

Setting inhibition	
Problem and cause	Solution
Mixing vessel was washed with cleaning agent.	Clean the mixing vessel, if necessary rinse off cleaning solution etc. with clean water and dry thoroughly.
Water residue in the mixing vessel altered the mixing ratio.	Dry the mixing vessel thoroughly after use.
Water used for mixing was too cold.	If possible use distilled water at room temperature for mixing.
Borax was added to the mixing water.	Setting inhibitors should not be used due to possible reduction in quality.
Blood and saliva debris was not removed from the impression.	Clean the impression thoroughly before pouring.
The plaster was not mixed long enough.	Adhere to the manufacturer’s mixing times.
Hydrocolloid impression was not neutralized with potassium sulphate solution.	Immerse hydrocolloid impressions in a 2 % potassium sulphate solution.
Plaster was stored unsealed and could absorb moisture from the air.	Store plaster in airtight containers at room temperature.

Setting acceleration	
Problem and cause	Solution
Set plaster residue adhering to the mixing vessel, mixing paddles or spatula.	Clean the mixing vessel with clean water immediately after use.
Trimming water was added to the mixing water.	Do not use setting accelerators (reduces the quality of the plaster).
Salt was added to the mixing water.	Do not use setting accelerators (reduces the quality of the plaster).
Plaster was stored unsealed and could absorb moisture from the air.	Store plaster in airtight containers at room temperature.
Too little mixing water was used.	Adhere to the manufacturer’s recommended mixing ratio.
There were particles of set plaster in the plaster mix.	Clean the mixing vessel, if necessary rinse off cleaning solution etc. with clean water and dry thoroughly.
The plaster was mixed too long/spatulated too heavily.	Adhere to the manufacturer’s recommended mixing times.

Increased expansion	
Problem and cause	Solution
Trimming water was added to the mixing water.	Setting accelerators should not be used.
Salt was added to the mixing water or plaster mix.	Setting accelerators should not be used.
Plaster was stored unsealed and could absorb moisture from the air.	Store plaster in airtight containers at room temperature.
Set plaster residue adhering to the mixing vessel, spatula /mixing paddles etc.	Clean mixing vessel immediately after use with clean water and dry thoroughly.

Low final hardness	
Problem and cause	Solution
Trimming water was added to the mixing water.	Only mix with distilled water.
Salt was added to the mixing water.	Do not use additives with the mixing water.
Ratio of water was increased.	Adhere to the manufacturer’s recommended mixing ratio.
The plaster mix was spatulated too long (disrupting crystal formation).	Adhere to the manufacturer’s recommended mixing times.
More water was added during mixing.	Do not add any more water after the soaking time.
The plaster mix was poured when it had begun to set.	Always adhere to the time recommended by the manufacturer for pouring the plaster.

Porous surface	
Problem and cause	Solution
Plaster was stored unsealed.	Store the plaster in an airtight container at room temperature.
Air was trapped during manual mixing.	Stir mix (do not beat) the plaster powder and water quickly for max. 60sec. against the sides of the plaster bowl (to eliminate any plaster lumps).
The vacuum pump was not switched on during mechanical mixing or the air outlet of the mixing vessel was blocked.	Check the functioning and seals of the pump, mixing vessel lid and air outlets.
Blood and saliva residue was not removed from the impression.	Clean the impression thoroughly and disinfect if possible before pouring with plaster.
Sections of the alginate impression were already dry.	Pour alginate impressions immediately after cleaning and disinfection.

Cracks in the model	
Problem and cause	Solution
The plaster used for pouring and basing the model was not fully set before being trimmed.	Allow the plaster base to set completely.
During setting water was removed too quickly from the plaster, e.g. due to the absorbent paper base.	Base the models on a non absorbent surface.
Too little water was used for mixing the plaster.	Adhere to the manufacturer’s mixing ratio.
The model was dry before removing wax and had not been wetted.	The model should be briefly wetted beforehand (do not soak, as it would increase the expansion). Do not use boiling water to remove wax.

Streaky, distorted plaster model surface	
Problem and cause	Solution
Deformed/damaged impression.	Retake impression.
Model removed too early from the impression.	Wait until the plaster is completely set. Depending on the type of plaster, allow 30 to 45 minutes before removing the model from the impression.

Some soft areas on the surface of the model	
Problem and cause	Solution
Residual wetting agent or disinfectant in the impression.	Liquid residue, which could inhibit setting, should be carefully removed (e.g. by blowing dry).

Broken off teeth	
Problem and cause	Solution
Model removed from the impression too early.	Wait until the plaster is completely set. Time may vary between 30 to 45 minutes, depending on the type of plaster. Adhere to the manufacturer’s recommended waiting time.
Inclination of the anterior teeth not taken into consideration when removing the model.	Remove the impression according to the inclination of the anterior teeth.
Impression material too hard.	With highly resistant, hard impression materials, first remove the tray from the impression material and then carefully remove the now more flexible impression material from the model.

Increase in the expansion and reduction in the strength of the set model	
Problem and cause	Solution
Too much water came into contact with the model after it was removed from the impression (e.g. during trimming and boiling off wax).	Keep contact with water to a minimum. Do not use boiling water. Use dry trimmers if possible.

Reduction in detail reproduction on finished model	
Problem and cause	Solution
The impression was poured using a plaster with reduced flowability and the plaster had begun to set.	Adhere to the manufacturer’s recommended working time. Only use flowable plaster.
The model was cleaned in an ultrasonic cleaner.	Models should not be cleaned in an ultrasonic cleaner.

Non parallel saw cuts on the model	
Problem and cause	Solution
Saw blade was blunt.	Change the saw blades before they become blunt and ensure the teeth of the saw are correctly positioned.
Plaster too hard.	It is best to saw the dies within 2 hours of setting.
Too much pressure was applied to the saw, causing distortion of the saw blade.	Saw without applying pressure.

Damage to the preparation margin when trimming (e.g. rounded preparation margins)	
Problem and cause	Solution
Incorrect/too coarse trimmer was used.	Only use trimmers that ensure the dies are not damaged during trimming. Ensure the handpiece is set to the correct rpm (too low = “chatter marks”).

Unsatisfactory fit of removable dies in the model base	
Problem and cause	Solution
Grinding dust, plaster particles etc. prevent exact repositioning of the plaster die in the model base.	Clean all connecting parts, e.g. with a brush. Compressed air should always be used with caution.
Plasters with very different expansions were used for the dental arch and model base.	Fabricate the dental arch and model base using materials with the same expansion if possible.