

Australian/New Zealand Standard™

Upholstery cleaning

Part 1: Fabric upholstery



Standards Australia



Document Sharing Hub

AS/NZS 4849.1:2003

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee TX-023, Upholstery Cleaning. It was approved on behalf of the Council of Standards Australia on 27 March 2003 and on behalf of the Council of Standards New Zealand on 4 April 2003. It was published on 8 May 2003.

The following are represented on Committee TX-023:

Australian Consumer & Specialty Products Association
Building Service Contractors of New Zealand
Certification Interests
Commercial Furniture Industry Association of Australia
Drycleaning Institute of Australia
National Upholstery & Carpet Cleaners Association
New Zealand Leather & Shoe Research Association
Plastics and Chemicals Industries Association
Soft Furnishings Industry Association of Australia
Textile Rental & Laundry Association, Australia
Wool Research Organization of New Zealand

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Australia web site at www.standards.com.au or Standards New Zealand web site at www.standards.co.nz and looking up the relevant Standard in the on-line catalogue.

Alternatively, both organizations publish an annual printed Catalogue with full details of all current Standards. For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia International or Standards New Zealand at the address shown on the back cover.

This Standard was issued in draft form for comment as DR 02374.

Australian/New Zealand Standard™

Upholstery cleaning

Part 1: Fabric upholstery

First published as AS/NZS 4849.1:2003.

COPYRIGHT

© Standards Australia/Standards New Zealand

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

Jointly published by Standards Australia International Ltd, GPO Box 5420, Sydney, NSW 2001, and Standards New Zealand, Private Bag 2439, Wellington 6020

ISBN 0 7337 5230 6

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee TX-023, Upholstery Cleaning.

This Standard was developed to provide cleaning practitioners with requirements and guidelines for the maintenance and cleaning of upholstery fabrics.

Although similar in some respects to AS/NZS 3733, *Textile floor coverings—Cleaning maintenance of residential and commercial carpeting*, this document is specific to the techniques required for cleaning a huge variation of fibres, fabrics, weaves and finishes that differ greatly to the requirements of carpets.

Detailed in this document are guides to cleaning chemicals, apparatus, cleaning techniques, waste disposal and safety. Further information is provided for maintenance programs and fabric construction.

The term ‘informative’ has been used in this Standard to define the application of the appendix to which it applies. An ‘informative’ appendix is only for information and guidance.

CONTENTS

	<i>Page</i>
FOREWORD	4
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE.....	5
1.2 OBJECTIVE	5
1.3 REFERENCED DOCUMENTS.....	5
1.4 DEFINITIONS.....	5
SECTION 2 CLEANING CHEMICALS	
2.1 SCOPE OF SECTION	6
2.2 SOIL SUSPENSION.....	6
2.3 GENERAL REQUIREMENTS.....	6
2.4 SPECIFIC REQUIREMENTS FOR UPHOLSTERY CLEANING CHEMICALS	8
SECTION 3 CLEANING APPARATUS	
3.1 SCOPE OF SECTION	10
3.2 CLASSIFICATION	10
3.3 DRY SOIL REMOVAL APPARATUS	10
3.4 SURFACE CLEANING APPARATUS.....	10
3.5 CORRECTIVE OR RESTORATIVE CLEANING APPARATUS	11
3.6 CLEANING TOOLS	12
3.7 MAINTENANCE OF APPARATUS.....	13
SECTION 4 UPHOLSTERY CLEANING TECHNIQUES	
4.1 SCOPE OF THIS SECTION.....	14
4.2 GENERAL.....	14
4.3 CLEANING PROCEDURES.....	14
4.4 PROCEDURE FOR PRE-INSPECTION	14
4.5 DRY SOIL REMOVAL.....	17
4.6 SURFACE CLEANING/INTERIM MAINTENANCE.....	17
4.7 SUSPENDED SOIL REMOVAL—CORRECTIVE OR RESTORATIVE CLEANING	19
SECTION 5 DISPOSAL OF EXTRACTED CLEANING WASTE	26
APPENDICES	
A PLANNING A MAINTENANCE PROGRAM.....	27
B GUIDE TO FABRIC TEXTURES AND COLOUR	30
C HOUSEHOLD CHEMICALS WHICH MAY DAMAGE FABRICS	32
D SPOT AND STAIN REMOVAL	34

FOREWORD

Most people choose their new lounge suite for its appearance and give little consideration to the effects of ongoing, day-to-day use. Standards have been written for the durability and performance of upholstery fabrics but as yet not much consideration has been given to the cleanability or cleaning of upholstery furniture.

