

Properties of Flameworking glass and the effectiveness of heat affecting the glass during the formation stages

Prof. Ezz El-Deen Abd El-Aziz Hasan

**Prof. of Design and former Head of the Glass Department, Faculty of Applied Arts,
Helwan University**

Ezzeldin_abdrbo@a-arts.helwan.edu.eg

Prof. Hossam El-Deen Nazmy Hosny

**Prof. of Glass Production Methods and ways, Faculty of Applied Arts, Helwan
University**

Hossamnazmy6@yahoo.com

Assist. Lect. Amal Khaled Abouseif

Assistant Lecturer in glass Department, Faculty of Applied Arts, Helwan University

Amal.khaled.abouseif@gmail.com

The Abstract:

Glass Rods and Tubes are used to form Glass products using Lampworking Techniques. Borosilicate glass and Soda-lime glass are the most common used glass in forming with lampworking, usually Borosilicate glass is used in Blow forming, while Soda-lime Glass is used in forming with sold rods. Both those types of glass are forming from a group of chemical elements, which their chemical interaction between each other affect groups of natural and chemical elements that each type of those glass are unique with it.

The chemical composition and physical properties of glass and their relationship to the heat resulting from the flame torch are an important factor influencing the mechanisms of formation, thus affecting the achievement of the aesthetic and use requirements of the glass products formed from them, as well as on the final form of the product Therefore, it is important to study these glass types' properties and the flame of the torch and the heat produced from it during the heat forming process.

And here comes the problem of research in the reduction of the glass production system with lampworking restructuring techniques due to the lack of sufficient information on the properties of glass and factors affecting lampworking glass during heat formation. The aim of the research is to identify the factors affecting the lampworking glass and to show the effect of heat on the glass product during the formation stages. The research assumes that identifying the factors associated with the heat formation of lampworking glass increases the ability to employ them to meet the requirements for the good composition of these products. And this research has discussed several axes including: (Types of flameworking glass, raw materials compromising glass and explain the chemical interaction between each other, Factors impacting flameworking glass during heat forming, The chemistry of the flame and its effect on the glass used in formation, Annealing systems, Thermal properties of some of flameworking glass and their using specs during forming), And the paper has reached some results, including: (Identifying the most important factors affecting the flameworking glass during heat formation process, Show the effect of the chemistry of the flame on the properties of transparent and coloured glass during their forming stages, specify the Thermal properties of some types of flameworking glass that is most commonly used and their using specs while heat forming).

Key words:

Types of Flame working Glass-Thermal properties of Glass-Types of torch Flames for Lampworking/Flameworking