



Article review

Process Parameter Experiments on Vacuum Casting
Using a Silicone Rubber Mold for ABS Plastic Parts



Main idea

Find out the factors that affects hardness of plastic.

Find out the factors that affects pouring characteristics of plastic.



Experiment

Dynamic Taguchi's experiment

$$Q_{pouring} = (I_P + I_Q + I_R + I_S) / I_{max}, \quad 0 < Q_{pouring} < 1 \quad (2)$$

where I_P , I_Q , I_R , and I_S are the levels of the four appearance elements; I_{max} is the sum of the maximum level of the four. In this case, I_{max} is equal to 37.

I_P - color and luster

I_Q - plastic height of the pillar

I_R - gas hole of the bottom plate

I_S - filling proportion of the bottom plate



Conclusion

The major affecting factors to the pouring quality are **vacuum degassing time** and **mold preheating time**.

Improvement rates due to **vacuum degassing time** - **38.94%**

Improvement rates due to **mold preheating time** - **65.46%**

Thank you for listening.