Important Considerations Regarding Dental Impressions and Preparations! A successful crown depends on a multitude of factors. In order to be successful in crown and bridge work maximal attention to details is a must. There are a multitude of steps involved in the process of fabrication therefore any error along this process can lead to failures. Is therefore imperative to avoid taking any chances along the way. Please follow closely the following recommendations.



Magnification is a must when it comes to precision. A 3x magnification is good for a start but you want to work your way up to ≥4-5X (max. magnification available with loupes 8x)

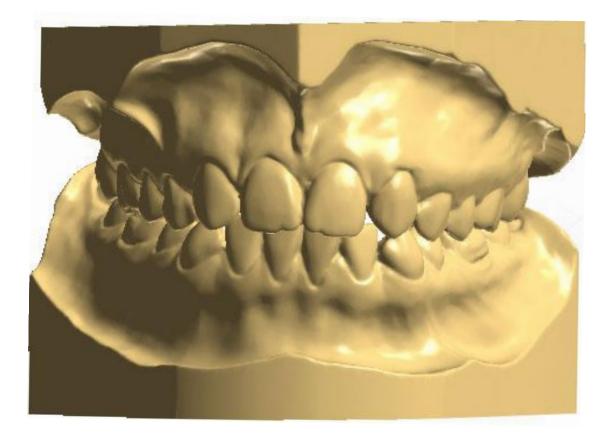
And don't forget to get a light with it.



For best comfort choose customized loupes, they allow a precise setting of the working distance!

### Study models are a must for all anterior cases

The gingival margins must be captured accurately!



## Recommended images for multiple anterior crowns



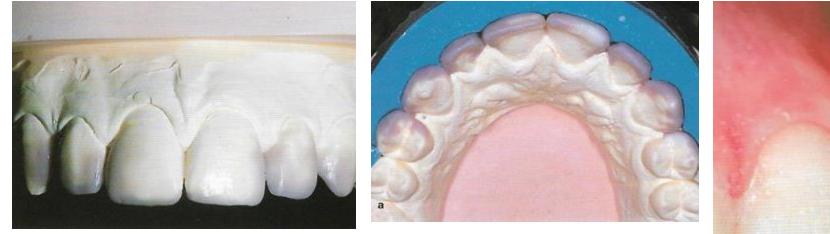
#### CLICK HERE FOR PHOTO INSTRUCTIONS

# Recommended image for single anterior crowns





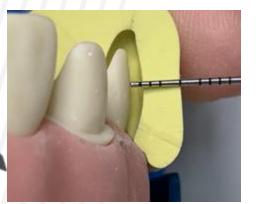
The wax up is guiding the reduction. The experience shows that those who don't use a precise way to measure the reduction usually get it wrong, despite using depth cutters. Always use a putty guide!







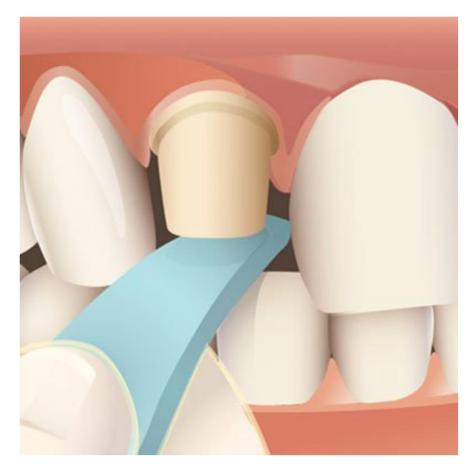
Once you start preparing you lose reference of were you started from. Is nearly impossible to tell exactly how much reduction you have unless you can measure it.







#### **Ensure correct occlusal clearance**



#### Flexible Clearance Tabs Sundries

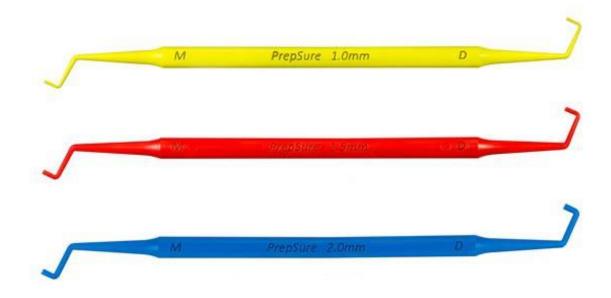
#### **Occlusal and Interproximal Space Guides**

Designed to make direct intraoral measurements of occlusal and interproximal tooth preparation clearances. Dentist places individual Flex Tab between the prepared tooth and its opposing occlusal surface to ensure sufficient clearance for the laboratory to develop a perfect restoration. Packed individually to be disposed of after use.

