AS 1087—1991

Australian Standard®

Sodium hypochlorite solutions for use in the dairying industry

This Australian Standard was prepared by Committee FT/9, Dairy Detergents and Sanitizers. It was approved on behalf of the Council of Standards Australia on 22 April 1991 and published on 10 June 1991.

The following interests are represented on Committee FT/9:

Australian Dairy Farmers Federation
Chemical Confederation of Australia
Confederation of Australian Industry
Council of Australian Food Technology Associations
Dairy Industry Association of Australia
Diary Industry Authority of Western Australia
Department of Agriculture, S.A.
Department of Primary Industries and Energy (Commonwealth)
Department of Primary Industry, Tas.
Department of Primary Industries, Qld
New South Wales Dairy Corporation
The Royal Australian Chemical Institute
Victorian Dairy Industry Authority

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PREFACE

This Standard was prepared by the Standards Australia Committee on Dairy Detergents and Sanitizers to supersede AS 1087—1971.

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FOREWORD

When solutions of sodium hypochlorite are allowed to stand, the amount of available chlorine slowly diminishes. The rate of decomposition is accelerated by exposure to heat or light, contact with certain metallic salts (e.g. copper), or with organic matter. The presence of a small amount of free alkali retards the rate of decomposition. Concentrated solutions decompose at a greater rate than dilute solutions.

Two consequences of this decomposition are that first, the chemical properties specified must be determined, and the product delivered to the customer without undue delay; and second, the concentration of the sanitizing solution must be checked before use and, if necessary, allowance made when sanitizing if the solution is under-strength.

Efficient use of sodium hypochlorite solutions for sanitizing operations demands a knowledge of the available chlorine in the solution at its nominal concentration. If facilities for testing are available, it is advisable for a user to determine the available chlorine in the concentrated solutions within 24 h of use, irrespective of the age of the solution. Where no facilities for testing the solutions are available the recommendations given in Appendix A will ensure that satisfactory levels of available chlorine are present for sanitizing operations.

Sodium hypochlorite solutions should not be mixed with other chemicals and must be handled with care. Strong solutions rapidly produce burns when in contact with the skin. If a solution is splashed onto the skin or eyes, the affected part should be washed with copious amounts of water. In all cases where the eyes are affected, medical advice should be sought without delay.

The handling and transport of these solutions may be covered by local State regulations. These should be read in conjunction with this Standard.

STANDARDS AUSTRALIA

Australian Standard

Sodium hypochlorite solutions for use in the dairying industry

1 SCOPE This Standard specifies requirements for sodium hypochlorite solutions for use as sanitizers in the dairying industry. Three nominal concentrations of solutions are specified, namely available chlorine contents of 50 g/L, 100 g/L and 125 g/L.

NOTE: Recommendations for the use of sodium hypochlorite solutions for sanitizing operations are given in Appendix A.

2 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS
2162 Code of practice for the use of volumetric glassware

2163 Graduated measuring cylinders

2164 One-mark volumetric flasks

2165 Burettes and bulb burettes

2166 One-mark pipettes

3 DEFINITION For the purpose of this Standard, the definition below applies.

Available chlorine—the quantity of chlorine chemically equivalent to the oxygen that would be released during the complete decomposition of the sodium hypochlorite to sodium chloride and oxygen. It is a measure of the oxidizing ability of hypochlorite solutions.

NOTE: The available chlorine is equivalent to the amount of iodine released from potassium iodide by sodium hypochlorite under acidic conditions.

4 APPEARANCE The sodium hypochlorite solution shall be greenish-yellow in colour and free from suspended matter.

5 SAMPLING AND TESTING CONDITIONS

5.1 Test samples The samples for test shall be taken from the solution as delivered and transferred to amber-coloured glass bottles or other suitable containers that will protect the contents from ultraviolet light. The sample containers shall be provided with inert vented stoppers.

The test samples shall be stored in the dark at a temperature not exceeding 20°C.

5.2 Reagents The reagents used in testing shall be of appropriate analytical reagent grade. The water used shall be distilled or be of equivalent purity unless otherwise specified.

5.3 Timing of tests

5.3.1 *General* Due to inherent continual loss of chlorine by sodium hypochlorite solutions over a period of time, the results of tests only apply to the product *at the time of the test.* Testing laboratories should commence and complete testing as quickly as possible upon receipt of a sample.

5.3.2 *Manufacturer's testing* In order to label their product in accordance with Clause 11(b), manufacturers shall commence testing within seven days of the date of manufacture stated on the label.

5.3.3 *User's testing* For users, tests on the product as it is received or at a later date will provide information which can then be used in conjunction with the other criteria of this Standard to determine:

(a) Whether the product is satisfactory for use.

(b) What dilution is necessary to provide an effective sanitizing solution.

6 CHEMICAL PROPERTIES

6.1 Available chlorine When determined in accordance with Method 1 of Appendix B, the available chlorine in the solution as supplied shall be within the relevant range of values specified in Table 1 for the stated nominal concentration.

6.2 Free sodium hydroxide When determined in accordance with Appendix C, the free sodium hydroxide in the solution shall be within the range of values specified in Table 1 for the stated nominal concentration.

6.3 Sodium chlorate When determined in accordance with Appendix D, the sodium chlorate in the solution shall not exceed the relevant maximum concentration specified in Table 1 for the stated nominal concentration.