

# How Red is Cadmium Red?

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## Abstract

Interest in the colour reproduction of artworks and artefacts is gaining more significance, as it is now recognised that some artefacts are too delicate to be exhibited and some important landmarks are no longer around due to damage by war or climate change. This brings a need for further research in how to obtain and transmit accurate colour information for the reproduction of texture, three-D artefacts, and the reconstruction of lost colour and heritage colours. There is a need to regain an understanding of the cultural implications of colour and an emerging area of discussion in relation to resilience.

Cadmium red refers to a chemical colour that has been used and loved by artists for centuries, yet this extremely toxic colour is under threat. Cadmium is used in batteries, for electroplating, jewellery, footwear, and of course, paint. The restrictions on cadmium, like chromium or mercury, are obviously necessary for us and the environment, but have posed a problem for many industries reliant on these materials. A key challenge has been the costs involved in remanufacture using alternative materials. In the context of new legislation relating to heavy metals such as cadmium, ink manufacturers, for example, are now forced to reconsider the content of their inks and replace toxic pigments and materials with more environmentally safer versions.

Yet despite the change in the constituents of the paint, the naming traditions that are so closely associated with art history are still used by paint manufacturers. The romance of Cadmium red remains even though distant from its traditional and cultural origins. Many the pigment colours of the 15th and 16th centuries are far removed from the dyes and acrylics of the 21st century, but the naming of these new equivalents uses the terminology originally generated from the materials or associations of their forebears. The question remains: what impact does this have for the colour restorer or colour conservator? How might conventions and standards in colour naming for the paint manufacturer or the domestic paint industry be developed?

We ask how red is the Cadmium red that is now available? Based on an inspection of traditional and contemporary paint charts, many variations of hues associated with Cadmium red can be seen. The range in saturation and hue will be explored. We also look closely at how a red hue that is loosely associated to a heritage name is used in the 21st century.

Albeit seeming a somewhat narrow question, it is predicated on a much larger enquiry that looks at the implications arising from a situation in which colour manifest in material form is an increasingly rare commodity. This has occurred due to the rise of digital fabrication technologies, redistributed manufacturing, applications for mimicking paint colours and brush strokes, and 2.5D printing. The challenge of the sustainability of using some colour sources and their resilience has also constrained colour use. In an apocryphal story by Jasper Fford about a world where colour is indeed synthetic (*Shades of Grey: The Road to High Saffron*), green is piped to the grass to colour it green, and colour is collected as a rare commodity. The question here is: what is the

future of colour – as computational versions or facsimiles of chemical colours or colour that is salvaged?

In a world of seemingly plenty, our resources are dwindling, yet colour remains a vital resource for our economy, society and culture. Our diversity of geography means that environmental colour, the colour of the stuff with which we build our dwellings, and those with which we describe our built and natural environments, have imbued our culture with a wide sensibility in respect of how colour works in everyday contemporary life, but we need to understand how we manage its integrity and our language for describing this resource in the light of new technology and care for the lived environment.

## Author Biography

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