

TOILET BOWL:

By Britt Corra

BACKGROUND

Often times the importance of certain things that we use everyday in our lives go overlooked. What goes into creating these things? Why was it made the way that it was? The answers to these questions are often related to the type of material that goes into creating the object. The toilet we use everyday, but have you ever wondered what is it made of, and how it was made? The toilet does not have to stand up to very strong forces, but it does have to be durable and last a long time. The processing of the toilet is very important in determining the materials to be used in its construction.

OBJECTIVE

The toilet material selection is largely process based since the toilet is one large piece of material. The toilet only has to withstand the weight of a person and many materials are capable of doing that. The mechanical strain put on the toilet is not very large in considering its size and shape. The optical properties of the toilet are important in the material selection, since no one wants to see what is in there. The material should be smooth to the touch for cleaning and for appearance. Weight is not that important, but still the material must be light enough to move into a house and light enough so that it does not put too much stress on the floor on which it sits.

REQUIREMENTS

The mechanical properties that should be met are a tensile strength of 40 ksi in order to hold the largest person. The material should be very hard with a Vickers hardness of more than 350 HV. The material should be a poor conductor of heat and should most definitely be opaque. As far as the processing, the material should be able to be painted or printed using vitreous enameling so that it will look appropriate in someone's home. The possible shaping processes are powder methods (powder injection molding) and regular molding. Cost is also an important issue when considering a material to use to make the toilet, not only the cost of the material itself, but also the processing cost.