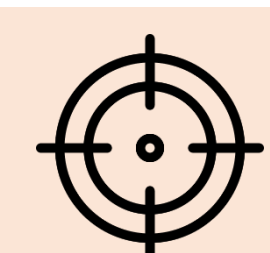


Introduction

- Thermoplastic masks are used to immobilize patients' **head & neck** region during radiotherapy.
- NCCS, Division of Radiation Oncology, is currently using masks from **Orfit Industries'** but there are alternative options available for thermoplastic masks in the market to explore.



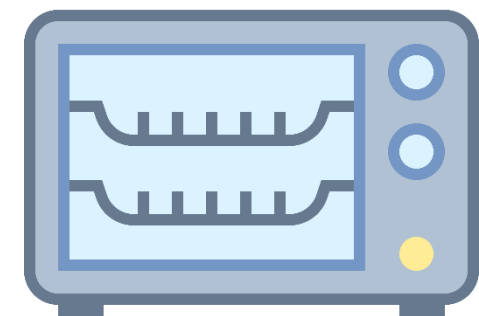
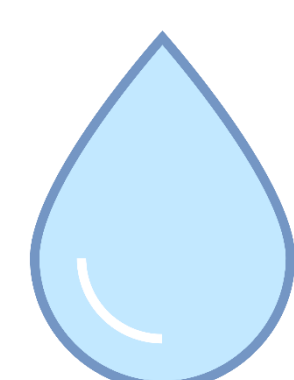
Objectives

- To **score & evaluate** the current masks (Orfit Industries') against masks from other distributor (Klarity Medical) available in the market for radiotherapy.



Methodology

- Current masks from **Orfit Industries'** were compared against 3 different masks from **Klarity Medical** (Type A, B & C) based on the following factors:



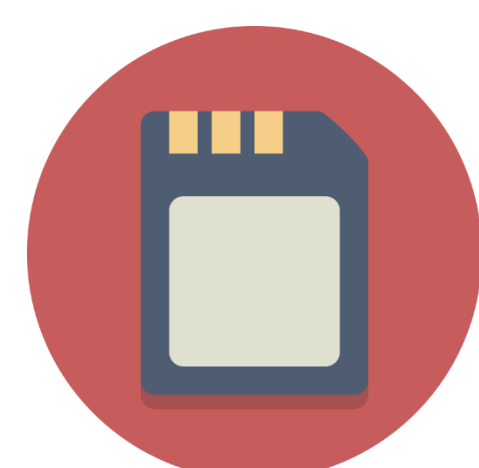
Water Bath & Convection
Oven Compatibility



Moulding Duration



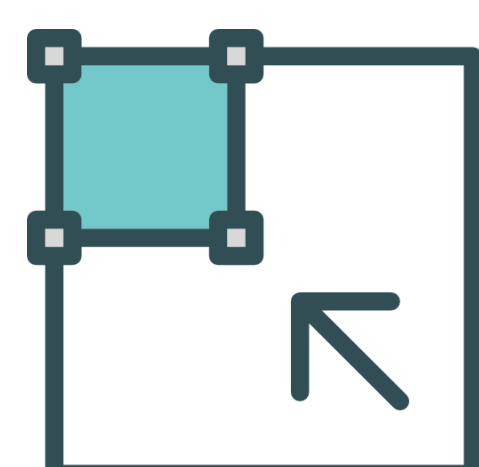
Compatibility with Current
Shell Bases



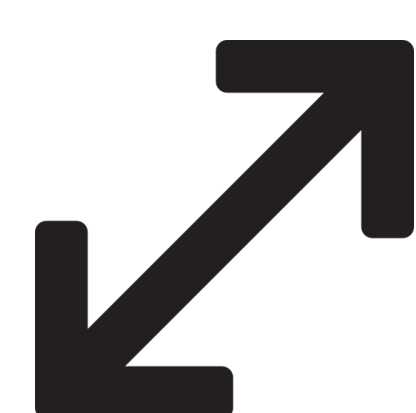
Memory



Cooling Down Duration



Material Shrinkage



Ability To Stretch

- The results were compiled and a **weighted polar plot** was generated to visually represent the scores of individual thermoplastic masks.



