Indian Journal of Mednodent and Allied Sciences
Vol. 2, No. 3, November, 2014, pp- 267-270

IndianJournals.com
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DOI : 10.5958/2347-6206.2014.00026.0

Original Research

Magic with Simple Materials-Admixture (Modified Impression Compound the Golden Standard)

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ABSTRACT

Making a good and an accurate impression is an art and science. Handling the properties of material and their selection is very important. An ideal impression material requires rigidity for dimensional stability and adequate flow for accuracy with an allowance for registering and finer adjustments. Incorporation of greenstick compound into impression compound makes it almost the perfect material of choice.

Keywords: Impression making, Prevention, Impression material, Fusing

INTRODUCTION

Complete denture impression techniques seem to be based upon various philosophies and personal preferences and our heads often whirl in an effort to choose the alternatives[1]. Good impressions are basic to the fabrication of a well-fitting denture. An impression should fulfil MM Devan's dictum 'it is perpetual preservation of what already exists and not the meticulous replacementof what is missing'[2].

Ideal impression must be in the mind of the dentist before it is in his hand. He must literally make the impression rather than take it[2]. The impression material is shaped and moulded into a negative likeness of the supporting areaa cast is made from this impression and the denture base is constructed on this cast. So handling the properties of material and their selection is very important. A single impression material or technique can be applied to all patients for achievement of the best results.

DISCUSSION

Making a good and an accurate impression is an art and science. Basic principles of impression making are

1. To cover the maximum possible denture supporting area.
2. To achieve the closest possible contact with the underlying epithelium.
3. To establish a PERIPHERAL SEAL.

Ideal properties of impression material

Materials using for making impressions should fulfil the following ideal properties

Commonly used materials for the primary impression are impression compound, alginate and putty. Out of which impression compound is used commonly. None of these materials alone satisfy all the properties.

Common problems with primary impression material

- Less tissue detail

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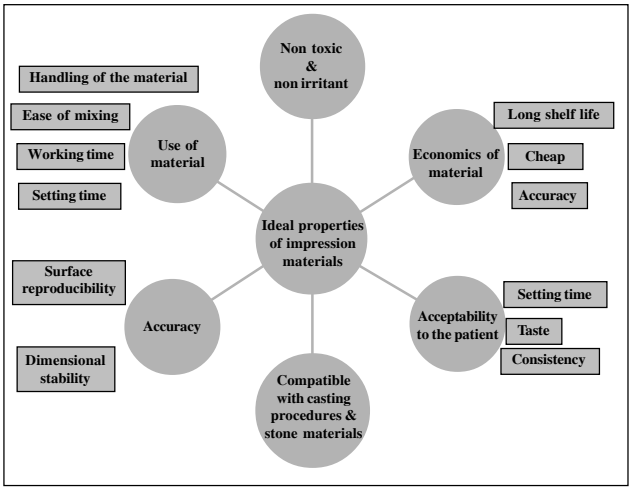


- Inadequate flow
- Short working time
- Quick setting
- Prolonged chair side time

Dental compound is a thermoplastic material. It softens under heat and solidifies when it is cooled. It contains resins, waxes, fillers and plasticisers. These compounds have certain properties such as high viscosity suitable flow and plasticity[1]. There are two specifications for the flow test, ADA and BS standard.[3] Based on temperature, dental compound may be divided into three groups[4].

- Low fusing: (softens at low temperatures) such as green stick, which is used for border moulding and impression with copper bands.
- Medium fusing: (softens at medium temperatures) is used for primary impressions for edentulous patients.
- High fusing: (softens at high temperatures) is used for making special trays, which are used common problems with primary materials are recording less tissue detail, inadequate flow, short working time, quick setting for the final impression[4].

Minimum flow is needed at mouth temperature but at 8 ºC higher than mouth temperature and compound should have proper flow. Therefore, at 45 ºC it is plastic and is able to record the impression[5]. Viscosity or flow of a compound depends on its components and the temperature. Slight change in temperature will affect the flow property. Viscosity or flow of a compound depends on its components and the temperature. Slight change in temperature will affect the flowproperty. In Figure 1, the flow changes versus temperature of a certain type of compound are shown. In the temperature range of 37 ºC-45 ºC, it has major flow changes (Figure 1).

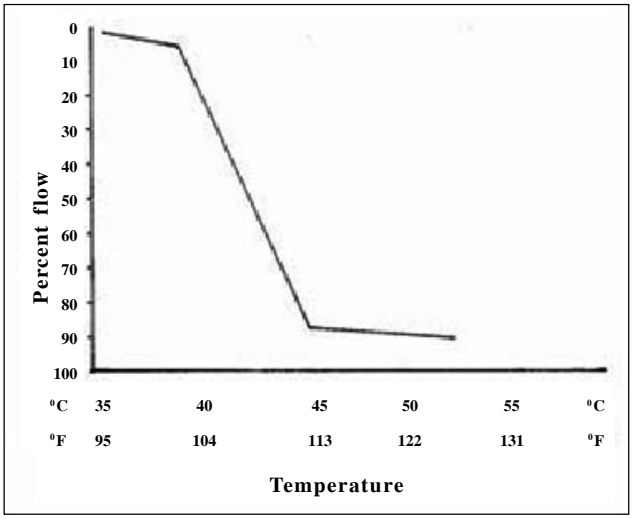


Figure 1: Flow change of compound with temperature

Plasticity is another aspect that ADA has specified and it is only pertains to type I. The substance should be able to record small grooves (with the width of 0.2-0.4 mm) of the test block at 45 ºC. The most important factors in the flow test procedure appear to be: (1) the age of the specimen at the time of testing; (2) slight temperature variations at the critical 40 ºC (104.0 ºF) flow temperature and (3) the chilling of the top of the specimen by the metal platen of the apparatus.[7]

Bevan (1963) in a research about properties of impression compound selected 20 representative materials available from British. Tests were carried out according to ADA standard. The compound should be melted under infrared lamp and kneaded in water

using a mixing hydrocolloid string. It was observed that a remarkable difference in flow exists between the various products at 37 ºC ranging from 1.3% to 81%. According to standard, maximum flow is 6% and 2% for type I and II, respectively[8].

