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POSSIBILITIES FOR THE USE OF LOW EMISSIVITY GLASS
BY SURFACE COATING MANIPULATION WITHIN
A CREATIVE CONTEXT

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Possibilities for the use of low emissivity glass by surface coating manipulation within a creative context

Eileen Leatherland 2012, University of Sunderland

Abstract

Artists in many areas of creative glass have used float glass due to its low cost, physical reliability and extensive sheet size. To date, the creative use of the coated insulating glass known as 'low emissivity' has not been explored. Pilkington K Glass is one of several coated low emissivity glasses developed in response to increasing energy conservation demands from the construction industry.

The accidental use of a piece of Pilkington K Glass during studio artwork firing revealed an unexpected iridescent surface effect with unusual interferential colouration. To explore this creative potential, a full investigative programme was necessary. The research was undertaken from the perspective of a studio artist using a series of small scale tests leading to the making of artwork. This was an experimental approach driven by creative goals but also influenced and verified by procedures such as systematic analysis to determine repeatable criteria and microscopic examination to gain knowledge of the structure of the fired coating.

Unusual effects of strong reflective colouration and iridescence were achieved through surface manipulation of K Glass by abrasion and subsequent firing at temperatures above 750°C. Manipulation by sandblasting and fusing with traditional float glass has enabled the development of an original method named the 'Mirror Gap Technique' which exhibited inter-layer interferential colouration from gold to purple. These methods and the adaptation of standard float glass procedures at temperatures above 750°C were then expanded into the creation of artworks to further develop innovative effects and applications.

This project has developed and documented new possibilities that can be applied to several areas of creative glass. Exhibition and sale of the artwork as well as commissions involving multiple productions of conference gifts and company awards have indicated that low emissivity glass can be used creatively and that this research may have a commercial application. The research has been extended to examine other low emissivity coatings and provides the glass artist with an alternative palette of techniques and effects.