



# The James

Ohio State is a Comprehensive Cancer Center designated by the National Cancer Institute

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## Shrinkage and Thermoplastics

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**Introduction:** Thermoplastics in Radiation Therapy have made great strides over the past twenty years. With all of the improvements, one main problem still exists, that being the shrinkage of the masks. This shrinkage causes the patients discomfort and in some cases the making of a new mask. We will look into this by comparing three different masks.

**Method:** Using the Klarity Green, Klarity White, and CIVO head only masks we will look at the differences in shrinkage. All three masks were placed into a water bath at a temperature of one hundred sixty degrees Fahrenheit for two minutes. Each mask was removed and placed on a phantom head and left to dry. Once dry the masks were measured with a caliper. The masks were again measured after twenty four hours. The difference in the size would determine the percentage of shrinkage.

**Results:**

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Characteristics	Klarity Green	Klarity White	CIVCO
Thickness	3.2 mm	3.2 mm	3.2 mm
Molding Time	90 - 120 sec.	30 - 45 sec.	45 - 60 sec.
Drying Time	≅ 8 mins	≅ 5.5 mins	≅ 7 mins
Amount of Shrinkage	6%	13%	15%

**Conclusion:** Out of the three masks, the Klarity Green had the least amount of shrinkage. It also allowed the greatest amount of time to mold the mask on the phantom head. These two together make for a more comfortable mask, which leads to less patient movement. Taking these into account, Klarity Green would be the choice for Radiation Therapy.