

HYDRATION PROTOCOL

UNISIL

Unisil is a silicone hydrogel material and will need to be hydrated differently to normal hydrogels. Silicone is naturally hydrophobic and will resist hydration at normal temperatures. Additional energy in the form of heat will need to be used during the process in order to achieve full hydration. Failure to do this will result in lenses failing to meet target powers as the refractive index of partially hydrated lenses will be higher than anticipated from the certificate of conformity.

Protocols

Contamac suggests the following protocols to ensure the complete hydration process of contact lenses manufactured from Unisil silicone hydrogel material.

Contamac recognises two types of incubation ovens common in the manufacturing of contact lenses. Isothermal and Ramp Program incubation ovens.

The advantage of using a ramped protocol is that the temperature in the oven can be increased and reduced gradually, thus avoiding the possibility of thermal stresses being introduced into lenses due to too rapid heating or cooling.

Depending on the type used in the manufacturing operation, follow the relevant protocol below.

If you require further advice our experts can assist.

1. Isothermal Incubation:

- I Place dry lens in vial containing Buffered Saline (BS) with a pH 6.8 - 7.5 @ room temperature
- II Cap vial and shake for 30-seconds to prevent lens sticking to walls of vial
- III Hydrate in BS @ room temperature for a minimum of 2-hours
- IV Place in an Oven at 95°C and incubate overnight (>16 hours)¹
- V Allow lenses to cool to room temperature for a minimum of 2-hours (after 95oC incubation)
- VI Change BS for fresh solution
- VII Measure hydrated lens parameters upon change of BS solution
- VIII Package lenses
- IX Autoclave lenses for a minimum of 20 minutes

2. Ramp Program Incubation:

- I Place dry lens in vial containing Buffered Saline (BS) with a pH 6.8 - 7.5 @ room temperature
- II Cap vial and shake for 30-seconds to prevent lens sticking to walls of vial
- III Hydrate in BS @ room temperature for a minimum of 2-hours
- IV Place in an oven and implement the following program conditions:
 - A **START TEMPERATURE** 23°C
 - B **RAMP** up to 95°C in 'STEP' mode
 - C **HOLD** at 95°C for 15-hours¹
 - D **RAMP** down to 23°C in 'STEP' mode
 - E **END** program
- V Once the oven has cooled to <40°C remove lenses and allow to settle at room temperature for at least 1-hour
- VI Change BS for fresh solution
- VII Measure hydrated lens parameters upon change of BS solution
- VIII Package lenses
- IX Autoclave lenses for a minimum of 20 minutes

¹ The 95°C HOLD can be reduced if necessary but to not less than 12-hours. However, it is generally considered beneficial to HOLD the lenses at 95°C for as long as possible to ensure that they are fully hydrated.