

**THE MATERIALS USED IN SIZING: THEIR
CHEMICAL AND PHYSICAL PROPERTIES,
AND SIMPLE METHODS FOR THEIR
TECHNICAL ANALYSIS AND VALUATION; A
COURSE OF LECTURES DELIVERED AT THE
MANCHESTER SCHOOL OF TECHNOLOGY**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649644636

The Materials Used in Sizing: Their Chemical and Physical Properties, and Simple Methods for Their Technical Analysis and Valuation; A Course of Lectures Delivered at the Manchester School of Technology by W. F. A. Ermen

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

Edited by Trieste Publishing Pty Ltd.
Cover @ 2017

This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

www.triestepublishing.com

W. F. A. ERMEN

**THE MATERIALS USED IN SIZING: THEIR
CHEMICAL AND PHYSICAL PROPERTIES,
AND SIMPLE METHODS FOR THEIR
TECHNICAL ANALYSIS AND VALUATION; A
COURSE OF LECTURES DELIVERED AT THE
MANCHESTER SCHOOL OF TECHNOLOGY**

**THE
MATERIALS USED IN SIZING**

THE MATERIALS USED IN SIZING

THEIR CHEMICAL AND PHYSICAL PRO-
PERTIES, AND SIMPLE METHODS FOR
THEIR TECHNICAL ANALYSIS AND
VALUATION

*A Course of Lectures delivered at the Manchester
School of Technology*

BY

W. F. A. ERMEN, M.A.

ANALYTICAL AND CONSULTING CHEMIST; FORMERLY SCHOLAR OF EMANUEL
COLLEGE, CAMBRIDGE



NEW YORK
D. VAN NOSTRAND CO.
TWENTY-FIVE PARK PLACE

1912

PREFACE

IN the early part of 1911 I was asked to deliver a course of lectures during the Summer Session of the Manchester School of Technology on "The Materials used in Sizing." In these lectures I confined myself to an outline of the chemical and physical properties of the commoner sizing materials employed in the textile industry, and to such methods of analysis and valuation as could readily be carried out by the Works chemist. Many requests have since been made to me for a book covering the subjects dealt with in my lectures, and this little work has been written to meet the desire so kindly expressed.

I have to tender my sincere thanks to Mr. Charles W. Gamble for assistance in the revision of the proofs, and to Mr. G. A. E. Schwabe for the trouble he has taken in preparing the illustrations which accompany the text.

W. F. A. E.

10, MARSDEN STREET,
MANCHESTER, 1912.

10
 11
 12
 13
 14
 15
 16
 17
 18
 19
 20
 21
 22
 23
 24
 25
 26
 27
 28
 29
 30
 31
 32
 33
 34
 35
 36
 37
 38
 39
 40
 41
 42
 43
 44
 45
 46
 47
 48
 49
 50
 51
 52
 53
 54
 55
 56
 57
 58
 59
 60
 61
 62
 63
 64
 65
 66
 67
 68
 69
 70
 71
 72
 73
 74
 75
 76
 77
 78
 79
 80
 81
 82
 83
 84
 85
 86
 87
 88
 89
 90
 91
 92
 93
 94
 95
 96
 97
 98
 99
 100

1
 2
 3
 4
 5
 6
 7
 8
 9
 10
 11
 12
 13
 14
 15
 16
 17
 18
 19
 20
 21
 22
 23
 24
 25
 26
 27
 28
 29
 30
 31
 32
 33
 34
 35
 36
 37
 38
 39
 40
 41
 42
 43
 44
 45
 46
 47
 48
 49
 50
 51
 52
 53
 54
 55
 56
 57
 58
 59
 60
 61
 62
 63
 64
 65
 66
 67
 68
 69
 70
 71
 72
 73
 74
 75
 76
 77
 78
 79
 80
 81
 82
 83
 84
 85
 86
 87
 88
 89
 90
 91
 92
 93
 94
 95
 96
 97
 98
 99
 100

CONTENTS

| CHAP. | PAGE |
|---|------|
| INTRODUCTION | 1 |
| I. THE STARCHES AND OTHER AGGLUTINANTS | 6 |
| II. WEIGHING MATERIALS | 32 |
| III. SOFTENING INGREDIENTS | 38 |
| IV. ANTISEPTICS | 67 |
| V. ANALYSIS OF SIZED WARPS AND CLOTH | 76 |
| VI. THE PREPARATION OF NORMAL VOLUMETRIC SOLUTIONS | 86 |
| VII. TABLES | 90 |
| INDEX | 121 |

•

•

•

•

THE MATERIALS USED IN SIZING

INTRODUCTION

BEFORE entering upon a description of the materials used in sizing, and of the methods used for their analysis, it will be advisable to consider shortly the mode of construction of a piece of cloth, and the reasons for the use of sizing. If a piece of cloth be pulled to pieces, it will be found to consist of a number of threads crossing each other at right angles. The threads running the long way of the cloth form the "warp," those running across the cloth are called the "weft." In order to weave a piece of cloth, the warp threads are placed in the loom evenly wrapped upon the "beam." The thread which is to form the weft is wound into what is known as a "cop," and this is placed inside the shuttle. The warp threads are led side by side from the beam through the "healds" to the roller at the front of the loom, to which they are fastened. When the loom is set in motion, alternate warp threads are respectively pulled up and down by the healds in such a way that the shuttle with its weft thread can be shot by the picker through the space between the upper and lower threads of the warp. A comb-like structure called the "reed" now pushes the weft thread, which the shuttle has left behind it, up to the point where the warp threads