While care labelling standards have improved, they do not cover the technical intricacies required by the restorative cleaning technician to achieve an acceptable result without subsequent damage to the fabric or furniture. This ultimately leads to consumer disappointment in the manufactured goods.

The carpet industry and consumers have benefited enormously from the introduction of AS/NZS 3733:1995, *Textile floor coverings—Cleaning maintenance of residential and commercial carpeting*. It is used by cleaning practitioners as a general code of working practice, and forms the basis of a number of cleaning and restoration training schools' carpet cleaning courses.

It is envisaged that this Standard on upholstery cleaning will be of equal benefit to the community and industry alike.

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard Upholstery cleaning

Part 1: Fabric upholstery

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard provides specifications and guidelines for cleaning and maintenance techniques for domestic and commercial fabric upholstery.

Such techniques form the basis of the cleaning maintenance program.

NOTES:

- 1 Guidelines on planning a cleaning maintenance program are given in Appendix A.
- 2 Information on fabric weave texture and colour is given in Appendix B.
- 3 Household chemicals which can have a damaging effect on fabrics are discussed in Appendix C.

1.2 OBJECTIVE

The objective of this Standard is to provide cleaning practitioners with, and inform consumers of, the minimum requirements for cleaning maintenance programs and cleaning techniques to enable textile upholstery coverings to be kept in a clean and hygienic condition.

1.3 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS

1957 Care labelling

AS/NZS

1715 Selection, use and maintenance of respiratory protection devices.

Worksafe Australia. National model regulations

NOHSC: 1005 Control of work place hazardous substances

NOHSC: 2007 National code of practice—Control of workplace hazardous substances

The Textile Institute—Textile terms and definitions

1.4 DEFINITIONS

For the purpose of this Standard, the definitions given in *The Textile Institute—Textile terms and definitions* and the following definition apply.

1.4.1 Upholstery fabric

Textile fabric used to cover furniture.

SECTION 2 CLEANING CHEMICALS

2.1 SCOPE OF SECTION

This Section provides requirements for the chemicals to be used in appropriate fabric upholstery cleaning techniques.

2.2 SOIL SUSPENSION

Soil suspension is the action of the cleaning agent on the soil to allow the soil to be removed by extraction means. The four basic fundamentals of soil suspension are:

(a) *Chemical action*

Cleaning chemicals are applied to the upholstery to emulsify, breakdown, suspend, or otherwise loosen soiling from the surface of, or within the fibres of fabric, ready for removal.

(b) *Heat and temperature*

Heat or raised temperature increases most chemical activity. Cleaning agents generally work better at raised temperatures but dyes may become mobile or fibres may not withstand excess temperatures. (See Table 4.1).

(c) *Agitation*

Agitation helps loosen soiling and distribute chemicals evenly and thoroughly.

NOTE: Insufficient agitation may limit the results of cleaning and excess agitation may result in damage to the fibres or the integrity of the weave or texture.

(d) *Time*

Chemical action requires time. Typically 5 to 20 minutes. Refer to the chemical manufacturer's directions for appropriate dwell times.

NOTE: Extended dwell times may adversely affect some fibres or dyes but insufficient dwell time may not allow chemicals to reach maximum effectiveness.

2.3 GENERAL REQUIREMENTS

2.3.1 General

Agents used for cleaning or spot and stain removal shall cause no immediate or subsequent adverse change in appearance, feel, performance or durability to upholstery fabrics, backings, fillings, adhesives or stitching found in the furnishings to be cleaned.

Such agents shall also not adversely affect associated parts of furniture items, such as metal or timber components.

These agents shall leave no residual odour following their use.

2.3.2 pH value

2.3.2.1 General

Unless otherwise recommended by the fabric manufacturer, chemicals used shall have a pH in the range 5.5 to 8.5 if used diluted and an undiluted pH in the range from 4.0 to 10.0.

