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# THE OXIDE-COATED CATHODE

*Translated by*

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VOLUME ONE  
MANUFACTURE



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## PREFACE

### VOLUME ONE

ALTHOUGH oxide-coated cathodes are used in the hundreds of millions of electronic valves that are manufactured every year, a comprehensive review of these cathodes is lacking. Realizing this we started work on this book as early as 1938 and tried to collect all existing information on both the manufacturing processes and physical behaviour of oxide cathodes. The work was greatly impeded during the war and only in 1944 was it possible to publish a first edition in German. Since then we have continued to incorporate new achievements in manufacture and the many new lines of scientific investigation which have been taken up. We are now pleased to present the first English edition of this work.

A review of the oxide cathode is complicated by the close interdependence between manufacture on the one hand and scientific investigation on the other. Many of the measures taken during manufacture can only be understood by virtue of their effect on the physical mechanism, whilst investigation of the physical phenomena must be based on a thorough knowledge of how to make a good cathode. If this latter point is not taken into account, phenomena may be investigated which are certainly interesting but of little importance for the cathodes which are actually used in commercial valves. For this reason the manufacture of the cathode has been dealt with first and forms the subject matter of the present volume. It is followed by a review of the physical phenomena in Vol. II.

The treatment is opened by an historical review of the oxide cathode and by a discussion of the different types and their applications. This introduction is followed by a description of the manufacturing processes and of the cathode characteristics. The volume is concluded with a description of some special types of cathodes, for instance, those in gas discharge tubes.

For the description of the manufacture a large number of patents had to be consulted, but only those patents are mentioned which either have found a wide application in commercial practice or which contribute to the understanding of manufacturing processes. The value of a patent should not, however, be inferred from its inclusion or exclusion.

## PREFACE

The present volume can be read independently, but frequent references to the second volume have been made which may be used for studying further details.

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## CONTENTS OF VOLUME I

<i>Chapter</i>	<i>Page</i>
1. INTRODUCTION	1
1. History of the Oxide Cathode	1
2. Applications and Different Types	7
2. THE MANUFACTURE OF THE CATHODE BEFORE MOUNTING IN THE ENVELOPE	15
3. The Core Metal	15
4. Preparation of the Emission Paste used for the Oxide Coating	25
5. Deposition of the Emission Paste on the Core Metal	33
6. Preparation and Characteristics of the Heater of an Indirectly Heated Cathode	43
3. FURTHER PROCESSING OF THE CATHODE AFTER MOUNTING IN THE ENVELOPE	54
7. The Decomposition of the Alkaline Earth Carbonates into the Oxides	54
8. The Activation of the Cathode	74
4. THE CHARACTERISTICS OF THE OXIDE CATHODE	74
9. Measurement of Temperature and Thermal Properties	74
9.1. Resistance measurements	74
9.2. Thermoelectrical measurements	75
9.3. Radiation measurements (pyrometrical method)	76
9.4. Measurement of the retarding field current	79
9.5. Thermal properties of the cathode	80
10. Methods of Measurement and Comparison of Emission Values	84
10.1. Short time measurements	85
10.2. Measurements at low temperatures	88
10.3. Ascertaining the saturated current from the retarding field current	89
10.4. Measurement of the operating emission current as a function of cathode temperature (sensitivity to underheating)	90
11. Actual Values of Emission and Efficiency Obtainable	93

## CONTENTS

<i>Chapter</i>	<i>Page</i>
12. Undesirable Features of the Oxide Cathode	100
12.1. Evaporation of the oxide coating	100
12.2. Influence of the emission current on the temperature of the oxide coating	102
12.3. Effects due to the heterogeneity of the coating and to the poor bond between coating and core (sparking)	106
12.4. Emission of ions	112
12.5. Sensitivity to poisoning	112
13. The Life of the Oxide Cathode	114
5. SPECIAL CATHODES	122
14. Oxide Cathodes prepared by the Condensation Method	122
14.1. Manufacture	122
14.2. Characteristics	123
15. Thoria Cathodes and Core-activated Cathodes	125
15.1. The thoria cathode	125
15.2. Core-activated cathodes.	127
16. Oxide Cathodes for Gas-filled Tubes	129
16.1. Cathodes in rectifiers	131
16.2. Cathodes in discharge lamps	135
16.3. Cold oxide electrodes	140
BIBLIOGRAPHY	143
INDEX TO AUTHORS	145
SUBJECT INDEX	147