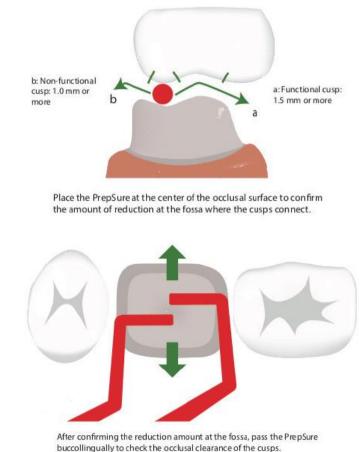
#### www.kerrdental.com

#### **Ensure correct occlusal clearance**

#### ContactEZ-PrepSure

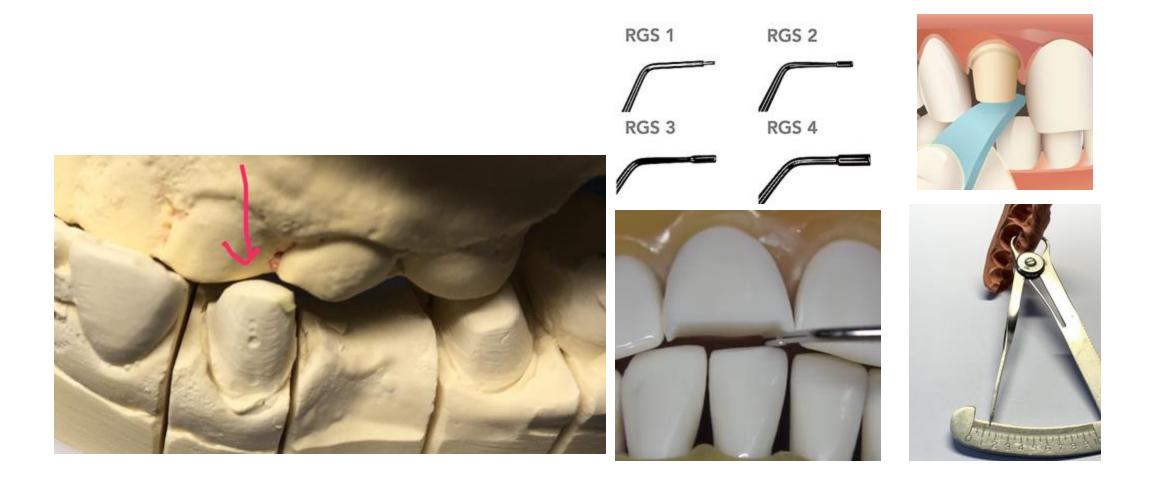


https://www.contacez.com/PrepSure\_c\_42.html https://www.youtube.com/watch?v=-5uS2E8I1IQ



Original artwork modified from Dr. Akikazu Shinya

#### **Ensure correct occlusal clearance**



# The preparation must be smooth no edges or sharp corners!





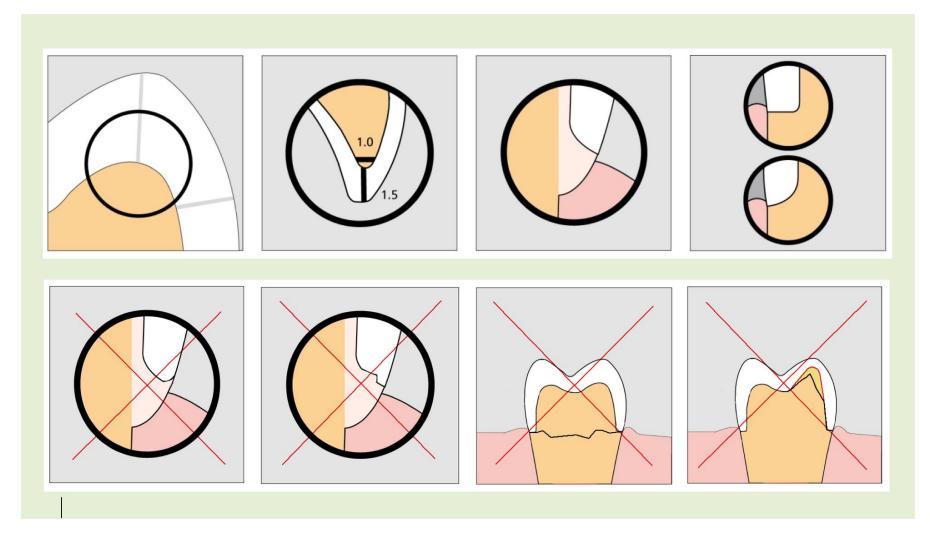
### Materials:

dictate the reduction requirements. In general, the more translucent the material the more reduction is needed. Please refer to our resources page for the material selection guide.

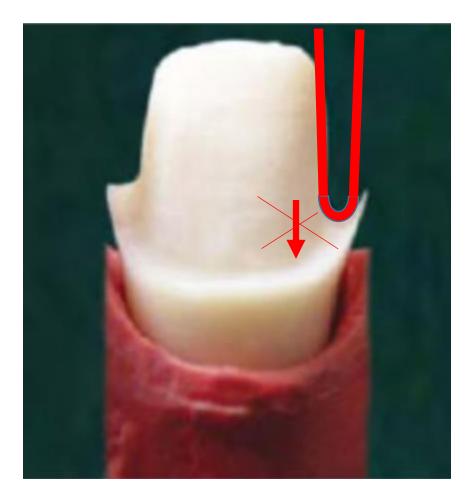


Source: R&D Dental Brekt, Rex lesistances measured in MRa in accordance with DIN EN (SO BET2 in the 3 point approach. Strengths can vary depending on the test methods and sample preparation. The values indicated in the DD processing instructions are inclusively determined by originated and sample preparation. The values indicated in the DD processing that 3 point values. Transformation of the processing of a spectrophotomater on 1 mm thick, polished samples.

#### Do's and Don'ts in Preparation



J Margin: An unsupported enamel ledge forms if the bur is push too far apically and axially. A such margin is nearly impossible to process in the lab without fracturing. The result is an open margin. A larger bur or special burs can be used to remove it.