Combining two materials to enhance the flow properties is called as admixture.

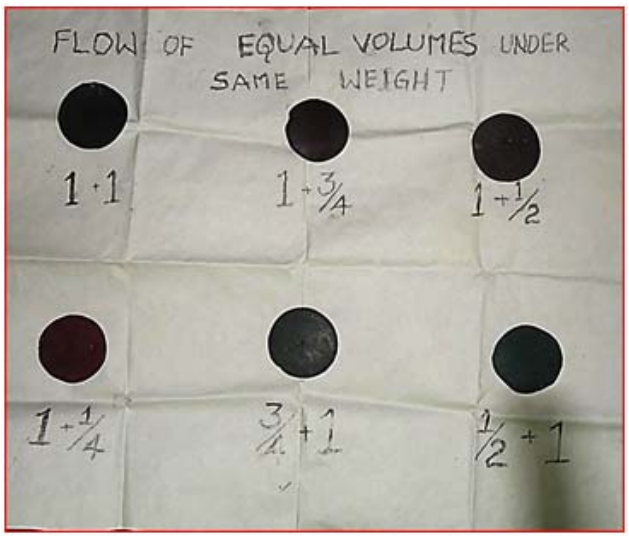
Compound	Admixture	Green stick
Can mix with other materials	Increased flow	Can mix with other materials
Economical	Obtain fine details	Economical
Repeatable	Less chair side time	Repeatable
Soften at lower temperature Less details	Controlled working time Economic	Soften at higher temperature Fine details
More chair side time	Rapid and easy to master	——

It observed combining two materials taking advantages of each we can get better impression comparing with compound alone.

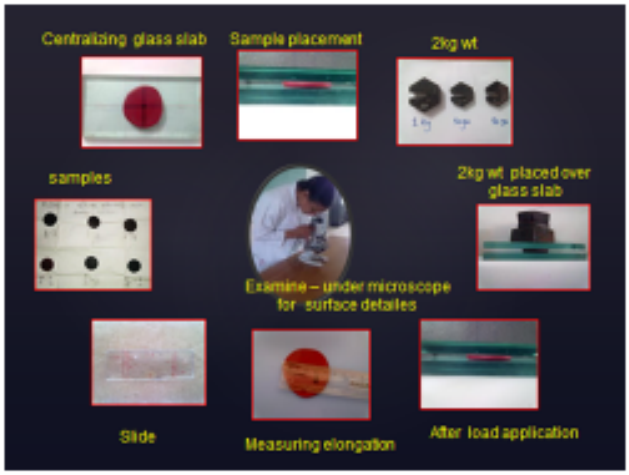
STUDY

Standardization: samples were prepared with ADA specification with 40 mm diameter, 5 mm thickness maintaining temperature 45°C and using 2 kg weight.

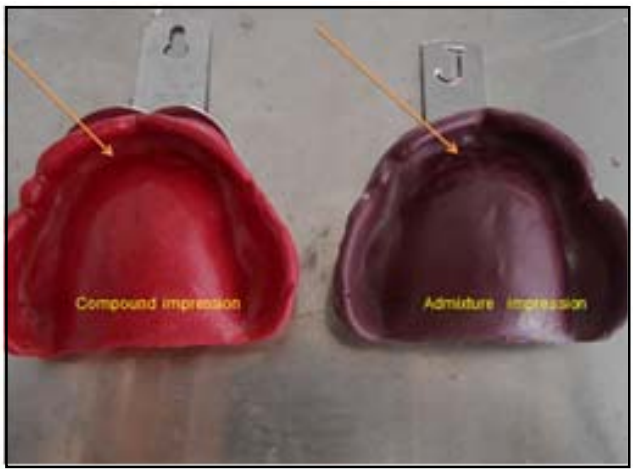
samples1c+1g 1c+3/4 g 1c+1/2g 1c+1/4g3/4c+1g½c+1g



Number of turnings 33- after elongation noted in each sample



Compound	Greenstick	Elongation	Clinical Implication
1	1	46mm	2nd flow
1	3/4	41mm	3rd
1	1/2	45mm	4th flow
1	1/4	43mm	5th
3/4	1	48mm	1st Good imp & viscosity
1/2	1	42mm	6th porosity and x viscocity



SUMMARY

For making an ideal impression, material requires rigidity for dimensional stability and adequate flow for accuracy with an allowance for registering and finer adjustments.

Incorporation of greenstick compound (one full length stick) into impression compound (three-fourth of compound cake) makes it almost the perfect material of choice, good and an accurate impression is an art and science. Handling the properties of material and their selection is very important.

CONCLUSION

'Good technique pays off' is not merely a motto to hang on a wall but there are words of wisdom. A good technique will indeed result in better treatment and improve patient care; comparing the present day work efficiency affordability and patient care, I feel 'Old is gold'.

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