

STUDY ON IDENTIFICATION OF CHROMOFORIC IMPURITIES IN GEUDA AND CONSTRUCTION OF A MINI FURNACE FOR GEUDA HEAT-TREATMENT

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Although geuda has been heat treated for more than three decades the role of the chromoforic impurities has not yet been fully understood. Heat treatment of different varieties of geuda from four different geographical regions in the country, using a specially manufactured mini furnace to reach the optimum temperature, has proved that the development of colour is largely heterogeneous and variable in intensity from one stone to another.

Observation of chromoforic impurity concentrations in geuda under the microscope using reflected light and transmitted light, with the samples immersed in a liquid of sulfur diluted with pure methylene iodide to have a refractive index of 1.76, revealed a specific type of an impurity. It appeared as a "tea-colour" impurity, having an "opaline" character similar to that of "diesel" when examined in transmitted light. Examination of the samples after heat treatment clearly showed that this impurity is responsible for the development of blue colour in geuda.

So, it has become evident that any geuda lacking in this impurity fails to produce the blue colour and remain more or less whitish after heat treatment. Examination of all the heat treated samples has proven that the heat induced colour of geuda is dependent upon the intensity of this "tea-coloured" or brownish colour impurity and that it can be used as an indicator to predict the nature of distribution, crystallographic orientation and the strength of concentration or the intensity of the heat-induced blue colour in geuda. This finding facilitates the geuda dealers to select proper grades of geuda to produce desired tones of blue colour after heat treatment and reject the material which does not produce a satisfactory heat induced blue colour.