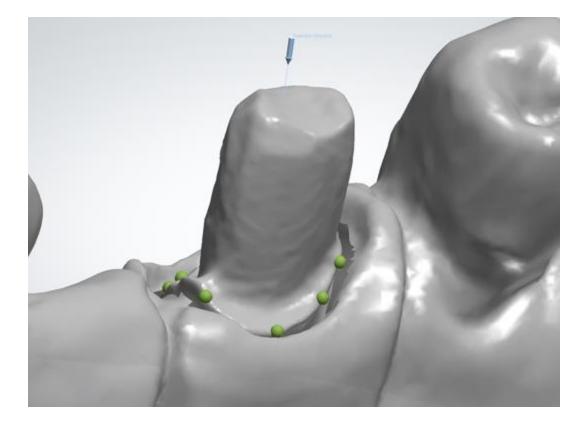


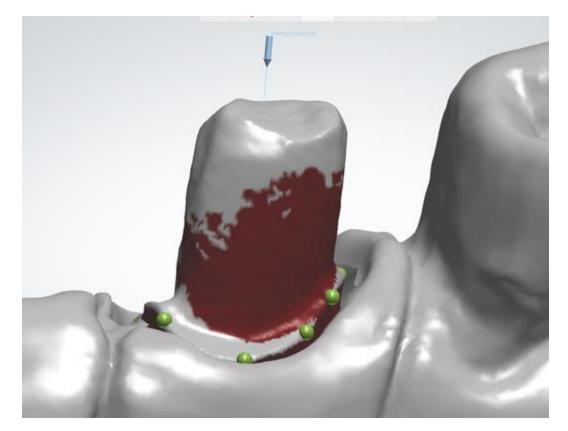




#### 10839-012

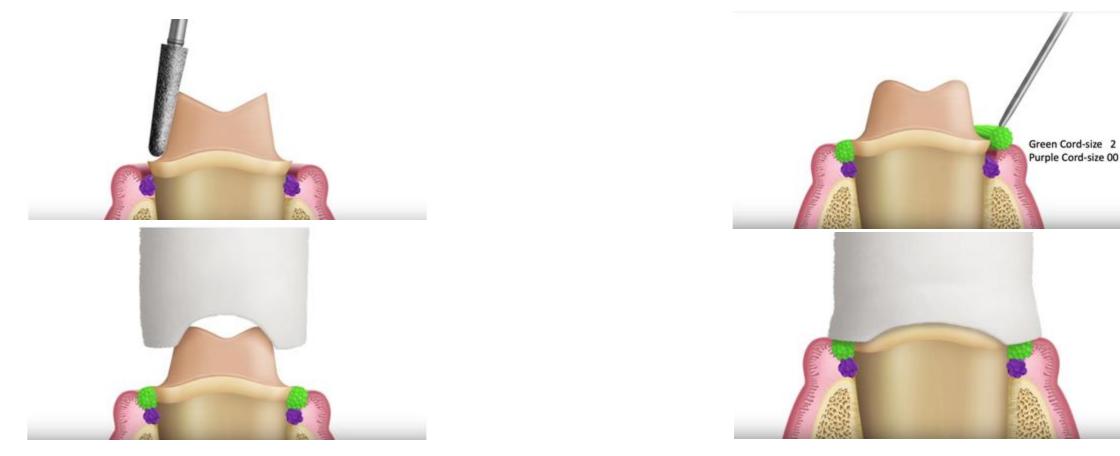
#### **Undercuts** Must be avoided. Please ensure a clear draw direction.



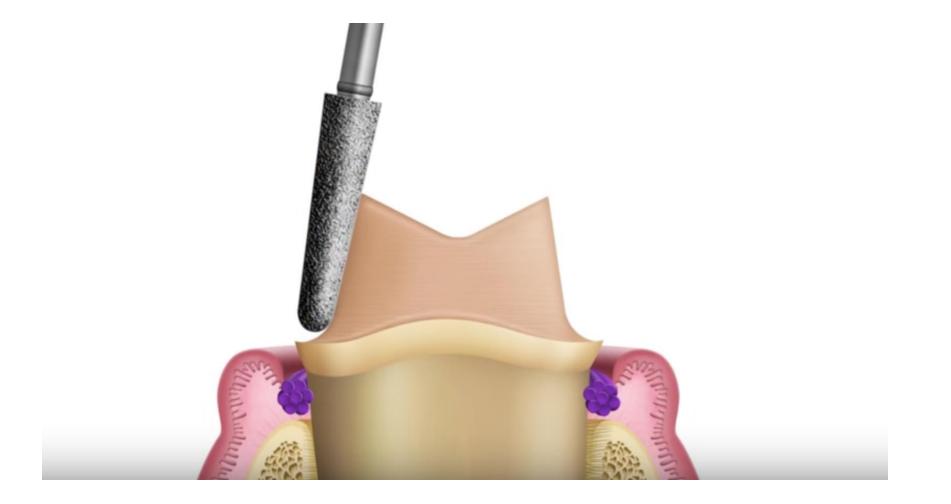


## Soft Tissue Retraction and Hemostasis

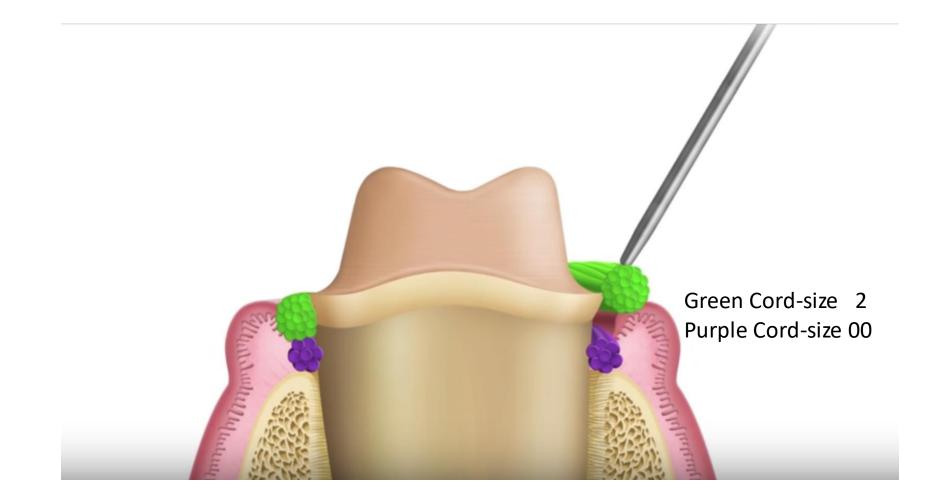
An adequate soft issue retraction and hemostasis is a prerequisite for a good impression. Ensure the maximum possible retraction without causing any tissue damage.



