

Hess's Paint Film Defects
Their Causes and Cure

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Their Causes and Cure

THIRD EDITION

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Chapter 8, Hazards to the paint user *by*

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Foreword by M. Hess

My recollections of paints encompass the period from the time they were mainly based on drying oils and resin gums (almost a sort of 'witches' brew') to the present, when the main ingredients are often highly sophisticated polymers. During this time demands on paint films have, in conjunction with their much more varied uses and methods of application, been increased steadily, as have the numbers of potential defects. In many cases, however modern the surface coating, the underlying causes of paint film defects remain the same.

I noticed as a young paint chemist that complaints by users of my own products were often stereotyped, and I decided after investigating the cause and remedy of such failures to put my observations to paper for the benefit of these users. In so doing I became deeply involved in the subject, the field widened more and more, and in the end this led to the first edition of *Häufige Anstrichmängel und Anstrichschäden, ihre Ursache und Verhütung*. This and the following improved editions in English, German, French and Spanish were welcomed by those interested in the subject.

In this era of specialization there are not many all-rounders who are qualified to survey such a big and varied field. I have been particularly lucky that my old friends and colleagues, Dr Herman Hamburg and Dr Wilfred Morgans, took over the arduous task of editing and revising my original brainchild in its third English edition. I am therefore confident that this will again prove to be a valuable aid to many.

Manfred Hess
Northwood, 1978

Preface to the third edition

Since publication of the first English edition this book has become the standard reference work on paint film defects throughout the world. The very considerable advances in coatings technology since the second English edition was published in 1965 have necessitated a revision of the book, a task which from the outset was recognized as formidable. The very wide field to be covered required specialist knowledge as well as wide experience, and we were fortunate in being able to enlist the services of a group of contributors who were well qualified for the task.

Due to his advancing age Mr Manfred Hess, the originator of this work, felt unable to take an active part in the preparation of the new edition. He entrusted not only a large part of the necessarily extensive revision of the text, but also the editorial work, the planning and compilation of the index to us jointly.

A variety of causes has prevented the main contributors to the second edition, Mr W.A. Edwards and Mr T.W. Wilkinson, from revising their sections. Nevertheless, much of what they and others have contributed to previous editions has enabled us to build on valuable foundations. Much new material has been added; the illustrations section has been expanded and enhanced by the addition of several colour plates.

Mr S.T. Harris revised the sections concerned with industrial finishes and in particular powder coatings, and Dr T.A. Banfield contributed the sections on marine paints and compositions.

In the last decade increasing importance has been attached, and rightly so, to the health and safety aspects of all industrial processes, and to the safeguarding of the users of industrial products. A great deal of legislation on this subject has been enacted in many countries and much guidance is needed. We therefore thought it desirable to devote a large amount of space to a chapter entitled 'Hazards to the paint user' and succeeded in persuading Dr Henry Brunner to undertake this task.

Our thanks are due to a number of friends and companies for helpful suggestions and illustrations; in particular we would mention the following:

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Some changes in design have been made to bring the book into line with current forms of presentation, though the arrangement of the material is essentially unchanged. The decimal notation has been used for sub-divisions of chapters, and the index entries are now by page rather than by section references.

It is hoped that these changes will facilitate the locating of specific items and that the book will prove a useful guide to preventing as well as remedying paint film defects.

H.R. Hamburg
W.M. Morgans

Editors and co-authors

How to use this book

A single fault is in many cases due to a number of causes. In some cases several defects occur simultaneously, so that the solution of the trouble is rendered more difficult. The headings of the individual sections indicate the various kinds of faults. Each section sets out the possible causes of these faults and suggests methods of preventing and eliminating them.

There are two ways of finding one's way through the labyrinth of possibilities:

(a) In most cases it is advisable:

- (i) To consult the subject index at the end of the book for the fault in question.
- (ii) To study the section or sections concerned thoroughly, omitting nothing, so as not to miss possible alternative causes.

(b) If, on the other hand, it is desired to determine what faults may be possible, the Table of Contents at the front of the book should be consulted and used as follows:

- (i) Look for the appropriate chapters.
- (ii) Study the relevant sections.
- (iii) Look up all the sub-sections of interest.

The Author Index as well as the Subject Index are located at the end of the book.

The term 'coating' is used only in relation to paint, lacquer, enamel and varnish-like products.

Definitions, mainly relating to defects, have been incorporated in the text. They are mostly based on the excellent *Glossary of Paint Terms* published by the British Standards Institution as British Standard No. 2015:1965. This should be referred to, if further information on technical terms is needed.

Most paint materials are potentially dangerous, and paint users should ensure that they apply these materials in a manner that is safe for all concerned. While every effort has been made to ensure the accuracy of the information given in this book, the Editors, Contributors and Publishers in no way accept liability for loss or injury resulting from the use made by any person of such information.