Results

- All the masks were **compatible** with **water bath/convection oven** during fabrication and fits the existing baseplates.
- Overall scores for all thermoplastic masks are as follows:
 - Orfit Industries' – 83%
 - Klarity Medical Type A – 65%
 - Klarity Medical Type B – 63%
 - Klarity Medical Type C – 63%
- Klarity Medical Type A** thermoplastic mask scored the highest for **moulding duration**, with a duration of 2 minutes.

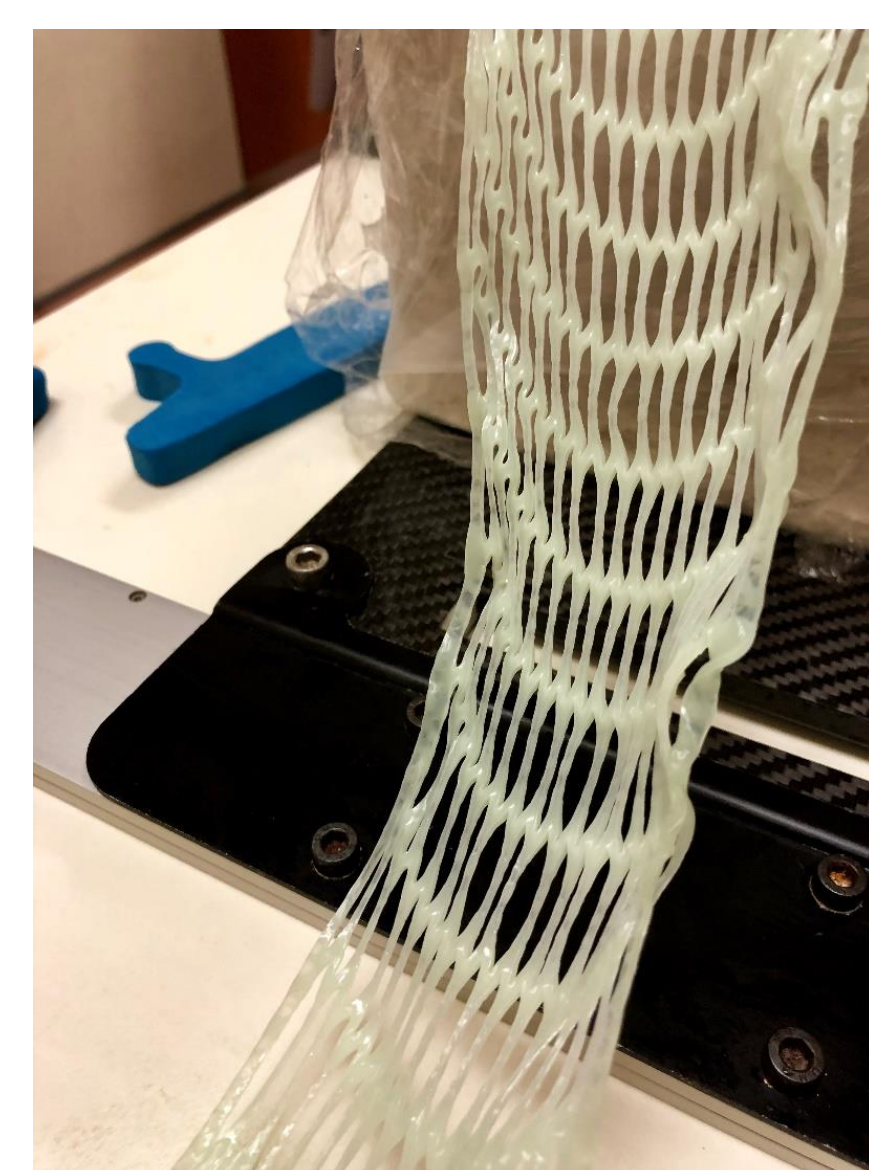


Figure 1: Klarity Medical

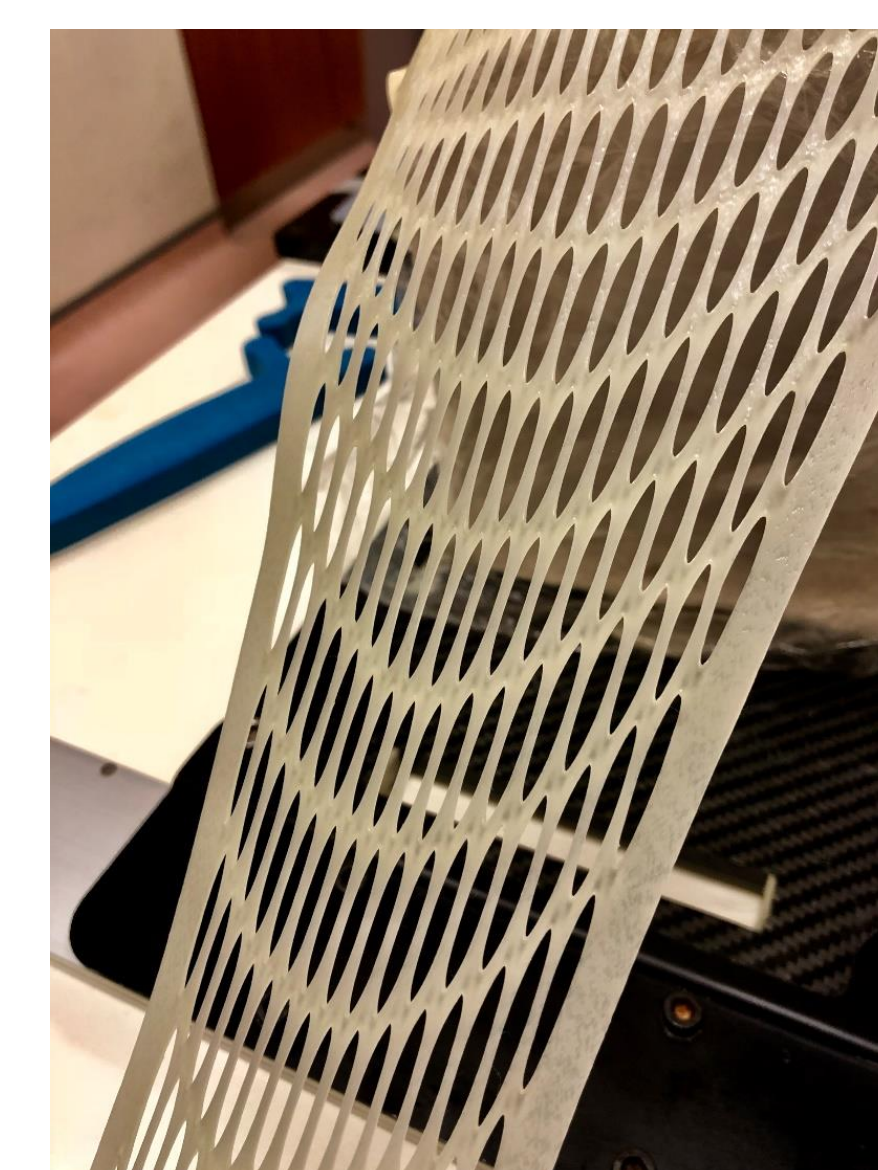


Figure 2: Orfit Industries

- Orfit Industries'** thermoplastic mask is the only mask with the **ability to stretch** at an extended length without losing its structural integrity as illustrated above in Figure 1 & 2.