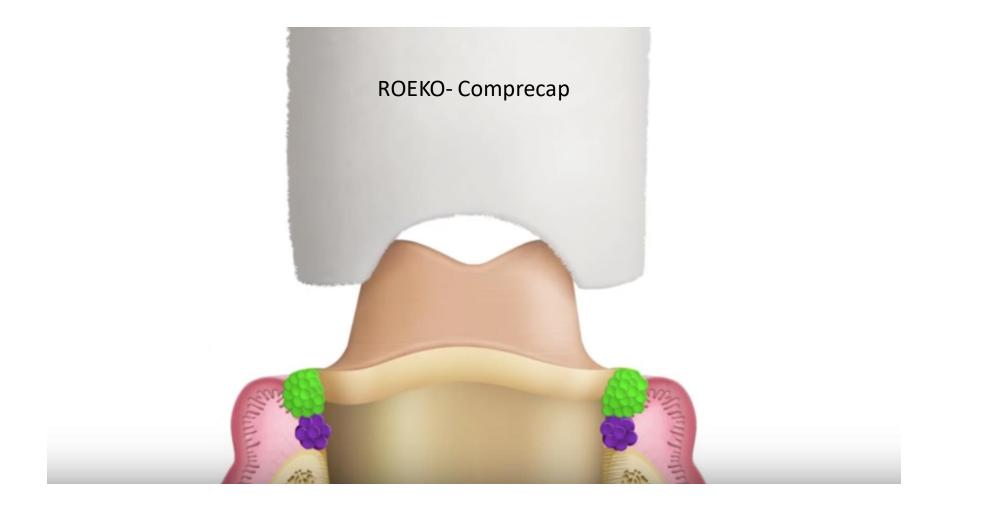
#### Soft Tissue Retraction: 00 chord



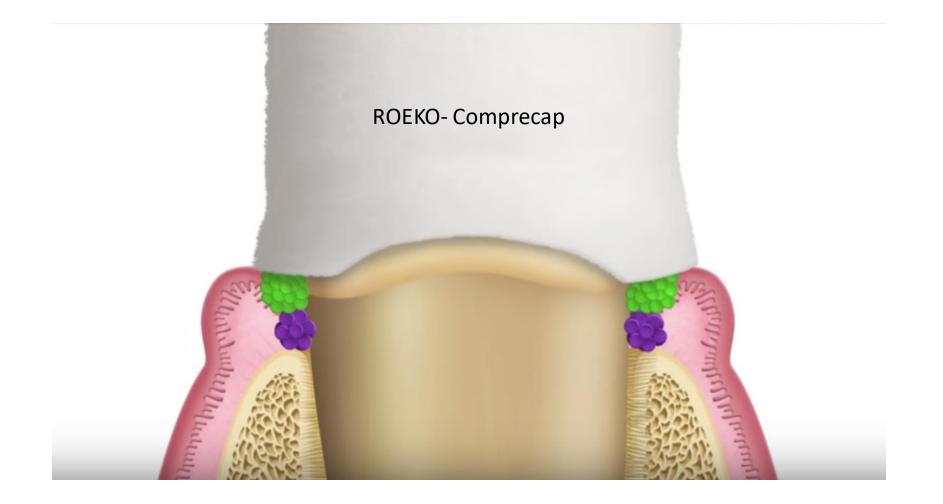
#### Soft Tissue Retraction!



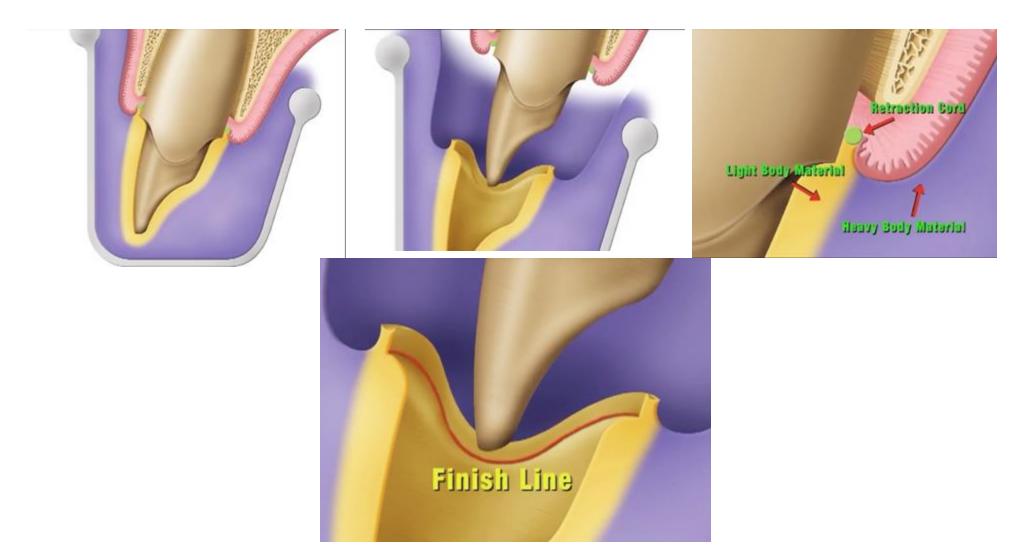
#### Soft Tissue Retraction!



## Compress for approximately 10 min



The second chord is removed affording good retraction so the impression material has a chance to penetrate the sulcus deep enough, pass the margin line and capture a clearly defined margin line.



#### IMPRESSIONS

Unfortunately the best preparation in the world is useless without a good impression!

In order to fabricate a crown that will fit well, be functional and aesthetic an impression that accurately reproduces ALL teeth in the arch must be provided. It is often overlooked in fixed prosthetics that a correct occlusion is dependent on all the teeth present in the oral cavity. An often overlooked and neglected aspect is the impression for the opposing arch. The opposing ach has to be accurately captured as well.

Modern all ceramics materials are very durable however incorrect adjustment can severely affect their longevity and affect the opposing dentition. In our experience that the chair side adjustments are not finished and polished to the same luster as in the lab, resulting in rough surfaces that will abrade the opposing dentition.

Accurate impressions of all teeth will allow us to give you crowns that will need minimal or no adjustments and qualify for a full warranty to the benefit of you and your patient.

Please follow closely our recommendations for impressions!

