

British Standard

Analysis of surface active agents (raw materials)

Part 5. Ethoxylated alcohol and alkylphenol sulphates

Section 5.2 Method for estimation of mean relative molecular mass

[ISO title: Surface active agents — Sulfated ethoxylated alcohols and alkylphenols — Estimation
of the mean relative molecular mass]

Analyse des agents de surface (matières premières)

Partie 5. Sulfates d'alcool et d'alkylphénols éthoxylés

Section 5.2 Méthode d'estimation de la masse moléculaire relative moyenne

Analyse von Tensiden (Rohstoffe)

Teil 5. Ethoxlierter Alkohol und Alkylphenolsulfate

Abschnitt 5.2 Verfahren zur Bestimmung der relativen mittleren Molmasse

Contents

	Page		Page
National foreword	Inside front cover	5 Apparatus	2
Committees responsible	Back cover	6 Sampling	2
		7 Procedure	2
Method		8 Expression of results	3
1 Scope	1	9 Test report	4
2 Normative references	1		
3 Principle	1	Annex	
4 Reagents and materials	1	A General scheme of analysis	5

National foreword

This Section of BS 6829 has been prepared under the direction of the Chemicals Standards Committee. It is identical with ISO 6843 : 1988 'Surface active agents — Sulfated ethoxylated alcohols and alkylphenols — Estimation of the mean relative molecular mass', published by the International Organization for Standardization (ISO).

Terminology and conventions. The text of the international standard has been approved as suitable for publication as a British Standard without deviation. Some terminology and certain conventions are not identical with those used in British Standards; attention is drawn especially to the following.

The comma has been used as a decimal marker. In British Standards it is current practice to use a full point on the baseline as the decimal marker.

The symbol 'l' has been used to denote litre (and in its submultiples). In British Standards it is current practice to use the symbol 'L'.

In British Standards it is current practice to use the spelling 'sulphur', etc., instead of 'sulfur', etc.

Wherever the words 'International Standard' appear, referring to this Standard, they should be read as 'Section of BS 6829'.

Cross-references

International standard	Corresponding British Standard
ISO 607 : 1980	BS 3762 Analysis of formulated detergents Part 1 : 1983 Methods of sample division (Identical)
ISO 1042 : 1983	BS 1792 : 1982 Specification for one-mark volumetric flasks (Identical)
ISO 2271 : 1972	BS 3762 Analysis of formulated detergents Part 3 Quantitative test methods Section 3.1 : 1983 Method for determination of anionic-active matter content (Identical)
ISO 4800 : 1977	BS 2021 : 1980 Specification for separating and dropping funnels for laboratory use (Identical)
	BS 6829 Analysis of surface active agents (raw materials) Part 5 Ethoxylated alcohol and alkylphenol sulphates
ISO 6842 : 1983	Section 5.1 : 1987 Method for determination of total active matter content (Identical)
ISO 8799 : 1988	Section 5.3 : 1988 Method for determination of unsulphated matter content (Identical)

Additional information. With reference to clause 4, water complying with grade 3 of BS 3978 'Specification for water for laboratory use' is suitable. With reference to 4.5, the concentration of the hydrochloric acid solution required is $c(\text{HCl}) = 2 \text{ mol/L}$.

This Section describes a method of test only and should not be used or quoted as a specification defining limits of purity. Reference to this Section should indicate that the method of test used is in accordance with BS 6829 : Section 5.2.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

British Standard

Analysis of surface active agents (raw materials)

Part 5. Ethoxylated alcohol and alkylphenol sulphates

Section 5.2 Method for estimation of mean relative molecular mass

1 Scope

This International Standard specifies a method for the estimation of the mean relative molecular mass of the anionic-active matter present in ordinary commercial neutralized products of sulfation of ethoxylated alcohols or alkylphenols [alkyl oxyethylene sulfates (ethoxylated alcohol sulfates) or alkylphenol oxyethylene sulfates (ethoxylated alkylphenol sulfates)] containing an average of not more than 20 oxyethylene groups per molecule.

It also sets out, in annex A, a general scheme of analysis.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 607 : 1980, *Surface active agents and detergents — Methods of sample division*.

ISO 1042 : 1983, *Laboratory glassware — One-mark volumetric flasks*.

ISO 2271 : 1972, *Surface active agents — Detergents — Determination of anionic-active matter (Direct two-phase titration procedure)*.

ISO 4800 : 1977, *Laboratory glassware — Separating funnels and dropping funnels*.

ISO 6842 : 1983, *Surface active agents — Polyethoxylated alcohol and alkylphenol sulfates — Determination of total active matter*.

ISO 8799 : 1988, *Sulfated ethoxylated alcohols and alkylphenols — Determination of content of unsulfated matter*.

3 Principle

From a solution of the test portion saturated with sodium chloride, extraction of alkylether sulfate with an ethyl acetate/butan-1-ol mixture, then evaporation of the aqueous phase containing the polyglycol, the polyglycol sulfate and possibly traces of ether sulfates; then removal of salts from the residue by treatment with methanol and filtration.

Evaporation of an aliquot portion of the filtrate and weighing of the residue, then redissolution in water and determination of the sodium chloride and anionic-active matter contents.

Determination of the polyglycol content by passing the remaining fraction of filtrate through an ion-exchange resin.

Determination of the polyglycol sulfate content by difference between the above determinations.

From the content of anionic surface active agent (alkylether sulfate) and the anionic surface active matter content determined by two-phase titration, estimation of the mean relative molecular mass.

NOTE — The content of anionic surface active agent (alkylether sulfate) is obtained by the difference between the total active matter content and the unsulfated matter and polyglycol sulfate contents.

4 Reagents and materials

During the analysis, use only reagents of recognized analytical reagent grade and only distilled water or water of equivalent purity.

4.1 Methanol.

4.2 Sodium chloride.

4.3 Ethyl acetate/butan-1-ol, mixture (9 + 1) by volume.

4.4 Sodium chloride, 59 g/l solution.

4.5 Hydrochloric acid, 73 g/l solution.