

**EFFECT OF HEAT TREATMENT ON CRYSTALLIZATION OF
LEUCITE IN DENTAL PORCELAIN NANOCOMPOSITE
WITH ZIRCONIA ADDITION**

CHAYADA SANITNAPAPONG

**MASTER OF SCIENCE
IN DENTISTRY**

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

Copyright © by THE GRADUATE SCHOOL
CHIANG MAI UNIVERSITY
All rights reserved
DECEMBER 2011

**EFFECT OF HEAT TREATMENT ON CRYSTALLIZATION OF
LEUCITE IN DENTAL PORCELAIN NANOCOMPOSITE
WITH ZIRCONIA ADDITION**

CHAYADA SANITNAPONG

**A THESIS SUBMITTED TO THE GRADUATE SCHOOL IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
MASTER OF SCIENCE
IN DENTISTRY**

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

Copyright © by Chiang Mai University
All rights reserved
THE GRADUATE SCHOOL
CHIANG MAI UNIVERSITY
DECEMBER 2011

**EFFECT OF HEAT TREATMENT ON CRYSTALLIZATION OF
LEUCITE IN DENTAL PORCELAIN NANOCOMPOSITE
WITH ZIRCONIA ADDITION**

CHAYADA SANITNAPAPONG

THIS THESIS HAS BEEN APPROVED
TO BE A PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF SCIENCE
IN DENTISTRY

EXAMINING COMMITTEE

THESIS ADVISOR

R. Wongmaneeerung.....CHAIRPERSON

Attavit Pisitanusorn.....

Dr. Rewadee Wongmaneeerung

Asst. Prof. Dr. Attavit Pisitanusorn

Supon Ananta.....MEMBER

Assoc. Prof. Dr. Supon Ananta

Attavit Pisitanusorn.....MEMBER

Asst. Prof. Dr. Attavit Pisitanusorn

7 December 2011

© Copyright by Chiang Mai University

ACKNOWLEDGEMENTS

I would like to express my sincere thanks for my advisor, Asst. Prof. Dr. Attavit Pisitanusorn, for his initial encouragement in directing me towards this research project, a proof of this thesis and valuable advice throughout the study.

I would like to thank my chairperson committee Dr. Rewadee Wongmaneerung, Faculty of Science, MaeJo University for their helpful advices, kindly comments and valuable suggestions and information about in and out of thesis.

I also would like to thanks Assoc. Prof. Dr. Supon Anata, Faculty of Science, Chiang Mai University for his helpful advices friendly comments and valuable suggestions and information about thesis.

I would like to thank all helps and supports from Department of Physics, Faculty of Science, Ubon Ratchathani University, Asst. Prof. Dr. Anusorn Niyompan, Asst. Prof. Dr. Rungnapa Tipakontitukul, and Ms. Amporn Kamonlert for their helps about XRD results.

I must acknowledge the Faculty of Dentistry, Faculty of Science, Graduate School, Chiang Mai University; especially, and Thailand Research Fund (TRF) for all Financial Supports.

My special thanks are also extended to all staffs of the Department of Prosthodontics, Faculty of Dentistry, Chiang Mai University for their suggestion. I would like to express my appreciation to my friends, Mr. Jakrapan Suksawat, Mr. Surin Khuanphet, and Mrs. Ratchaneewan Ratananupong, who have supported me.

With love and respect on my mind, I would like to dedicate my thesis to my parents, Mr. Sanitwit Sanitnapapong and Mrs. Pinnipa Sanitnapapong who always teach me that perseverance is necessary to overcome obstacles in life.

I tried to thank everybody who helped me to achieve this goal. Therefore, if some people are missing on this list, I apologize to them at this point and of course thank them very much for their help and presence.

Chayada Sanitnapapong