NOTE: More acidic or alkaline detergent solutions are unsuitable, as residues left after cleaning are damaging to fibres and fabric dyes. It is recognized that certain synthetic polymers such as polyamide and polypropylene, particularly when solution dyed, are generally not adversely affected by a higher alkalinity than specified above. However, cleaning technicians may have difficulty in always correctly identifying complex mixtures of fibres, together with the fibres in backings and stitching used in upholstery. The above limits have been set to promote generally safe working conditions.

2.3.2.2 *Determination of pH*

The procedure for determining pH values shall be as follows:

- (a) Take 2 g of undiluted sample and evaporate to dryness in a 100 mL glass beaker at 102 to 105°C for 2 h.
- (b) Cool and redissolve soluble matter in 50 mL of distilled water.
- (c) Determine pH at 20°C.

2.3.3 **Acid rinses**

It is preferable for certain natural fibres to dry in a slightly acid state between pH 4.5 and 6.5. The pH can be determined by placing a moistened pH strip on the still damp fabric.

Mild acid rinses suitable for upholstery are now widely available.

The manufacturer directions for acid rinses shall be carefully followed. These products can be used as a rinse or after-spray and are generally beneficial for wool, linen, cotton (especially semi-processed cotton) and cellulose fibres.

2.3.4 **Colourfastness**

Chemicals shall be used which, when applied in the intended manner to a fabric, do not cause colour bleeding, change of pile texture or any other damage to the fabric. This should be first checked by applying the chemicals to a fabric sample or to an inconspicuous part of the fabric. Refer to Clause 4.4.

NOTE: The fabric sample tested should include all of the colours in the fabric.

2.3.5 **Resoiling**

Chemicals applied to the fabric shall leave no residue on the fibre after cleaning which would create a greater propensity for the fabric to become resoiled than a new fabric of the same type would.

2.3.6 **Topical finishes**

Stain and soil resistant finishes utilizing fluorochemical and other stain blocking ingredients, are now widely used, especially on nylon. If such a finish has been used on the fibre, the detergent or cleaning chemicals used shall be anionic or non-ionic in character, or a combination thereof and have a pH not greater than 10. Quaternary biocides, being cationic, shall not be used on stain resistant finishes.

Application of other topical treatments such as flame retardant, anti-static or anti-allergen, shall be investigated prior to cleaning. Advice shall be given on any possible negative consequences on the efficiency of such treatments.

2.3.7 **Disinfectants and general biocides**

Use of products claiming disinfecting, biocidal, insecticidal or miticidal properties shall meet the relevant regulatory authority requirements and be used in accordance with approved conditions of use.

2.3.8 **Safety**

2.3.8.1 *General requirements*

Chemicals used shall be labelled in accordance with regulations concerning occupational health and safety, poisons, dangerous goods and transportation of dangerous goods.

NOTE: Safety data sheets should be referenced prior to handling hazardous substances.

2.3.8.2 Spot and stain removers containing enzyme

When using substances containing enzymes, contact with skin, eyes and respiratory system is to be avoided, and therefore the use of safety equipment is essential. For correct respiratory protection refer to AS/NZS 1715. Only coarse, non-atomizing spray heads should be fitted to containers, and containers should be labelled. The fabric should be rinsed thoroughly after use, preferably with hot water, to remove enzyme-containing residues.

2.4 SPECIFIC REQUIREMENTS FOR UPHOLSTERY CLEANING CHEMICALS

2.4.1 Spot and stain removal chemicals

Spot and stain removal chemicals should be compatible with cleaning agents. (See Appendix D). They shall be of a type that will not harm fabrics when used in accordance with manufacturers' recommendations.