#### Always Use a Rigid Impression Tray or Custom Tray!



#### Heatwave

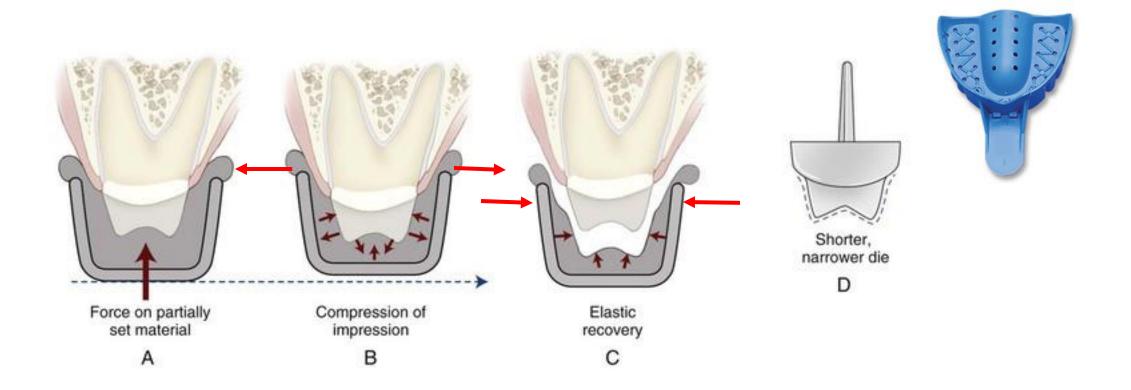
Customizable Impression Trays





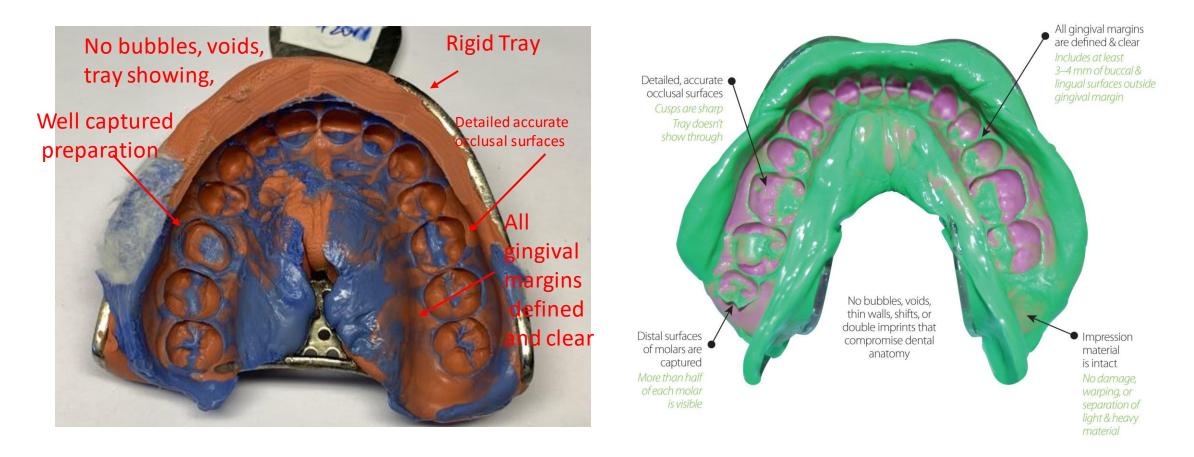
https://www.youtube.com/watch?v=ZJ\_grwL3IPU

# Most plastic trays are flexible therefore they are not suitable for crown and bridge work!



## Anatomy of a Good Impression

#### Light body must cover the whole arch!



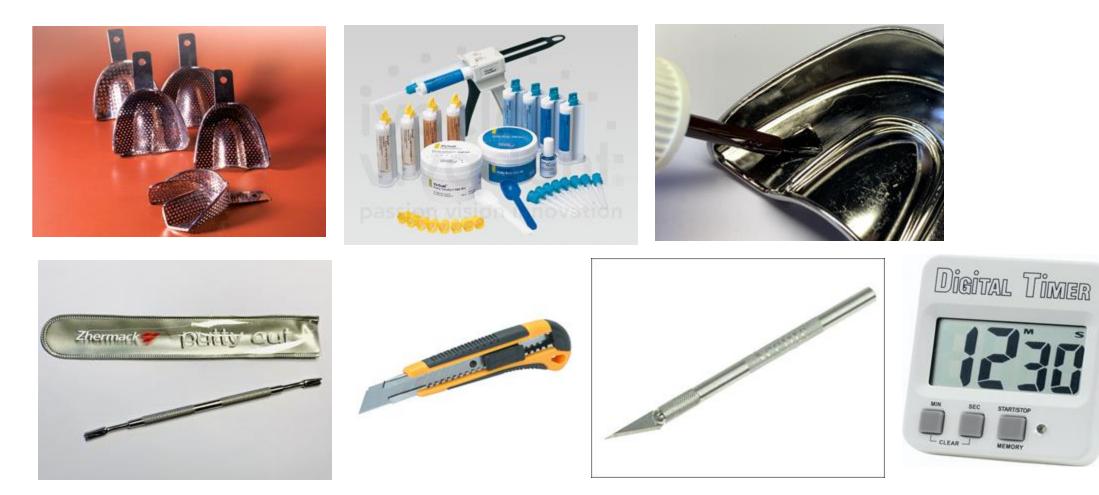
#### One Step Impression Technique Armamentarium







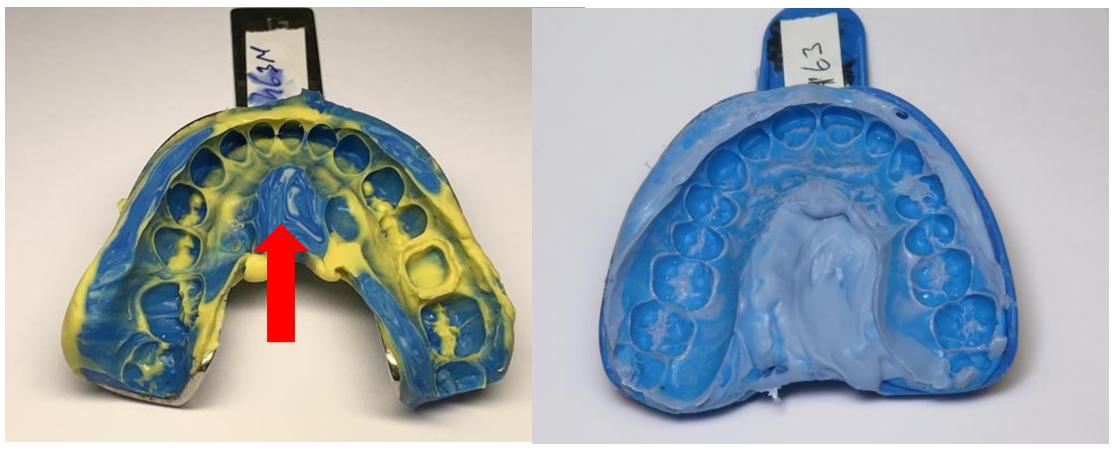
#### Two Step Impression Technique Armamentarium



