

Proceeding



PRELIMINARY SYNTHESIS OF CALCIUM CARBONATE USING CO2 BUBBLING METHOD FOR BIOMEDICAL APPLICATION N.H. Azzakiroh ¹ , Z. Hasratiningsih ² , I.M. Joni ³ , A.Cahyanto ²	1-6
COMPARISON OF THE DIAMETRAL TENSILE STRENGTH OF BONE CEMENT BASED ON CARBONATE APATITE BETWEEN MICRON AND NANO PARTICLES CALCIUM CARBONATE AS A PRECURSOR L. Arianti ¹ , E. Karlina ² , A. Cahyanto ²	7-11
APATITE CEMENT VERSUS CARBONATE APATITE CEMENT A. Cahyanto ^{1*} , M.N. Zakaria ²	12-16
BIOCERAMICS MATERIAL: LIFTING HOPE IN ENDODONTICS 26 M. N. Zakaria ¹ , A. Cahyanto ² 26	17-23
REVIEW ON BIOCERAMIC NANOFIBER USING ELECTROSPINNING METHOD FOR DENTAL APPLICATION 33 N. Djustiana*, Y. Faza, A. Cahyanto 33	24-31
MICROLEAKAGE IN COMPOSITE RESTORATION DUE TO THE APPLICATION OF CARBAMIDE PEROXIDE BLEACHING MATERIAL WITH A CONCENTRATION OF 10%, 15% AND 20% 42 Renny Febrida ^{1,a*} , Elin Karlina ^{1,b} , Oksania Wahyuni Putri ^{2,c} 42	32-37
RECONSTRUCTION PROCEDURE USING ELASTOMER PUTTY MATERIALS, WHAT TYPE TO CHOOSE? 49 V. Takarini ¹ , E. Karlina ¹ , R. Febrida ¹ , Z. Hasratiningsih ¹ 49	38-44
EFFECT OF BAGGASE FIBER (<i>Saccharum officinarum</i> L) ON FLEXURAL STRENGTH OF COMPOSITE RESIN 56 IT. Amirah*, M. Hudyati**, MC. Negara** 56	45-51
THE KNOWLEDGE OF BPJS HEALTH AMONG BANDUNG INFORMAL SECTOR WORKERS AS BPJS HEALTH CARD OWNER 1Agata Ayu Pratiwi, 1Cucu Zubaedah, and 1Sri Susilawati	52-63
ORAL HYGIENE INDEX OF QUADRIPLÉGIC ATHLETES IN BANDUNG Mochamad Nur Ramadhani ¹ , Riana Wardani ² and Cucu Zubaedah ²	64-72

Reconstruction procedure using elastomer putty materials, what type to choose?

V. Takarini¹, E. Karlina¹, R. Febrida¹, Z. Hasratiningsih¹

¹ Department of Dental Materials Science and Technology, Faculty of Dentistry,
University of Padjadjaran, Sekeloa Selatan 1 Bandung, 40132, Indonesia

E-mail : veni.takarini@fkg.unpad.ac.id

ABSTRACT

In order to reconstruct tooth morphology loss, an accurate impression is very helpful. Most dentists are using silicones as dental putty impression materials, which are available in two different types of polymerization. Unfortunately, there are quite a lot of choices which sometimes make it confusing to decide what materials that is suitable for their uses. The objective of this study is to provide an easy understanding of dental putty materials manipulations and usages based on their condensation or addition reactions. Condensation putty materials is the first type of silicone that is used in dentistry, but the reaction will produce a by-product. So, an addition putty material was developed and it evolved better properties than condensation silicones. Their polymerization shrinkage reduced with high filler loading, which makes this silicone type has good dimensional stability. Putty materials as index matrices are quite easy at handling since they are able to manipulate through kneading. Meanwhile, if related with their precision restorative application, light body can be added to get more accurate impressions. Therefore, it can be concluded that elastomer putty, condensation and addition silicones, materials have certain unique characteristics which should be carefully chose and considered on its applications to duplicate the oral condition.

Keywords: *Elastomer putty materials, Condensation and addition silicones, Manipulation and usage/application*

INTRODUCTION

Accurate impressions to duplicate tooth and oral conditions are important and very helpful steps in dentistry to reconstruct morphology structure ^{1,2} In order to produce an accurate impression, elastomeric materials are considered to be a choice since they have been widely used across the globe for the last 50 years and are gold standard among dental impression materials ³ Elastomeric material is a group of synthetic rubber impression materials, which were developed during World War II due to the difficulty to obtain natural rubber. These materials should be fluid enough to seep around the oral tissues and viscous enough to remain contained in the tray. They should set into a rubbery solid within a reasonable amount of time and should not distort or tear when removed from the mouth. Dental elastomers formed of molecules (polymers) that are joined to each other by crosslinking in a process known as polymerization, which can be categorized as three kinds based on their polymer compositions: polysulfide, polyether and silicones ^{1,2,4,5}.

The viscosity of impression materials is corresponding with dimensional stability of the impression material that could have an influence on the accuracy of the final restoration ⁶. The viscosity of dental impression materials can be classified based on ISO 4823; 2015 that explained about the consistencies that determined immediately after completion of mixing, which are: type 0 for very heavy consistency (putty), type 1 for heavy-bodied consistency, type 2 for medium- or regular-bodied consistency, type 3 for light-bodied consistency ^{7,8}. Viscosity of impression materials is determined by the amount of particles such as inorganic fillers. High viscosity materials (putty consistency) present greater amount of inorganic filler than the commercially corresponding materials with low viscosity (medium or light bodied consistency) of dental impression materials. Putty consistency is available in all classes of elastomeric impression materials, but most dentists are using silicones as dental putty impression materials. Silicones are available in two different types of polymerization, which are condensation and addition silicones, depending on the reaction that produces polymerization ^{1,5}.

The consistency information is very useful, since knowing dental impression materials not only the consistency as physical properties but also the advantages of its uses can be a prerequisite for adequate practical application and contributes to the success of therapy.

There are many options of material of which sometimes make it confusing to decide what materials that is suitable for their uses. Therefore, the objective of this study is to provide an easy understanding of dental putty materials manipulations and usages based on their condensation or addition reactions.

DISCUSSION

Impression materials are used extensively in restorative and prosthodontics dentistry for construction of casting, indirect esthetic restorations, bridges, implant restorations, partial denture frameworks, and complete dentures ⁹. Orofacial imprint using dental impression