



## QUANTIFICATION OF A BIOMATERIAL TO OPTIMIZE THE MAXILAR IMPRESSION

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**ABSTRACT** The dental procedure to obtain the replicas of the hard and soft tissues of maxillary it is by means of the printing techniques and can be performed with a biomaterial such as Alginate, it is important to strictly follow the Alginate manufacturer's instructions. But the manufacturer indicates the amounts to be used in a standard way, and does not specify the quantities for each size of impression trays which is used according to size maxillary of the patient.

This creates frequently, that patients present the reflex of nausea and or feeling of asphyxia

during this process, because the amounts of Alginate indicated by the manufacturer is the same for all sizes of maxillary.

This research determines the exact amounts of Alginate for each size of impression trays mark Union with the nomenclature U2, U3, U4 exclusively in making record maxillary, to reduce the risk reflex of nausea and asphyxia in dental patients.

**KEYWORDS :** Biomaterial, Alginate, Impression Trays, Risk of asphyxia and reflex of nausea

### INTRODUCTION

During dental treatments such as the impressions of the maxillary, the reflex of nausea and the feeling of suffocation are evident and more common than is believed, since there are patients with a high development of this reflex at the time of these oral records.

It also causes it, using more of the impression biomaterial such as Alginate, because it tends to move towards the throat. This reflex is increased when it is not clear the size of the patient's maxillary, and the amount of Alginate is used as the manufacturer indicates, with standard size for all sizes of maxillary.

Alginate when placed in the impression trays to bring it to the mouth must be in a semi-fluid consistency and it remains so until it jellify is approximately 2 minutes. Long enough to provoke the gag reflex and the feeling of suffocation, which endanger the health of the patient.

Therefore, the present research was developed in the clinic of the Faculty of Stomatology of the Autonomous University of Puebla (Mexico), to determine the exact amounts of the combination of Alginate and water, in each size of impression trays that was selected which is according to the size of maxillary that each patient has.

### OBJETIVE

Determine the exact amounts of Alginate brand Tropicalgin from the commercial house Zhermack for the three sizes of the impression trays mark Union for the maxillary, and to minimize the possibility of nausea, vomiting and asphyxia.

### MATERIALS AND METHODS

Impression Trays kit standard print Rim-lock Union brand type was used, with sizes U2, U3 and U4, the biomaterial used was the Alginate brand Tropicalgin of the commercial house Zhermack, a 500 mg Scale and water dispensers.

Three groups were formed (A=U2, B=U3 y C=U4), 9 records of the maxillary were taken for each group, to go quantifying the amounts of Alginate until there were no surpluses and the reflex of nausea and risk of suffocation in patients were decreased.

The methodology was; the measurement of the impression trays was selected according to the size of the patient's arch, U2, U3, or U4. The Alginate was prepared in the proportions of the powder and water as

indicated by the manufacturer, Alginate 29 mg Tropicalgin mark with 39 ml of water, and from these proportions began to decrease the quantities until finding the exact measurement for each size of the impressions trays, and so, avoid excess of material flowing into the throat, which is what causes the reflex of nausea and risk of suffocation in patient.

### RESULTS





With the quantification of the proportions of Alginate and water for each size of the impression trays, a marked difference was observed in the volume, by not generating excessive surpluses, which usually they are addressed to the throat which causes the nauseous reflex and the sensation of asphyxia, in this procedure.



The results obtained by the exact amount for each size of the impression trays are as follows; Table 1 and Figure 1.

Group	Manufacturer quantity gr/ml	Quantification Alginate / water gr/ml
A (U2)	21gr/ 39ml	17gr/32ml
B (U3)	21gr/ 39ml	15gr/30ml
C (U4)	21gr/ 39ml	14 gr/29ml

**Table 1. Results. Estrada, B. (2017)**

**Figure 1 Material surplus. Estrada, B. (2017)**

Groups	21mg/39ml 2	17gr/32ml
A (U2)		
B (U3)		

C (U4)	21mg/39ml 2	14 gr/29ml
		

### CONCLUSIONS

When quantifying the proportions of Alginate and water, for each size of the impression trays, there was a change in the patient's behavior, to feel more comfortable, and showed a decrease in the nauseous reflex and the feeling of asphyxia during this dental procedure. It is therefore recommended to use the measures provided in this research, and not as indicated by the manufacturer for all sizes of impression trays the same amount of 21mg of Alginate with 39 ml of water, It must be customized according to the size of the maxillary to eliminate the severe reaction to the nauseous reflex and the sensation of suffocation and possible asphyxia.

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