The following precautions shall be taken into consideration when using spot and stain removal chemicals:

- (a) Water soluble spotters. Immediately after use, the excess water-soluble spotter shall be removed from the fabric by a repeated absorption technique using clean white towelling moistened with clean water or by rinse extraction.
- (b) Dry solvent spotters. Immediately after use, the excess dry solvent spotter shall be removed from the fabric by a repeated absorption technique using clean white towelling.
- (c) Use of chemical de-colouring agents such as oxidizing agents (sodium hypochlorite, hydrogen peroxide or similar) and reducing agents such as dye stripper (sodium metabisulphite or similar) shall be used with extreme caution, as these can cause damage to certain fibres.
- (d) Use of strong alkalies, over pH 8.5 (see Clause 2.3.2) shall be avoided as these can cause damage to certain fibres.
- (e) Use of strong acids (such as some rust removal chemicals that contain hydrofluoric acid) shall only be done with extreme caution and used strictly in accordance with manufacturer's guidelines and safety precautions.
- (f) Solvents or detergents with large concentrations of solvent shall not be used on flocked velvets or fabrics that contain latex or other such backing adhesion material. They shall also only be used with caution on furnishings that may contain components or backing materials that are affected by solvents.
- (g) Cleaning shall be carried out as specified on the upholstery care label (refer to AS 1957).

NOTES:

- 1 Where any doubt exist as to the best method of cleaning a particular piece of furnishing, expert advice should be sought before cleaning is attempted.
- 2 Some spills, when allowed to age on fabrics can become fixed. The resulting stain cannot always be removed. Appendix D provides guidance on the removal of stains from fabrics.

2.4.2 Bonnet mitt or cloth

The types of cleaning chemicals to be used with a bonnet mitt or cloth include shampoo solutions, (see Clause 2.4.4), hot water injection and extraction solutions (see Clause 2.4.5), dry solvent chemicals, (see Clause 2.4.6) or specific touch up cleaning solutions that shall comply with the relevant type of chemical as specified in Clause 2.4.1.

2.4.3 Absorbent compound cleaners

Only non-abrasive type, absorbent compound cleaners that do not cause bacterial degradation within the fabric, and which have a high solvent absorbency factor shall be used.

2.4.4 Liquid shampoo including dry foam cleaners

The following shall be addressed when using liquid shampoo techniques:

- (a) Any liquid pre-sprays or spotting agents used for treating or softening soiling or stains shall be compatible with the particular type of shampoo to be used for cleaning.
- (b) A liquid chemical shampoo shall be used which, when mixed as directed by the manufacturer generates a copious, dense, mechanically stable, moist (but not wet) foam on the surface of the fabric.
- (c) Shampoo shall be used, which leaves a dry, friable residue that is totally removable from glass by gentle brushing, when a sample of its foam is allowed to air-dry on a clean glass surface.
- (d) The shampoo solution shall not contain dyes, optical brighteners, or chemical constituents that are hygroscopic.
- (e) Chemicals such as deodorants, perfumes and disinfectants for special situations, shall be considered and be compatible with shampoo solutions.
- (f) Defoamer chemicals for addition to the waste recovery tanks of extraction equipment.

2.4.5 Water injection and extraction cleaners

The following items shall be addressed when using hot water injection and extraction techniques:

- (a) Detergents that are readily and totally soluble in the available water, whether soft or hard.
NOTE: The limit of water hardness for effective cleaning is often stated in the product label. If no such statement is made, the information should be obtained from the detergent manufacturer.
- (b) Any liquid pre-sprays or spotting agents used for treating or softening soiling or stains shall be compatible with the other solutions to be used for cleaning.
- (c) Detergents shall be in either liquid or powder form; if it is a powder, it shall be readily and completely soluble in hot or cold water as specified by the manufacturer.
- (d) Chemicals such as deodorants, perfumes and disinfectants for special situations, shall be considered and these should be compatible with detergent solutions.
- (e) Defoamer chemicals for addition to the waste recovery tanks of extraction equipment.

2.4.6 Dry solvent injection and extraction

The following shall be addressed when using dry solvent injection and extraction techniques.

- (a) Any prespray or spotting agent used shall be solvent based not water based and shall be compatible with, and easily removed by, the solvent used in the extraction machine.
- (b) Particular attention shall be given to the safety aspects of the principal solvent or solvents used, especially with regard to flammability and toxicity.
The safest effective solvent shall be selected.
- (c) A limitation of solvent based upholstery cleaning is the possibility of damage to adhesives or latex back coating on fabrics. Information on this aspect of the products used shall be available or be obtained from the manufacturer.

SECTION 3 CLEANING APPARATUS

3.1 SCOPE OF SECTION

This Section specifies requirements for the apparatus to be used in the appropriate upholstery cleaning techniques.

