SPECIFICATION FOR

EMULSION POLYMERIZED ANIONIC STYRENE-BUTADIENE RUBBER LATICES

BS 4661 : 1971

BRITISH STANDARDS INSTITUTION
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This standard makes reference to the following British Standards:

BS 1673. Methods of testing raw rubber and unvulcanized compounded rubber.
Part 5/5.1. Analysis of styrene-butadiene copolymers (SBR). Bound styrene content.
BS 3397. Methods of testing synthetic rubber latices.
BS 4252. Method for the determination of the viscosity of rubber latices.

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The following BSI references relate to the work on this standard :
Committee reference RUC/28 Draft for comment 70/4119

CO-OPERATING ORGANIZATIONS

The Rubber Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives from the following Government department and scientific and industrial organizations:

*British Association of Synthetic Rubber Manufacturers
*British Rubber Manufacturers' Association Ltd.
*Institution of the Rubber Industry
Ministry of Technology
*Natural Rubber Producers' Research Association
Rubber and Plastics Research Association of Great Britain
*Rubber Growers' Association
Society of Motor Manufacturers and Traders Ltd.
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The scientific and industrial organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:

British Latex Foam Manufacturers' Association
British Rubber and Resin Adhesive Manufacturers' Association
British Seamless Rubber and Plastics Manufacturers' Association

BRITISH STANDARD SPECIFICATION FOR

EMULSION POLYMERIZED ANIONIC STYRENE-BUTADIENE RUBBER LATICES

FOREWORD

This British Standard has been prepared under the authority of the Rubber Industry Standards Committee.

The standard describes the requirements for anionic styrene-butadiene rubber latices which have been prepared by emulsion polymerization. It does not necessarily apply to styrene-butadiene latices prepared by means other than emulsion polymerization. It does not apply to synthetic rubber latices of types other than styrene-butadiene or to natural rubber latices or compounded latex.

It is appreciated that for some applications it will be necessary, for some properties, for more stringent requirements than the values specified below to be agreed between the purchaser and the supplier.

SPECIFICATION

1. SCOPE

This British Standard specifies requirements for emulsion polymerized anionic styrene-butadiene rubber latices of the following types:

SBR63Y latex. Reinforced latex with a nominal total solids content within the range 60·0 % to 69·9 % and a nominal total bound styrene content within the range 30.0 % to 39.9 % of the total polymer.

SBR62 'cold' latex. Latex (not reinforced) prepared by 'cold' polymerization, with a nominal total solids content within the range 60·0 % to 69·9 % and a nominal bound styrene content within the range 20·0 % to 29·9 % of the total polymer.

SBR42 latex. Latex (not reinforced) with a nominal total solids content within the range 40·0 % to 49·9 % and a nominal bound styrene content within the range 20·0 % to 29·9 % of the total polymer.

PSBR41 latex. (Vinyl) pyridine-styrene-butadiene rubber latex with a nominal total solids content within the range 40·0 % to 49·9 % and a nominal bound styrene content of less than 20·0 % of the total polymer.

XSBR54 latex. Carboxylated styrene-butadiene rubber latex with a nominal total solids content within the range 50·0 % to 59·9 % and a nominal bound styrene content within the range 40·0 % to 49·9 % of the total polymer.

2. REQUIREMENTS

2.1 The supplier shall state the following properties of the latex:

(1) Nominal total solids content.
(2) Nominal (total) bound styrene content of the total polymer.
(3) Nominal viscosity at minimum total solids (i.e. the nominal total solids content less the tolerance on nominal total solids content).
(4) Nominal pH.

The values stated for nominal total solids content and nominal (total) bound styrene content shall fall within the ranges specified in Clause 1.

2.2 The nominal values required by 2.1 shall be subject to the tolerances specified in Table 1.

2.3 The latex shall also comply with the limiting requirements specified in Table 2.

TABLE 1. TOLERANCES

Tolerance on nominal values stated for:	SBR63Y latex	SBR62 'cold' latex	SBR42 latex	PSBR41 latex	XSBR54 latex	Method of test
Total solids content, percentage total solids	± 1·5	± 1·5	± 1·0	± 1·0	± 1·0	BS 3397*
(Total) bound styrene content, expressed as percentage styrene on total polymer	—	± 2·0	± 2·0	—	—	BS 1673, Part 5/5.1†
	± 2·0	—	—	± 2·0	± 2·0	In preparation
Viscosity at minimum total solids, percentage of nominal	± 40	± 30	± 40	± 40	± 40	BS 4252‡
pH	± 0·5	± 0·5	± 0·5	± 0·5	± 0·5	BS 3397*

TABLE 2. LIMITING REQUIREMENTS

	SBR63Y latex	SBR62 'cold' latex	SBR42 latex	PSBR41 latex	XSBR54 latex	Method of test
Coagulum content, maximum, percentage	0·10	0·10	0·10	0·10	0·10	BS 3397*
Volatile unsaturates (calculated as styrene), maximum, percentage	0·15	0·10	0·10	1·0	0·10	BS 3397*
Non-polymer solids, maximum, percentage of total solids	8·0	8·0	—	—	—	§

* BS 3397, 'Methods of testing synthetic rubber latices'.

† BS 1673, 'Methods of testing raw rubber and unvulcanized compounded rubber', Part 5/5.1, 'Analysis of styrene-butadiene copolymers (SBR). Bound styrene content'.

‡ BS 4252, 'Method for the determination of the viscosity of rubber latices'.

§ Difference between total solids content and dry polymer content (both determined in accordance with BS 3397).

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