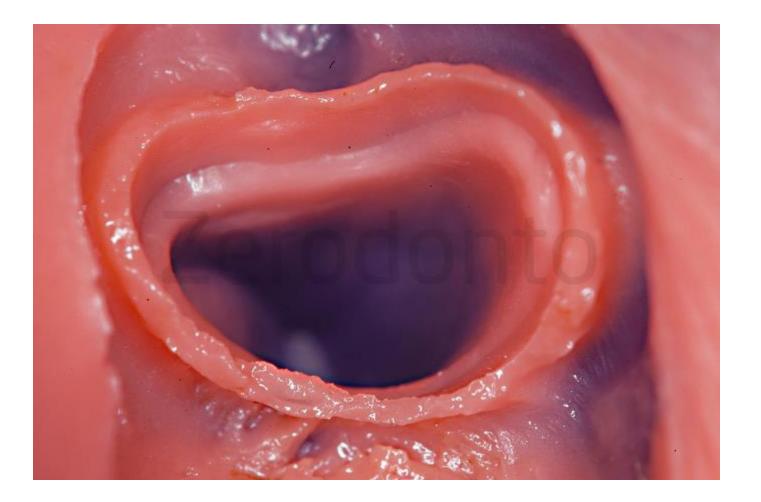


### Inspect the impression

Save your self and the patient some time by carefully inspecting the impressions before sending them to the lab.



#### What to look for: Ensure that the margins are well captured.





## Inspect for tray related problems :

Detached or loose impression material, unsupported impression material

Solution: Tray adhesive must always be used regardless of perforations!





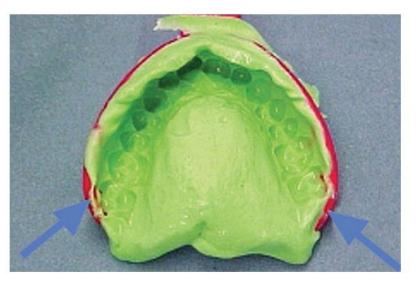


### Watch video

## For more impression troubleshooting please visit:

#### The 3M Impression Troubleshooting Guide

#### Always Inspect the Impression for defects



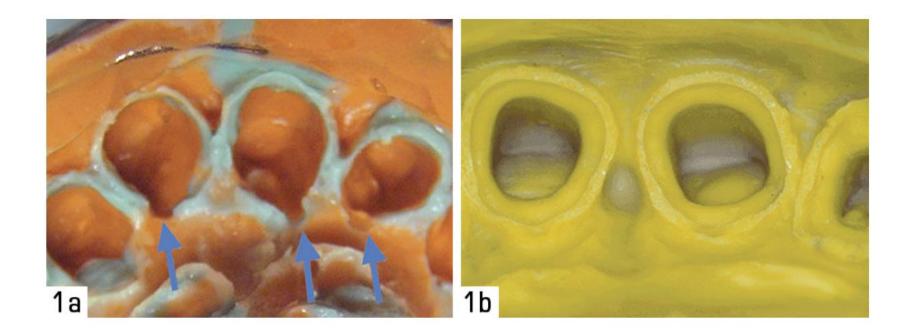




**Figure 5:** Use of too small of an impression tray leads to contact with the tray borders and the teeth (arrows).

**Figure 6:** Contact of the tray with the soft tissue may cause potential tray distortion.

**Figure 7:** Impression tray has not been inserted far enough posterior to capture details of the most distal teeth. Note: Excess material was evident in the anterior region due to poor tray placement.



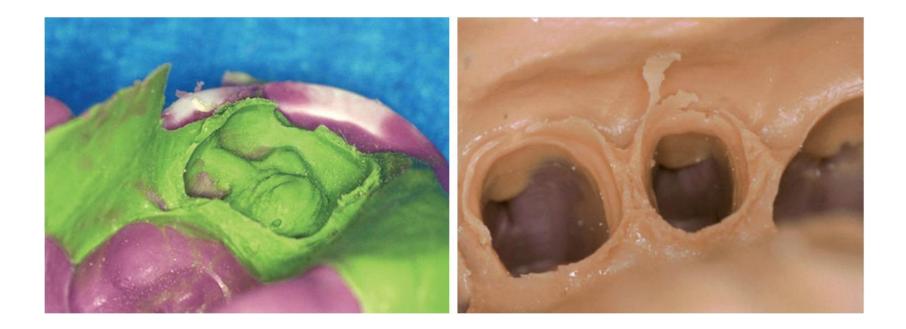
**Figure 1A:** Impression demonstrates the appearance of marginal voids (arrows). Figure 1B: Appearance of an impression with accurate marginal detail.