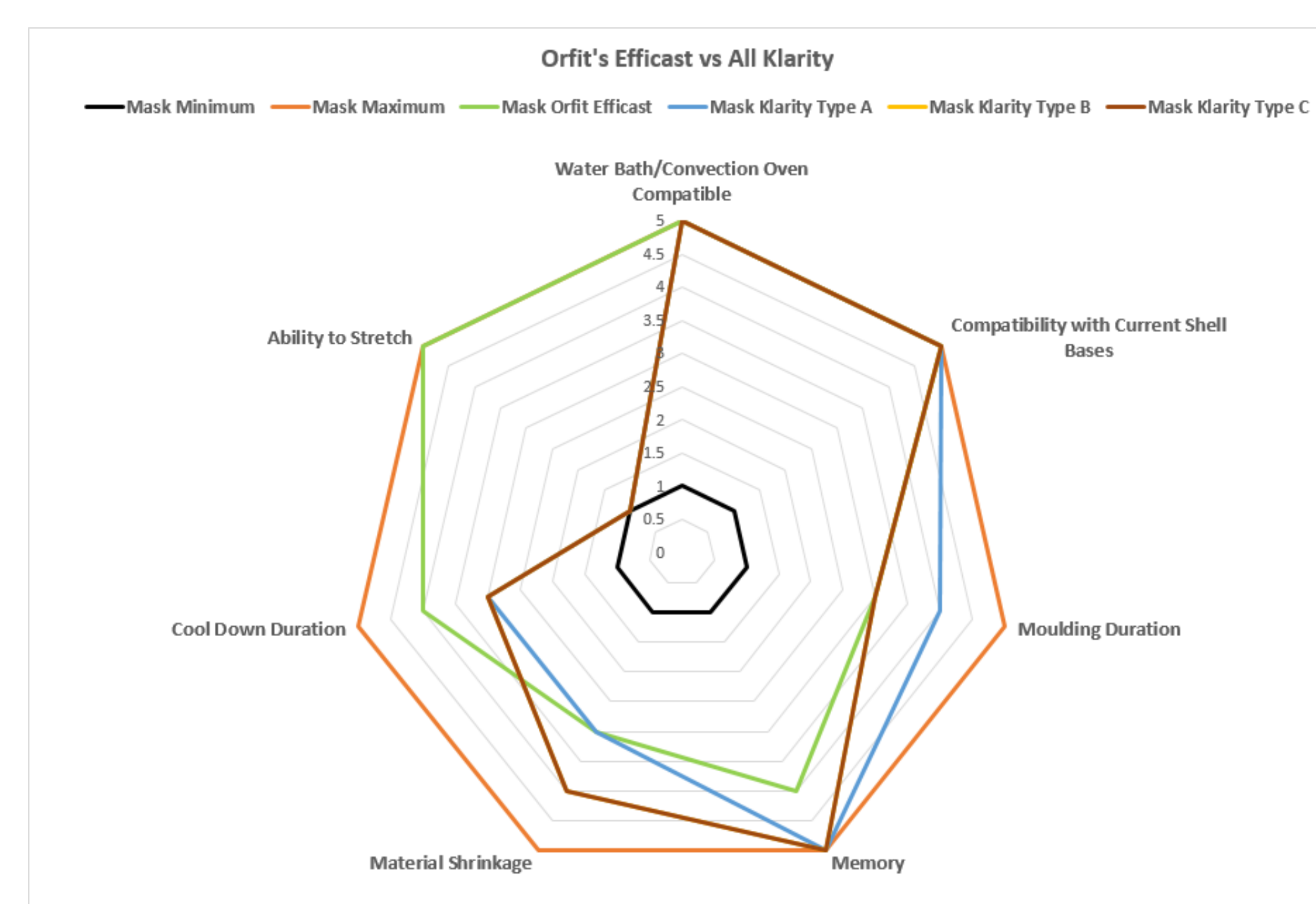


Figure 3: Weighted Polar Plot Representing All Masks



Conclusion

- Orfit Industries' thermoplastic masks was characterised with **longer cooling duration** and higher **ability to stretch** which facilitates better material handling during clinical fabrication.
- Having the highest overall score of **83%** against the 3 thermoplastic masks from **Klarity Medical**, the department chose to continue using thermoplastic masks from **Orfit Industries'**.