







obtained. This model can be used simply as a way of storing the geometry of the ice or as a test model in further studies of

the icing phenomenon



**Figure 2: Ice casting forming**

#### D. Materials Considered

Silicone rubber compounds were chosen for molding operations, and epoxy and urethane compounds for casting operations. The properties sought in these materials and the benefits derived from these properties are given for both the molding and casting materials in table I.[3] The most current information on these properties was obtained from DowCorning Corp. and General Electric Co. for their respective mold-making compounds and from Ciba-Geigy Corp. and Hexcel Corp. for epoxy and urethane casting materials.

Excellent detail of ice formations can be reproduced in molds by using the proper materials and techniques. The experiments demonstrated that it is possible to use a silicone rubber molding material below 0 °C and still have reasonable curing times. It has also been shown that an accurate, tough, and merchantable permanent model of ice formations can be cast from previously produced molds through the use of selected urethanes and epoxies

A new process that is just entering production is the “SLIC” process developed by metal casting technology, a joint venture of General Motors and Hitchiners mfg.co., development of this process was undertaken with the aim of producing steel automotive castings in high volume and at low cost was undertaken with the aim of producing steel automotive castings in high volume and at low cost that would have many of the advantages normally associated with investment casting: dimensional accuracy, surface finish, integrity and thin sections. The process combines aspects of investment casting and lost foam casting. To avoid long heating sections, the mold is heated from inside out. The process starts with a foam polymer “tree” containing multiple foam patterns and coating this as in investment casting, to obtain a relative thin shell, the tree is then backed by loose sand and heated internally until the pattern is fully removed and the inner section of the mold has been heated to the desired temperature for casting. Casting is then done by counter gravity. The process has the potential to bring many of the advantages of investment casting to the automotive market along with substantial reduced cost and energy usage.

#### 5. Conclusion

In this paper the design essence of the constructed droplet based manufacturing machine is told. And dependency of droplet properties to machine adjustments is studied. Study on lost foam casting and casting ice formation was also made successfully.

Thus these casting process are few of the innovations that have taken place in recent history in the field of casting.

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