The Effects of Water Exposure on Surface Characteristics of Acrylic Emulsion Paints

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As acrylic emulsion paint is a relatively new artistic medium, much about its properties and conservation remains unknown. The low glass transition temperature of acrylic paints causes the paint surface to be soft and slightly tacky at room temperature, thereby attracting dirt and dust which can become embedded. The cleaning of acrylic paintings continues to be a subject on which there is little consensus, with conservators using a variety of dry and wet techniques. This study, as part of an ongoing project, focused on the effects of water on the surface of the paint film. Colour and gloss measurements, visual examination, light microscopy and scanning electron microscopy were used before and after exposure of the samples to water to characterize the surface and the effects of contact with water. Different paint colours (titanium white, black, burnt umber, ultramarine blue and alizarin crimson) from different manufacturers were swabbed or immersed for either one minute or 24 hours in distilled water. As formulations from different manufacturers continually change, the object of the study was to identify trends, rather than results that would remain constant over time. The swabbed samples showed very little or no colour change, but gloss changes were measurable. For all manufacturers, titanium white samples showed the least amount of colour change after swabbing and immersions and ultramarine blue samples showed the greatest. In this experiment, swabbing or immersing the samples did not cause components of the paint to appear on the surface, but in some instances, did disperse or remove materials already on the surface.