#### Look for bubbles!



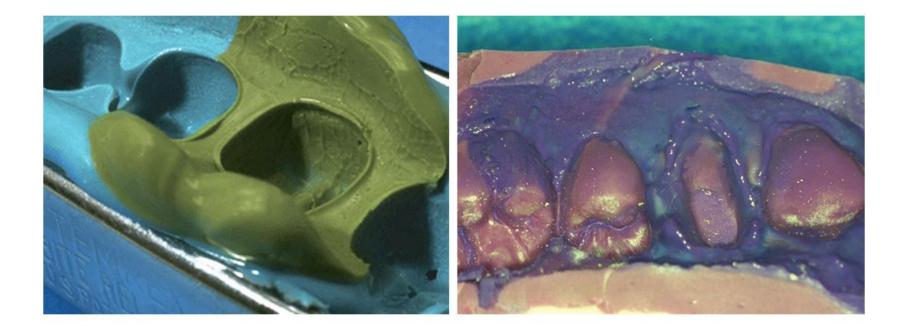
**Figure 2:** A bubble is located on the internal detail of the impression of the preparation (blue arrows).

#### Torn margins



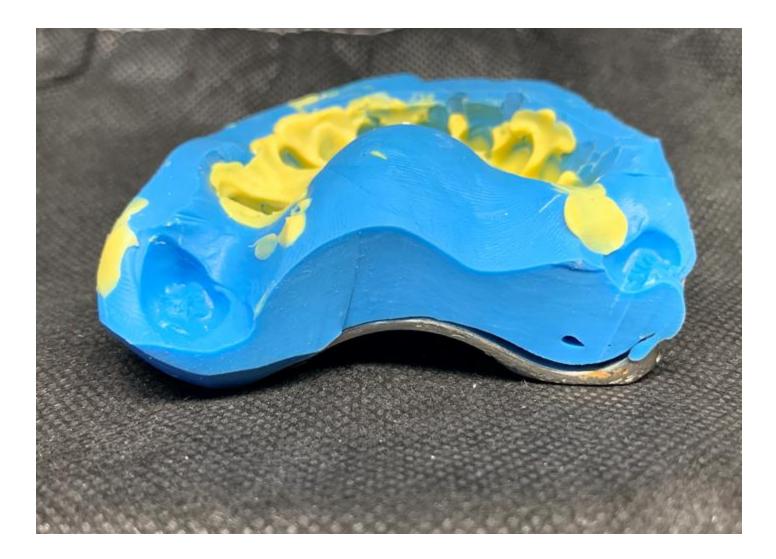
Impression material was torn at the margins!

#### **Unset material**



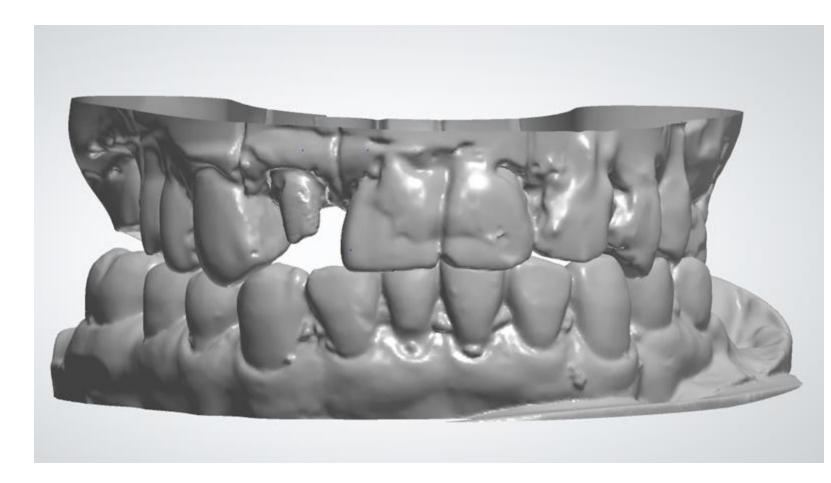
**Figure 14:** The polyvinylsiloxane material remained unset due to surface contamination.

#### Incorrect tray selection



### Most Frequent errors in Impression Taking

Lack of Definition : all teeth must be captured accurately



#### Solution:

Correct tray size Abundant light body material Avoid movement of the tray Allow full setting time



