

**RRIM TEST METHODS
FOR STANDARD MALAYSIAN RUBBERS**

SMR BULLETIN NO.7

REVISED EDITION 2018

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WORKING GROUP ON REVISION OF SMR BULLETIN NO. 7 (2018)

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FOREWORD

The Standard Malaysia Rubber (SMR) Scheme established in 1965 is to ensure that the quality of SMR meets a set of technical specifications. In order to meet these specifications, the Rubber Research Institute of Malaysia (RRIM) protocols and RRIM Test Methods were established.

The SMR Bulletin No. 7 was last revised in 1992. The current revision is carried out to introduce additional and alternative techniques as well as testing automation that is needed for wider acceptance of the test methods.

I am confident that the transition from the previous format to the newly revised format will enhance the image of the Bulletin as a new reference for SMR testing by the rubber industry, nationally and globally.

The revision was materialised by members of the Working Group (WG) on Revision of SMR Bulletin No.7 from the Quality and Technical Services Division of Malaysian Rubber Board (MRB). On that note, I would like to express my sincere appreciation for their tremendous contribution and efforts throughout this revision process.

I would also like to thank the SMR Authorised Laboratories for their cooperation and support in providing valuable information and cooperation much needed in this revision process. On a final note, I would like to express my heartfelt gratitude to those involved directly and indirectly in the publication of the revised SMR Bulletin No.7.

Dato' Dr Zairossani Mohd Nor
Director General
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PREFACE

Standard Malaysian Rubber (SMR) Bulletin No. 7 is a compilation of the Rubber Research Institute of Malaysia (RRIM) protocols and RRIM Test Methods that is referred to by SMR Authorised Laboratories in Malaysia. It was first published in 1970 as a technical reference for testing SMR to specifications. The specification appears as SMR Bulletin No. 11 which is the reference document for grading and specifications for raw natural rubber. Since its first publication, SMR Bulletin No. 7 has gone through two revisions in 1973 and 1992 in order to incorporate latest requirements and techniques pertaining to the testing of SMR.

The 2018 revised edition addresses certain issues raised by the industry that requires further technical improvement to the test methods, incorporation of automated techniques and advance instrumentation. This edition also reflects the harmonisation of test methods to ISO standards.

The Bulletin starts with Part A on Terms and Definitions followed by Part B which illustrates Sampling and Further Preparative Procedures as well the five main test methods comprising determination of dirt, determination of volatile matter, determination of ash, determination of nitrogen, determination of plasticity and plasticity retention index (PRI) and two additional test methods, namely, determination of Mooney viscosity and determination of colour. A comprehensive table comprising SMR Sampling Plan was also incorporated for easy reference. Automated techniques for digestion and distillation processes by using automated digestion block and automatic semi-micro Kjeldahl distillation unit were respectively added as alternative techniques for determination of nitrogen in raw natural rubber. In addition to the current procedure of using manual comparison, the use of colour spectrometer was introduced as an alternative method for determining the colour of raw natural rubber. Part C elaborates on the Test Methods used by MRB for Production Control and Recommended for Routine Use by Producers and Laboratories while Part D is Additional Test Methods used by MRB for Production Control. The Bulletin also highlights in greater detail the scope of SMR grading, SMR test report and SMR Certificate under Part E.1. It is hoped that this scope will clarify the differences between SMR test report and SMR certificates that differ in terms of technical content. The inclusion of the precision statement is essential to allow users of the test method to assess, in general terms, its usefulness in application.

This revision would not be completed without the cooperation and hard work by members of the Working Group (WG) on Revision of SMR Bulletin No.7 from the Quality and Technical Services Division of Malaysian Rubber Board (MRB). Their excellent efforts are highly appreciated and acknowledged.

Special thanks also go to the SMR Authorised Laboratories for their contribution in providing the much needed information required for the revision exercise.

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