and protect public health.



© COPYRIGHT

The copyright of this document is the property of the Standards Council. No part of it may be reproduced by photocopying or by any other means without the prior written permission of the Chief Executive of Standards New Zealand unless the circumstances are covered by Part III of the Copyright Act 1994. Standards New Zealand will vigorously defend the copyright in this Standard. Every person who breaches Standards New Zealand's copyright may be liable to a fine not exceeding \$50,000 or to imprisonment for a term not to exceed three months. If there has been a flagrant breach of copyright, Standards New Zealand may also seek additional damages from the infringing party, in addition to obtaining injunctive relief and an account of profits.

Published by Standards New Zealand, the trading arm of the Standards Council, Private Bag 2439, Wellington 6020.

Telephone: (04) 498 5990, Fax: (04) 498 5994.

Website: www.standards.co.nz

AMENDMENTS

<i>No</i>	<i>Date of issue</i>	<i>Description</i>	<i>Entered by, and date</i>

CONTENTS **PAGE**

Committee representation	IFC
Acknowledgement	IFC
Copyright	IFC
Related documents	3
Foreword	4

Section

1 Scope, objective and interpretation	5
2 Definitions	5
3 Water treatment	6
4 Water quality criteria and testing frequencies	7
5 Additional requirements for spa pools	15
6 Specific requirements for geothermal pools	16
7 Chemical principles for chlorinated pools	17
8 Alternatives to chlorine for pool disinfection	19

Appendix

A Health considerations	23
B Safe handling and storage of chemicals	28
C Chemical dosing procedures	32
D Check-list of duties and procedures for safe operation of swimming pools	34
E Water quality test procedures, test kits and equipment	41
F Coagulation and flocculation	53
G Trouble shooting	55
H Glossary of terms	57

Table

1 Chemical water quality criteria – domestic swimming pools and domestic spa pools	8
2 Chemical water quality criteria – public swimming pools and public spa pools	10
3 Minimum frequency of chemical testing for swimming pools	12
4 Minimum frequency of chemical testing for spa pools	13
5 Microbiological water quality criteria	13
A1 Guideline contact times and dose rates to inactivate <i>Giardia</i> and <i>Cryptosporidium</i>	26
B1 Guidelines for segregation when storing pool chemicals	30
E1 Alkalinity x hardness products above which calcium carbonate scaling and precipitation can occur	51
E2 Typical changes in pH and alkalinity expected when chemicals are added	52
G1 Trouble shooting	55

Figure

B1 Sample safety notice 31

D1 Sample notice for filter plant and pool details 36

E1 Watergram for determining chemical balance of water 49

E2 Watergram for example calculation in E9.4 50

Index 61

RELATED DOCUMENTS

Reference is made in this Standard to the following:

NEW ZEALAND STANDARDS

NZS 4441:1985	Code of practice for swimming pools
NZS 5826:- - -	Code of practice for the operation of swimming pools
Part 1:1985	The control of pool water quality
Part 2:1985	Plain language code of practice for the control of water quality in school swimming pools
Part 3:1986	The control of water quality in home swimming pools
Part 4:1986	The control of water quality in commercial spa pools
Part 5:1986	The control of water quality in home spa pools

AUSTRALIAN STANDARDS

AS 2927-1987	The storage and handling of liquefied chlorine gas
AS 3633-1989	Private swimming pools – Water quality

OTHER PUBLICATIONS

American Public Health Association 1998. Standard Methods for the Examination of Water and Wastewater, 20th edition, American Public Health Association (APHA), Washington DC.

Korich, D.G. et al (1991). Effects of Ozone, Chlorine Dioxide, Chlorine and Monochloramine on *Cryptosporidium parvum* Oocyst Viability. Appl. Environ. Microbiol., 56(5): 1423–1428.

Ministry of Health 1995. Drinking-Water Standards for New Zealand.

The users of this Standard should ensure that their copies of the above-mentioned New Zealand Standards, referenced overseas Standards and other documents are the latest revisions or include the latest amendments. Amendments of national and international Standards are listed in the annual SNZ catalogue, which is supplemented by lists contained in the monthly magazine Standards Update, issued free of charge to subscribing members of Standards New Zealand.

FOREWORD

This revised New Zealand Standard was prepared by the Standards New Zealand Technical Committee P 5826 Water Quality – Pools, at the request of the New Zealand Ministry of Health. The Ministry was concerned that NZS 5826, as an important public health Standard, should reflect current knowledge and technology.

NZS 5826:Parts 1–5:1985 and 1986 was introduced to address problems that had been experienced with water quality in swimming, geothermal, and spa pools because of a diversity of pool management techniques. It provided a reference document for all operators or owners of such pools.

This document replaces NZS 5826 *Code of practice for the operation of swimming pools* Parts 1 to 5. The revised Standard, which is renamed NZS 5826 *Pool water quality*, has been completely reformatted to improve clarity and has been substantially reworked, in places reflecting material from AS 3633-1989 *Private swimming pools – Water quality* and other Australasian and international documents.

At the time of going to press a method for countering outbreaks of cryptosporidiosis has not been fully defined and an amendment may be required to encompass future developments. A protocol for pools has been developed by the New Zealand Recreation Association, Water Safety New Zealand and the Ministry of Health.

NEW ZEALAND STANDARD

POOL WATER QUALITY

1 SCOPE, OBJECTIVE AND INTERPRETATION

1.1 Scope

This Standard covers the essential aspects of the operation and maintenance of pools in regard to pool water quality criteria including reference to methods of water treatment. It does not cover maintenance of heating equipment or of mechanical and electrical equipment. The design of swimming pools is covered by NZS 4441.

This Standard covers all fresh water and sea water swimming and spa pools, and geothermal pools, during use.

Safe handling of swimming pool chemicals is covered in Appendix B.

1.2 Objective

The purpose of this Standard is to ensure that:

- (a) Chemical and microbiological levels are maintained to safeguard health;
- (b) Water is aesthetically acceptable;
- (c) Unnecessary discomfort is prevented;
- (d) Degradation of the pool and associated equipment is minimized.

1.3 Interpretation

In this Standard the word “shall” identifies a mandatory requirement for compliance with the Standard. The word “should” refers to practices which are advised or recommended.

A ‘normative’ appendix is an integral part of a Standard, whereas an ‘informative’ appendix is only for information and guidance.

2 DEFINITIONS

For the purposes of this Standard the following definitions shall apply. A glossary of technical terms used in the Standard is provided in Appendix H.

DOMESTIC POOL means any pool located in the grounds of a private dwelling and intended to be used by members of the household and their invited guests.

GEOTHERMAL POOL means any pool which uses geothermal water, i.e. water that emerges from the ground at an uncontrolled temperature generated by geological forces. This includes recirculating systems and unfiltered, non-recirculating (“fill and draw”) systems.

POOL means any water-retaining structure, wholly or partially of artificial construction and generally having a circulation and filtration system, designed for recreational, training or therapeutic bathing. This definition excludes baths of the domestic style which are used for personal hygiene and are emptied after each use, regardless of location.