Evaporation
Membrane Filtration
Spray Drying

in milk powder and
cheese production

NORTH EUROPEAN DAIRY JOURNAL

Evaporation, Membrane Filtration
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DK–2720 Vanløse, Denmark
telephone (01) 74 11 00
telex 16574 normei dk

Publisher and Sole Distributor throughout the world

Jyllingevej 39, P.O. Box 1648
DK-2720 Vanløse, Denmark

WITH 31 TABLES, 215 ILLUSTRATIONS AND 60 FORMULAS

NORTH EUROPEAN DAIRY JOURNAL
Copenhagen, Denmark
1985

ISBN No. 87–7477–000–4

Printed in Denmark by Peterssons Trykkeri A/S, 5700 Svendborg
Typeset in Denmark by Syfoma, Ryttermarken 11, 5700 Svendborg

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PREFACE

Technical Dairy Publishing House supplies technical dairy literature to the whole world and also participates in numerous dairy exhibitions in very many countries. At these exhibitions, we gain a clear view of which books there is a need for from the many questions buyers ask. It was soon evident to us that the present book – Evaporation, Membrane Filtration and Spray Drying for milk powder and cheese production should be started straight away. The need for up-to-date knowledge in this area is very great at present, greater than ever before. This is connected to the fact that subjects such as evaporation and spray drying are dealt with only sparsely in older literature. In recent years, however, there has been such an explosive development in both these areas that the old knowledge is no longer sufficient.

From old fashioned 3 stage evaporators with thermal compressors the leap has been made in only a few years to such complicated developments as 7 stage evaporators or the even more complicated evaporators with mechanical vapour recompression (MVR) either equipped with turbo compressors or turbo fans. It is, in fact, completely new information which this book will bring to the dairy world, in such a way that practical dairymen will be able to master the material.

The book's big section on membrane filtration is in all probability the only place in the whole world where practical dairymen can read in one place all about membrane filtration and the widespread use which this new dairy technology has gained in the manufacture of a number of dairy products. dr. Rud Madsen, De Danske Sukkerfabrikker, who has written this section, has been the driving force behind this development and this comes out vividly when reading the book. As the chapters were finished, it became clear that everything written about membrane filtration is just as useful for the cheese industry as for the milk powder industry. The title first chosen – Evaporation, Membrane Filtration and Spray Drying was therefore supplemented with the addition of "in milk powder and cheese production".

What has been said about the section on "Membrane Filtration" is almost as applicable to the sections on "Evaporation" and "Spray Drying", since practically all big advanced cheese factories are now equipped with energy saving whey evaporators and spray drying plant.

As regards energy conservation, the book will also be of great service in practical dairying. The many formulas and calculations are particularly useful to have on hand for anyone wanting to investigate the possibilities for new energy saving measures.

Technical Dairy Publishing House is very grateful to the three main authors *dr. Rud Madsen*, *dr. Keith Masters* and *Bernhard Wiegand*, dipl. ing., for their willing commitment to cooperate in the preparation of this book. The same heartfelt

thanks are also due to the book's other contributors: sales manager *Peder Bechager Pedersen*, Jorgensen Food Engineering, *dr. Mervyn Evans*, Express Dairy Company, London, *Hans Falster*, dipl. ing., Danish Boiler Owners' Association, general manager *Torben Friis*, Famex, Professor *Bengt Hallström*, University of Lund, *Mr. H. Harrsen*, Harrsen Engineering, Copenhagen, dairy engineer *Poul Johannes Pedersen*, The Development Dairy, Videbæk, Denmark, general manager *Niels Rudolph* and sales manager *Steen Sørensen*, Bilwinco.

Copenhagen, February, 1985. *Robert Hansen*

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