3.2 CLASSIFICATION

Upholstery cleaning apparatus shall be classified into three categories as follows:

- (a) Dry soil removal.
- (b) Surface cleaning (e.g. spot and stain removal).
- (c) Corrective or restorative cleaning.

3.3 DRY SOIL REMOVAL APPARATUS

3.3.1 General

One or more of the following apparatus is required:

- (a) An assortment of brushes. A soft bristle (horsehair) dusting brush for hand dusting of furniture. Carding brush for agitating velvets to loosen dry soil.
- (b) Suction cleaner. An electric machine fitted with an open jaw suction head (see Figure 3.1), a bristled suction head and a crevice tool.
- (c) Suction cleaner. An electric machine which can be fitted with attachments such as upholstery suction head, a bristled brush suction head and a crevice tool.

3.3.2 Requirements for vacuum filtration systems

Filtering systems on vacuum cleaners shall be capable of filtering 97.5% of dust to 0.5 μm , or exhaust externally.

NOTE: The filtration system should not restrict or reduce the efficiency of the vacuum cleaner as a cleaning device.

3.4 SURFACE CLEANING APPARATUS

3.4.1 General

Surface cleaning techniques, set out in Clause 4.6, require equipment as specified in this Clause (3.4).

3.4.2 Dry solvent

The following shall be used for dry solvent cleaning:

- (a) A solvent compatible spray device to spray solvent evenly but lightly over the surface.
- (b) A dry towel or bonnet mitt to absorb solvent and dissolved soiling.

3.4.3 Absorbent compound

The following shall be used for absorbent compound cleaning:

- (a) A sprinkling device capable of evenly distributing the compound on the surface of the fabric. Distribution by a gloved hand is also acceptable.
- (b) Horsehair brush to agitate powder to ensure even absorption of solvent.
- (c) A vacuum cleaning apparatus for removal of dried powder.

3.4.4 Dry foam shampoo

The following shall be used for dry foam shampoo cleaning:

- (a) A soft bristled brush fitted to an aerosol shampoo bottle or other device capable of applying foam evenly to the surface.
- (b) A vacuum cleaner fitted with a soft bristled brush attachment capable of removing dried foam.

3.4.5 Steam cleaning (not water extraction)

The following shall be used for steam cleaning:

- (a) A steam generating device fitted with the appropriate head.
- (b) Towel or absorbent cloth.

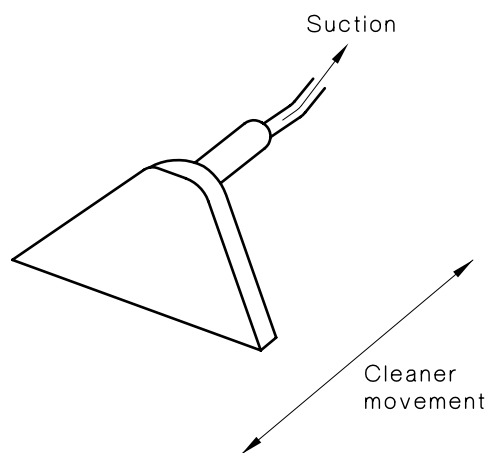


FIGURE 3.1 DRY SOIL REMOVAL APPARATUS

3.5 CORRECTIVE OR RESTORATIVE CLEANING APPARATUS

3.5.1 General

One or more apparatus described below is required to suit the selected cleaning method.

3.5.2 Extraction equipment

At least one of the following pieces of equipment is required:

- (a) Dry soil removal. Vacuum equipment capable of dry soil pick-up and filtration, (see Section 3.3.1(b)) fitted with upholstery attachments and a crevice tool.
- (b) Vacuum equipment capable of extracting water based solutions; commonly known as a wet and dry vacuum cleaner.
- (c) Vacuum equipment capable of extracting water based solutions and a pressurized water delivery system; commonly known as hot water extraction.
- (d) Vacuum equipment capable of dry solvent injection and pick-up; commonly known as a dry solvent extraction machine.

3.5.3 Vacuum pressure

The vacuum pressure of the equipment shall be sufficient to remove solutions and or soiling but not be too aggressive to cause damage to fabric.