#### Solution:

Ensure proper retraction

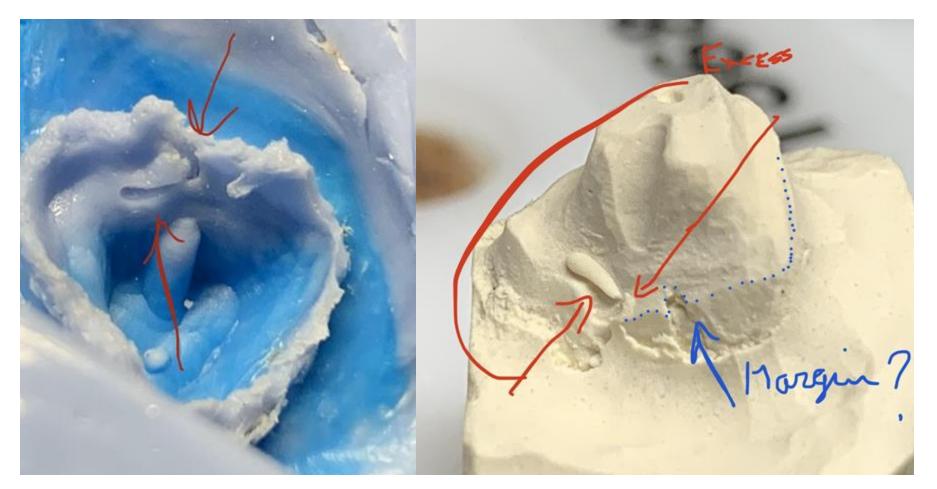
Do not exceed working time

Ensure haemostasis

Wash and dry thoroughly

Store the material at room temperature

#### Bubbles



#### Solution:

Correct syringing technique

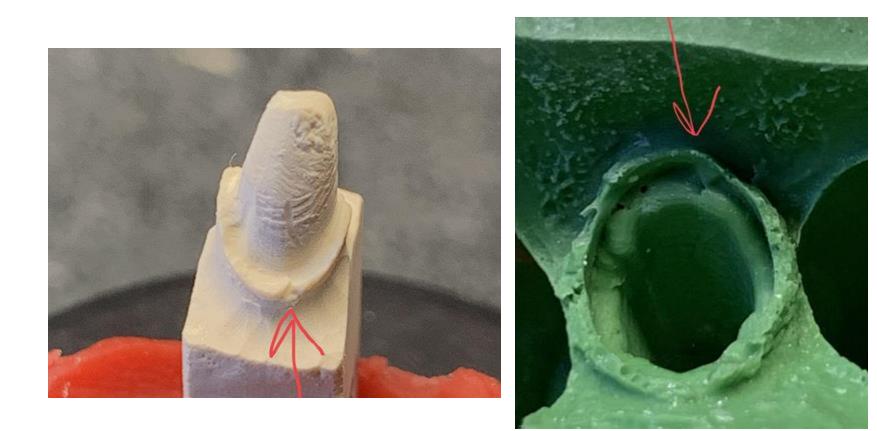
Do not exceed working time

Ensure haemostasis

Wash and dry thoroughly

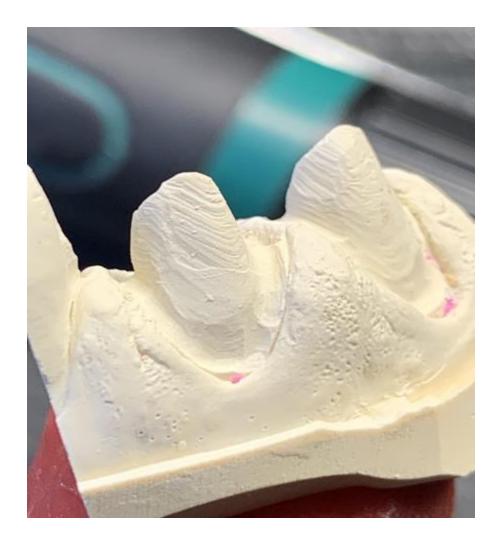
Store the material at room temperature

## Defects



#### J-margins and sharp edges





### Errors in Impression Taking

Margin tears



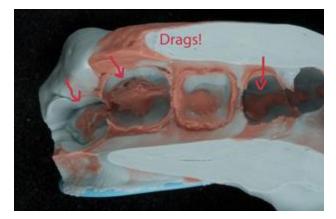
#### Solution:

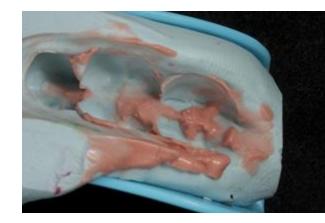
- Proper retraction
- Use a timer
- Ensure a good mix
- Check expiration date
- Clean the prep
- Use a higher tear resistance material

## Drags

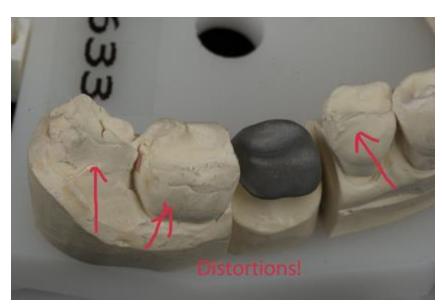


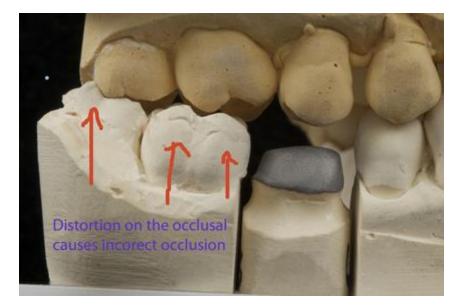
# Erroneous occlusion due to inaccurately captured neighboring teeth



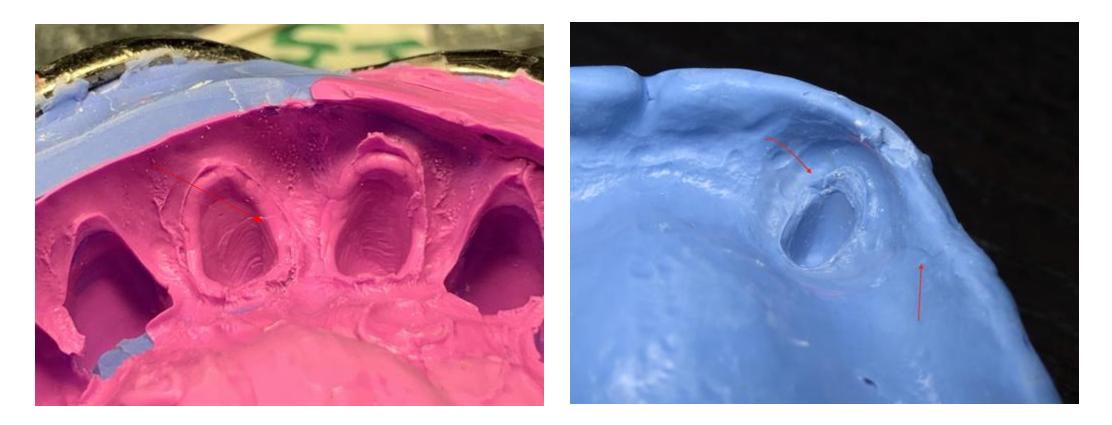








# Repairs: as much as possible avoid repairs of the impression.



## Poor margin detail



#### Materials don't blend together



#### Bite Registrations

For a more accurate bite registration, please limit the extent of the bite registration material to the extent of the preparation site! This will allow you to see better the occluding teeth. Before taking the bite registration please make the patient occlude a few times. Observe one firm contact on each quadrant make a mark or remember it. After the patient bites on the registration material, go back to those marks and ensure that the contacts are the same and no shift has occurred. If in doubt, please repeat!

Silicone bite materials are great to use only when you make detailed and accurate impressions with light bodied material all over the arch. However if your impressions are not detailed, they will not fit the models, thus resulting in an incorrect articulation.

A wax bite created by folding a wax sheath four times and cut to the right length can work very well.



#### Video references:

- <u>https://www.youtube.com/watch?v=VU7ox3j9Fkw&t=1185s</u>
- <u>https://youtu.be/nPUGdCQ5g6o</u>